PREPARED BY GDS ASSOCIATES, INC.

Illinois Baseline & Potential Study

Prepared for the Joint Utilities (Commonwealth Edison, Ameren Illinois, and Nicor Gas)

FINAL VERSION

December 13, 2024

GDS Associates, Inc.
ENGINEERS & CONSULTANTS

MichaelsEnergy

CADMUS

brightline GROUP

MAD DASH FIELD SERVICES

GDS Associates, Inc.
ENGINEERS & CONSULTANTS

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Prepared For:
Commonwealth Edison
Nicor Gas
Ameren Illinois

Prepared By:
GDS Associates, Inc
1850 Parkway Place
Ste#800
Marietta, GA 30067

In partnership with:
Michaels Energy
Cadmus Group
Brightline Group

AKNOWLEDGEMENTS: The GDS Team would like to acknowledge the collaborative efforts of the Joint Utilities (Commonwealth Edison, Ameren Illinois, and Nicor Gas) as well as the interested Parties that were represented in the Baseline and Potential Study working group that met weekly from September 2023 through October 2024 to discuss issues related to the market research activities and market potential study methodology. The working group was comprised of the following organizations whose input was invaluable during the study. Beyond members of the GDS team, these organizations include:

Commonwealth Edison (ComEd)
Nicor Gas
Ameren Illinois
Illinois Commerce Commission
Illinois Attorney General Office
Natural Resources Defense Council
National Consumer Law Center

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1 EXECUTIVE SUMMARY

The 2023-2024 Illinois Baseline and Energy Efficiency Potential Study was funded by the ratepayers of Ameren Illinois, Commonwealth Edison, and Nicor Gas (hereafter referred to as the "Joint Utilities," or "Utilities") with the content of the work collectively overseen by the Utilities, several stakeholders, and Illinois Commerce Commission Staff (collectively referred to as "the Parties").

1.1 BACKGROUND & STUDY SCOPE

The Joint Utilities commissioned the GDS Team (GDS Associates, Michaels Energy, Cadmus, and Brightline Group) to develop an Illinois baseline and potential study that included the following two main activities: 1) a residential, commercial, and industrial end-use survey, and 2) an independent market penetration and potential study that addresses both traditional energy efficiency measures and building electrification opportunities.[1]

Through the process of working with the Utilities and other stakeholders in a collaborative working group, the study and its results represent an independent opinion and estimate by the GDS team. The results of the potential study, particularly scenarios that estimate "constrained program potential" may differ from draft or final program plans developed through the planning process. The potential study (and baseline research) can be used by these stakeholders to inform program plans but should not be viewed as stand-alone program plan recommendations or absolute conclusions on energy efficiency market potential. The Potential Study is a forecast, based on assumptions of consumer behavior that may or may not occur. It provides perspectives and boundaries on what the GDS team believes are potentially possible within myriad program possibilities. Additionally, the working group decided that the potential study should not attempt to model Cumulative Persistent Annual Savings (CPAS), a key construct to measure utility energy efficiency. CPAS includes *past* program savings that influence *current* goal achievement. With the focus of the study on future potential, including CPAS in the results was viewed as muddying the focus on the future opportunities.

1.2 TYPES OF POTENTIAL ESTIMATED

This potential study provides guidance for both policy makers and the Joint Utilities as they develop strategies and programs for electric and/or natural gas energy efficiency (EE) and electrification in their respective service areas. Those strategies and programs, however, are also informed by demographic characteristics of each utility's service territory, overall goals of the portfolio relative to those demographics, and diverse policy goals – all appropriate bases for four-year plan proposals that do not adhere strictly to the identified energy efficiency potential scenarios reflected in this study. In addition to technical and economic potential estimates, the development of achievable and specific statutory/stipulated scenario estimates as "constrained potential" for a range of feasible measures is useful for program planning and modification purposes. Unlike achievable and program potential scenarios (constrained potentials), technical and economic potential estimates do not include customer

[1] The analysis did not include possible additional savings from electric utilities adding voltage optimization to additional circuits on their distribution systems.

acceptance considerations for measures, which are often among the most important factors when estimating the likely customer response to new programs. For this study, the GDS Team produced the following estimates of demand potential, with summary definitions. The summary definitions are explained in greater detail in Section 2.5:

- Technical potential - the theoretical maximum amount of energy use that could be displaced by efficiency, disregarding all non-engineering constraints such as cost-effectiveness and the willingness of end users to adopt the efficiency measures. GDS assumes a "phased-in" technical potential as opposed to overnight technical potential.
- Economic potential - the subset of the technical potential that is economically cost-effective (based on screening with the TRC Test) as compared to conventional supply-side energy resources.
- Achievable potential
  - Maximum achievable potential - estimates achievable potential from aggressive adoption rates based on paying incentives equal to 100% of measure incremental costs.
  - Realistically achievable potential - estimates achievable potential with the utilities paying incentive levels closely calibrated to historical levels but is not constrained by any previously determined spending levels.
- Statutory/Stipulated Scenarios
  - Statutory Maximum Achievable Potential (SMAP) - Includes statutory maximum overall spending levels and income-eligible spending levels, along with associated other statutory requirements for energy efficiency programs.
  - Stipulated Funding Achievable Potential (STIP) - Overall spending levels are consistent with the SMAP scenario, but income-eligible spending is increased to align with current stipulation levels, with effects shifting savings and spending across sectors and customer segments.
  - STIP Plus (+): An enhanced STIP scenario prioritizing the lowest cost measures –. Overall spending allocations consistent with the STIP scenario. However, 80% of the spending was reserved for the cheapest (on a $/kWh or therm saved) measures, with the remaining 20% for all other measures.
  - STIP Weatherization (Wx): A STIP scenario prioritizing residential building shell measures over equipment measures. - Overall spending allocations consistent with the STIP scenario. However, up to 80% of the residential spending was allocated to building shell measures for residential market rate and income-eligible sectors.

For each level of potential, this detailed report presents the energy savings, peak demand savings and costs at the utility level for the period of 2026-2045, a 20-year time frame.

1.3 APPROACH SUMMARY

For the residential sector, GDS utilized a bottom-up modeling approach, whereby measure-level estimates of costs, savings, and useful lives were used as the basis for developing the technical, economic, and achievable savings potential estimates. The measure data was used to build up the technical potential, by applying the data to each relevant market segment. The measure data allowed for benefit-cost screening to assess economic potential, which was in turn used as the basis for achievable potential, taking into consideration incentives and estimates of annual adoption rates. For the nonresidential sectors, the GDS team employed a hybrid approach that includes bottom-up modeling to first estimate measure-level savings, costs, and cost-effectiveness, and then applied a top-down measure savings factor to all applicable disaggregated shares of energy load by building type.

Due to the difference in sector-level approaches, the GDS team used sector-specific models to develop the potential estimates for each utility.

1.4 STUDY LIMITATIONS / LESSONS LEARNED

As with any assessment of potential, this study necessarily builds on various assumptions and data sources, including the following:

- Energy efficiency measure lives, savings, and costs (total measure costs, incremental costs, and incentive costs)
- Projected penetration rates for energy efficiency measures
- Projections of the benefits of future energy, environmental, and other costs avoided by lower energy use
- Future known changes to codes and standards
- End-use saturations and fuel shares

The GDS Team sought to use the best and most current available data, including new primary market research collected as part of the baseline study on current building/equipment stock characteristics, and customer willingness to participate research. However, other reasonable alternative assumptions would yield slightly different results. For instance, the analysis assumes that many existing measures, regardless of their current efficiency levels, can be eligible for future installation and savings opportunities. Additionally, the models used in this analysis must make several assumptions regarding program delivery and the timing of equipment replacement that may ultimately occur more rapidly (or more slowly) than currently forecasted. In this regard, it should be noted that how a utility and its implementers deliver programs will also impact the ability to achieve potential energy savings modelled in this Potential Study.

Furthermore, while the lists of energy efficiency measures examined in this study represent technologies available on the market today and characterized in Illinois TRM, as well as a limited amount of emerging technologies not characterized or currently offered in the Illinois TRM, these measure lists may not be exhaustive. The GDS Team acknowledges that current technologies may exhibit changes in price or performance not captured in this study with available data, and that new efficient technologies may become available over the course of the 20-year study timeframe that could produce efficiency gains and costs at different levels than those currently assumed. Additionally, the GDS Team notes that the modeling approach for the nonresidential sector relies on assumptions for custom measures, a standard practice for potential studies. Many measures are unique to individual industries or facilities and cannot be fully characterized via market research or measure research, requiring detailed facility energy audits that would add substantial cost and time to completing a potential study.

Additionally, the potential savings results reflect an independent estimate of program potential under various constraints. The results are not the equivalent of utility program plans, but provide results that, when compared, indicate the potential impact of program plans that may emphasize alternative mixes of measures, resources, and experience. While the Joint Utility and other involved Parties had input throughout the study process and assisted the GDS Team with data, general guidance, and their experience, it is possible and likely that the scenarios identified here will differ from draft or final utility plans. This is to be expected and appropriate given the independent and collaborative nature of the market potential study process, as well as the aforementioned goals and considerations of each utility in formulating the next four-year plan.

1.5 BASELINE STUDY OVERVIEW

As part of the GDS team's scope of work, the GDS team conducted a Baseline Study. This study collected primary data from the Utilities' customers using three methods. These include:

- A large-scale online survey of the Utilities' residential and nonresidential customers to understand the presence of energy consuming equipment. The online survey was also used to recruit for onsite data collection and an additional willingness-to-participate (WTP) survey.
- Onsite data collection was conducted by trained technicians to gather technical information difficult to acquire via the online survey. Additionally, site visits were used to verify and inform possible adjustments to the online survey results. A subsample of single-family homes was recruited to participate in blower door tests to understand air infiltration in single-family homes.
- The willingness-to participate survey enabled respondents to describe how they may choose or not choose energy efficiency equipment under a variety of utility incentives or economic conditions. Additionally, these results were used to inform adoption curves used in the potential study.

The detailed results of the Baseline Research are included as Appendices to the potential study. The results were used to inform equipment and end-use saturations in the potential study. Additionally, the willingness to participate results were used to inform long-term adoption curves (described further in this report). Other uses of the Baseline Study results may include:

- Future iterations of the Illinois Technical Reference Manual
- Program planning
- Policy making based on energy use characteristics

1.6 ELECTRIC ENERGY EFFICIENCY POTENTIAL (COMBINED UTILITIES)

1.6.1 Electric Utilities

Figure 1-1 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes for the electric utilities combined. Across the first four years of the study, the cumulative annual RAP savings reach 8% of forecasted sales, which is on average about 2% per year. These two forms of achievable potential savings vary by utility and sector, and, while treated as forms of "achievable potential" may of overstate or understate what individual utilities can achieve under constraints imposed by policies or program portfolio decisions. Scenario level estimates within each of the subsequent chapters provide additional insights into what can be achieved with funding constraints associated with the scenarios and parameters described in Chapter 2.[2]

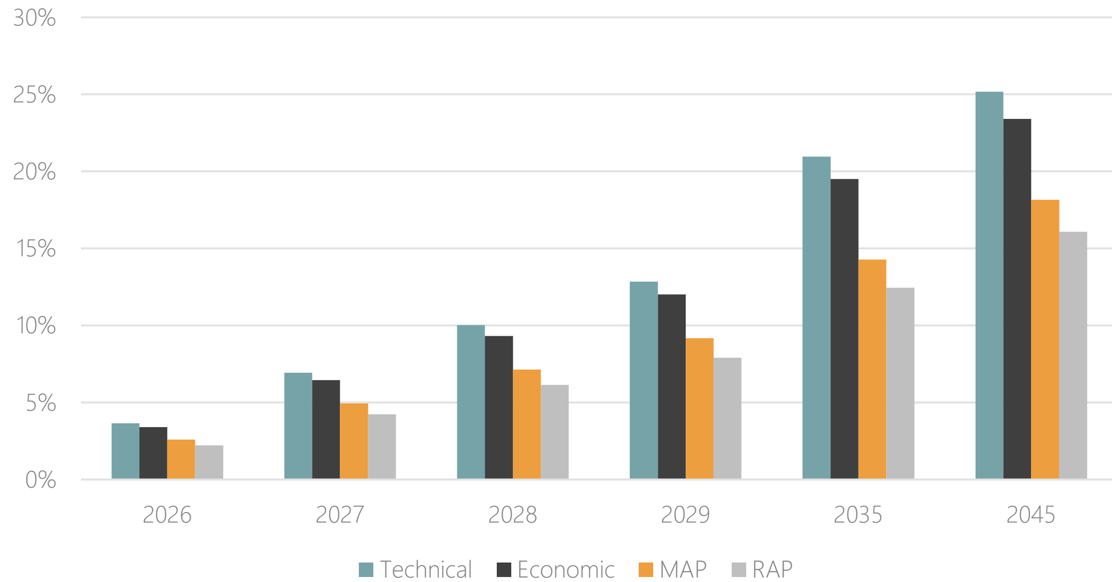

FIGURE 1-1: CUMULATIVE ANNUAL ELECTRIC ENERGY SAVINGS POTENTIAL (ALL SECTORS)

Table 1-1 provides additional near-term detail of the RAP savings on an annual basis. The incremental annual electric savings increase from 3.2 million MWh to 3.7 million MWh with estimated program costs increasing from $1.7 billion to $2.2 billion.[3]

TABLE 1-1: INCREMENTAL ANNUAL RAP MWH SAVINGS AND COSTS – (2026-2029)

	2026	2027	2028	2029
RAP Savings	3,224,020	3,538,306	3,583,814	3,662,680
RAP Budget	$1,661,675,719	$1,934,037,259	$2,051,656,963	$2,207,355,869

1.6.2 Gas Utilities

Figure 1-2 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes for the electric utilities combined. Across the first four years of the study, the cumulative annual RAP savings reach 5% of forecasted sales, which is on average about 1.25% per year. These two forms of achievable potential savings vary by utility and sector, and, while treated as forms of "achievable potential" may of overstate or understate what individual utilities can achieve under constraints imposed by policies or program portfolio decisions. Scenario level estimates within each of

[2] A joint utility review of the constrained scenarios is not included in this section due to the unique nature of each utility's scenarios.

[3] These costs exclude cross-cutting portfolio costs.

the subsequent chapters provide additional insights into what can be achieved with funding constraints associated with the scenarios and parameters described in Chapter 2.[4]

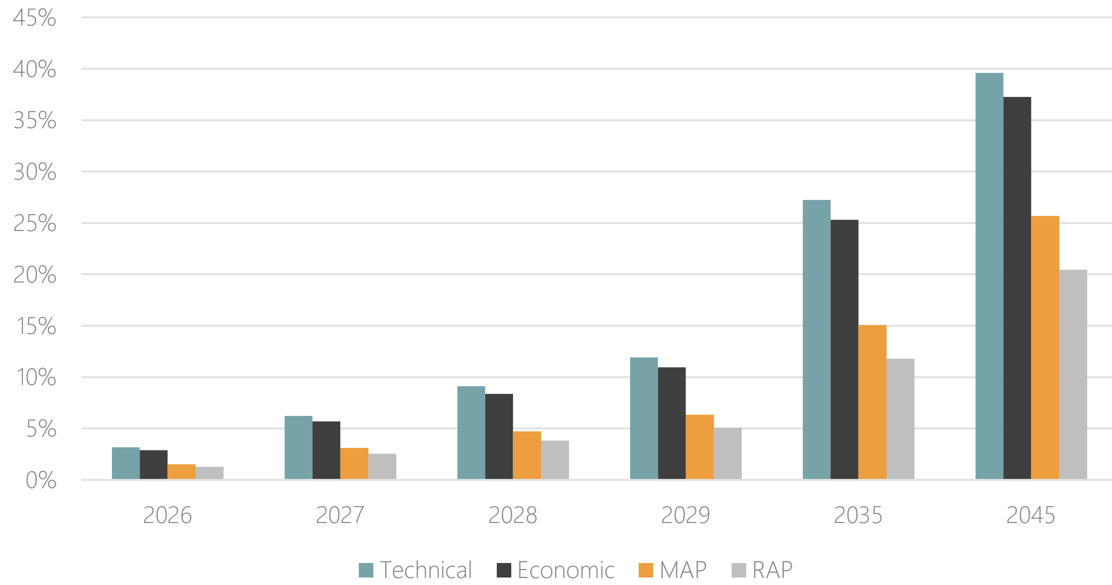

FIGURE 1-2: CUMULATIVE ANNUAL GAS ENERGY SAVINGS POTENTIAL (ALL SECTORS)

Table 1-2 provides additional near-term detail of the RAP savings on an annual basis. The incremental annual electric savings increase from 71 million therms to 79 million therms with estimated program costs increasing from $409 million to $476 million.

TABLE 1-2: INCREMENTAL ANNUAL RAP THERM SAVINGS AND COSTS – (2026-2029)

	2026	2027	2028	2029
RAP Savings	71,053,867	72,735,730	73,333,958	79,361,111
RAP Budget	$409,132,194	$439,107,497	$453,445,199	$475,698,525

1.7 ORGANIZATION OF REPORT

The remainder of this report is organized in seven sections as follows:

Section 2 Analysis Approach details the methodology used to develop the estimates of technical, economic, and achievable for electric and natural gas energy efficiency savings.

Section 3 Characterization of Illinois Joint Utility Services Areas provides an overview of the participating utility service areas and a brief discussion of the forecasted energy sales by sector.

[4] A joint utility review of the constrained scenarios is not included in this section due to the unique nature of each utility's scenarios.

Section 4 *Joint Utility Market Potential Savings Summary* provides a breakdown of the technical, economic, and achievable potential in combined electric and gas service areas.

Section 5 ComEd Market Potential Assessment provides a breakdown of the technical, economic, and achievable potential in the ComEd service area. Also discussed are sector-level detail and acquisition costs for various planning scenarios.

Section 6 Ameren Electric Market Potential Assessment provides a breakdown of the technical, economic, and achievable potential in the Ameren Electric service area. Also discussed are sector-level details and acquisition costs for various planning scenarios.

Section 7 Nicor Gas Market Potential Assessment provides a breakdown of the technical, economic, and achievable potential in the Nicor Gas service area. Also discussed are sector-level details and acquisition costs for various planning scenarios.

Section 7 Ameren Gas Market Potential Assessment provides a breakdown of the technical, economic, and achievable potential in the Ameren Gas service area. Also discussed are sector-level details and acquisition costs for various planning scenarios.

Appendices presents additional details surrounding the sector level baseline studies:

- Appendix A – provides an overview of the Residential Baseline Study including survey design, methods, and results.
- Appendix B – provides an overview of the Nonresidential Baseline Study including survey design, methods, and results.

2 ANALYSIS APPROACH

This section describes the overall methodology utilized to assess the energy efficiency potential across the joint Illinois electric and natural gas utility service areas.

2.1 OVERVIEW OF APPROACH

For the residential sector, GDS utilized a bottom-up approach to the modeling of energy efficiency potential, whereby measure-level estimates of costs, savings, and useful lives were used as the basis for developing the technical, economic, and achievable potential estimates. The measure data was used to build up the technical potential, by applying the data to each relevant market segment. The measure data allowed for benefit-cost screening to assess economic potential, which was in turn used as the basis for achievable potential, taking into consideration incentives and estimates of annual adoption rates. For the nonresidential sectors, the GDS team employed a hybrid approach that includes bottom-up modeling to first estimate measure-level savings, costs, and cost-effectiveness, and then applied a top-down measure savings factor to all applicable disaggregated shares of energy load by building type.

Due to the difference in sector-level approaches, the GDS team used sector-specific models to develop the potential estimates for each utility. The sector models, described in additional detail below, follow a similar structure but employ slightly different modeling logic that aligns with the bottom-up versus top-down methodology.

The MPS models include 4 input worksheets that contain utility-specific information. The four input worksheets include:

Utility Data. The GDS team worked with the utilities to gather utility-specific data such as sales forecasts, discount rates, line losses, and customer count data. The GDS team also coordinated with utilities to receive commercial and industrial sales information by NAICS as well as residential sales by home type. The percentage of homes that qualified as income-eligible was estimated based on responses to the online survey primary market research. Utilities provided commercial and industrial customer sales percentages or specific customers known to have been historically exempt or otherwise expected to be "opt-outs" in terms of future program eligibility. These exempt or opt-out energy sales were removed from commercial and industrial segmentation and subsequent energy efficiency or electrification potential.

Measure Data. The GDS team created a dataset of energy efficiency measures based primarily on the Illinois Technical Reference Manual v12 (the TRM). The GDS team developed measure characteristics including costs, energy and demand use impacts, and measure life for both baseline and energy efficient technologies. Measure assumptions varied by segment and, where appropriate, by climate zone. Incentives and non-incentive costs were based on current or planned incentive levels as informed by utilities and non-incentive program costs were based on most recent year reported data or direct feedback from the utilities.Net-to-gross (NTG) assumptions used the most recent available evaluation results for each utility to include as part of measure data. These NTG results were mapped to programs that were associated with each measure permutation and held constant in all achievable potential scenarios.[5]

Avoided Costs. Under the TRC benefit-cost test, avoided costs reflect the energy and non-energy benefits or costs associated with energy efficiency or electrification. Each utility provided avoided cost assumptions regarding their wholesale costs of energy and capacity, line losses, and other factors identified in the Illinois TRM as avoided energy costs. The value of the social cost of carbon and Criteria pollutants was provided to the GDS team from a consensus process with stakeholders to capture the valuation of energy savings associated with avoided pollution across the forecast period.[6]

Calibration Data. The calibration inputs tab houses utility-specific data associated with existing program savings as well as average historical incentive levels (either on a cost per first-year savings basis or % of measure cost) as well as recent observed utility non-incentive costs. Historical utility incentive and non-incentive costs were developed and input at both the program and/or end-use level. The calibration inputs tab also includes assumptions about long-term adoption rates based on different incentive levels.

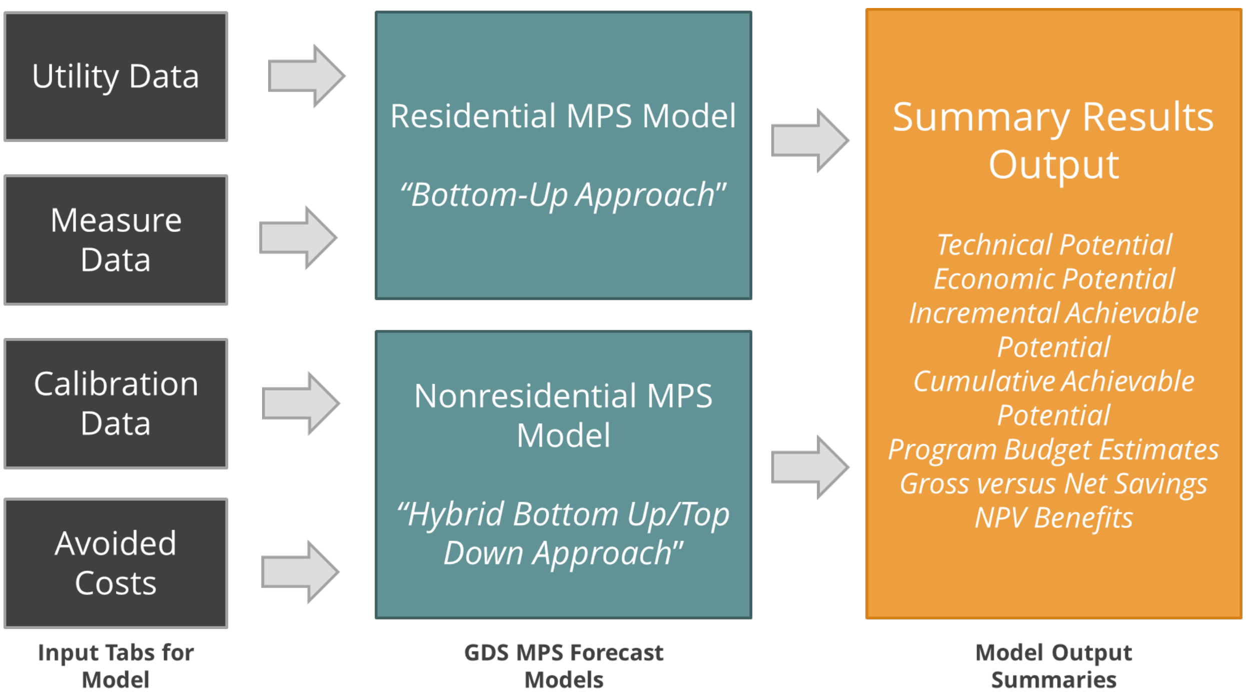

FIGURE 2-1: GDS MPS MODEL FLOW OVERVIEW

[5] NTG was held constant in MAP, RAP, and the constrained potential scenarios. While changes in incentives, program spending, or program implementation could lead to different NTG outcomes, GDS did not adjust NTG in response to each achievable potential scenario due to a lack of research to support the scale or direction of NTG changes. Budgets were similarly not affected by NTG assumptions – doing so would require adjustments to measure- or program-level net savings.

[6] Provided in two Excel workbooks: "AvoidedCostEmissions North 071824.xlsx" provides for avoided social costs of carbon and Criteria pollutants for ComEd and Nicor Gas. "AvoidedCostEmissions South 071824.xlsx" provides for avoided social costs of carbon and Criteria pollutants for Ameren Electric and Ameren Gas. In discussion between the stakeholders, the social cost of carbon reflects the EPA's valuation based on the 2.0 percent real discount rate.

The outputs from the sector models accomplish the following objectives:

- Determining the incremental annual and cumulative annual technical, economic, and market potential of energy savings over 10-year and 20-year periods.
- Market potential estimates are calculated for each program in a utility's portfolio; end-use level estimates are calculated as well.
- Estimates of program-level budgets are calculated, including estimates of incentives and non-incentive costs.
- Market potential estimates are provided in terms of both gross and net savings.

2.2 ELECTRIFICATION ANALYSIS

Although the market potential savings focuses predominately on energy efficiency technologies, the GDS models for ComEd and Ameren Illinois (electric) included an analysis of electrification measures across the residential and nonresidential sectors. The list of electrifications measures, by sectors, are shown in Table 2-1.

TABLE 2-1 ELECTRIFICATION MEASURES BY SECTOR

Residential	Nonresidential
Appliances: ENERGY STAR Electric Clothes Dryer, Heat Pump Dryer	Cooking: Combination Oven, Convection Oven, Steam Cooker, ENERGY STAR Fryer, ENERGY STAR Griddle
Cooking: Induction Cooktop Range, Induction Cooktop	Water Heating: Storage Water Heater, Heat Pump Water Heater
Lawn Equipment: Riding Lawn Mower, Leaf Blower, Trimmer, Chainsaw	HVAC: Package Terminal Heat Pump, Ground Source Heat Pump, Ductless Heat Pump, Air-Source Heat Pump
Water Heating: Heat Pump Water Heater (2.0 UEF), Heat Pump Water Heater (2.6 UEF)	Misc: C&I Forklifts
HVAC: SEER 15.2 Ducted Heat Pump (Partial/Full Displacement), SEER 18 Ducted Heat Pump (Partial/Full Displacement), SEER 15.2 Ductless HP (Partial/Full Displacement), SEER 18 Ductless HP (Partial/Full Displacement)	

The first step in the electrification analysis was to perform a basic comparison of the lifecycle cost of energy (to the participant) for purchasing and installing electrification equipment vs. baseline fossil fuel equipment. Representative technology cases for each major end-use were selected to capture a generalized condition for electrification market adoption.[7] The measures were compared to ensure a site-level net energy savings for the electrification measure (on an equivalent MWh or MMBtu basis). Lifecycle costs for economic, maximum achievable, and realistic achievable were developed using the

[7] There are a very large number of possible technologies and market conditions that could affect electrification market decisions. The approach is intended to capture a generalized market opportunity by using baseline fossil fuel technology and focusing on participant relative economics. This avoids false precision for a marketplace with limited electrification experience or market data.

utility incentives available under each the conditions of each scenario and utility retail rates. The ratio of the lifecycle costs informed an estimate of each scenario's relative market preferences and market adoption incentives. For example, if the two technologies resulted in the same lifecycle cost, the market would be viewed as indifferent and select a 50/50 mix. Alternatively, if the electrification lifecycle costs were 50 percent of the baseline fossil fuel lifecycle costs, then 2/3 of the market would favor the electrification option. These ratios inform the assumed long-term adoption potential over the forecast period. A bell-shaped curve is used to derive the annual pacing of these adoptions, allowing for a ramp-up early in the forecast period and waning adoptions later in the forecast period as the market potential is reached. While the lifecycle costs include available incentives for electrification, the analysis found that policy limits on electrification spending and savings, and requirements for minimum levels of income-eligible spending, were a key limiting factor that reduced program portfolio electrification opportunities. The effect of reducing program portfolio electrification opportunities on natural market adoption of electrification was not explored.[8]

Following the basic lifecycle cost of energy comparison to develop long-term adoption rates, GDS estimated the technical, economic, and achievable potential net electrification savings impacts by measure across each sector.[9] GDS assumed that the technical potential for electrification was limited to 90% of the non-electric equipment stock. Conversion estimates for economic and achievable potential were informed by lifecycle cost of the electric vs. non-electric equipment, as discussed above, with annual conversion rates based on a 20-year bell-shaped curve. Electrification incentives were informed by any current offerings for electrification or comparable incentives to the current energy-efficiency levels and were applied to all customers.

The estimates of achievable electrification potential were then used in the scenario savings discussed further in Section 2.5.4. It is important to note that while the technical, economic, and achievable electrification potential can be significant, the overall electrification potential in the constrained potential scenarios were observed to be relatively modest relative to the market opportunity, though are higher than what electric utilities have historically achieved. Due to achievable scenario constraints associated with policies and spending, electrification did not materially impact the overall gas forecast and associated natural gas savings opportunities. Legislative requirements limiting overall electrification savings and requiring minimum income-eligible electrification participation limit are the primary reasons for the limited electrification savings potential projected in the constrained funding scenarios. Note that electrification measures and their resulting mix were analyzed for TRC benefit-cost ratios, though were largely cost-effective due to the inclusion of the social cost of carbon, though the TRC ratios were not used to inform the adoption of electrification.

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[8] While natural market adoption of electrification may occur, the level or pacing of such adoptions in Illinois is an unknown, with electrification sales data collection a nascent activity in the U.S. Illinois may want to consider conducting market research to understand the role of programs and natural market adoption of electrification technologies to inform future market potential analyses.

[9] Electrification measures did not utilize the Willingness to Participate results to inform maximum adoption as survey respondents were not directly asked about electrification with risks that electrification technologies or processes may have been unfamiliar to the respondents.

2.3 MARKET CHARACTERIZATION

The initial step in the analysis is to gather a clear understanding of the current market segments and utility service areas in Illinois. The GDS Team coordinated with the joint utilities to gather utility sales and customer data and existing market research to define appropriate market sectors, market segments, vintages, saturation data and end uses for each utility service territory. This information serves as the basis for completing a forecast disaggregation of both the residential and nonresidential sectors.

2.3.1 Forecast Segmentation

The GDS team requested a forecast of utility sales, absent future DSM impacts, from each of the joint utilities. In the nonresidential sector, a key next step for input into the potential modeling analysis is to segment the sales forecast by building type and end-use. To segment by building type, the GDS team also requested a current breakdown of nonresidential sales by North American Industry Classification/Standard Industry Classification (NAICS/SIC) code. The GDS team then mapped these industry codes to building type. Specific industry codes were also used to flag sales referring to public buildings, to provide a top-line estimate of the nonresidential sales between private and public buildings.[10] Additionally, utilities provided commercial and industrial customer sales percentages or specific customers known to have been historically exempt or otherwise expected to be "opt-outs" in terms of future program eligibility. These exempt or opt-out energy sales were removed from commercial and industrial segmentation and subsequent energy efficiency or electrification potential.

In addition to providing point-estimates for the segmentation of sales by building type, the GDS team also used the sales by NAICS code data to compare the breakdown of commercial versus industrial sales indicated in the long-term sales forecast. Often, the sales by sector reflected in a utility's long-term sales forecast may with sales by rate class (i.e., small versus large C&I), whereas the sales by NAICS code give a better indication of the typical use of the facility (i.e., is the facility used for manufacturing or commercial business applications). Using these fields, the GSD Team assigned each customer in the a given utility's nonresidential data sets to one of the commercial or industrial segments listed in Table 2-2.

GDS extended and disaggregated the residential sales forecasts provided by the utilities using a combination of utility-specific data and data from the Energy Information Administration's (EIA) Annual Energy Outlook (AEO) and from the US Census Bureau. For all utilities, single family and multifamily splits were identified based on a detailed review of residential customer billing history databases conducted by the GDS Team in support of developing survey and baseline study samples. Income-eligible segmentation was based on a blend of survey results and county-level income data from the Census Bureau.

[10] Industry codes (NAICS/SIC) for public buildings included those beginning in 92XX/01XX (general public buildings), 61110/8211 (elementary and secondary schools), 611310/8221 (select colleges and universities), 488111/9621 (air traffic control), 49110/4311 (post services), 221310/4941 (water supply/irrigation systems), 519120/8231 (libraries), 54171/8731 (select laboratories), 485112/485113/4111 (bus and commuter rail), 486210 (gas pipelines), 561210 (select facilities, such as the Illinois Dept. of Corrections), and 622210/8069 (select psychiatric and substance abuse facilities). Although likely not exhaustive, this segmentation allowed the modeling team to disaggregate a portion of sales to public buildings and assign potential savings/spending targets in the defined achievable potential scenarios.

TABLE 2-2 NONRESIDENTIAL SEGMENTS

Residential[11]	Commercial	Industrial	
Single-Family Market Rate	Education	Agriculture	Machinery
Single-Family Income-Eligible	Food Sales	Apparel	Miscellaneous
Multifamily Market Rate	Food Service	Beverage	Nonmetallic Minerals
Multifamily Income-Eligible	Health	Chemicals	Paper
	Lodging	Computer	Petroleum
	Retail	Electrical	Plastics & Rubber
	Office	Fabricated Metals	Primary Metals
	Warehouse	Food	Printing
	Laundry	Furniture	Textile Mills
	Multifamily[12]	General Industrial	Transportation
	Other	Leather	Wood

The GDS Team further disaggregated sales for each of the segments into end uses. For residential, the end-use segmentation was completed using market share information from the market research conducted by the GDS team and using end-use energy intensity information. Ameren provided GDS with an SAE model specification, so GDS made use of that information for end-use intensities. For Nicor, GDS relied upon its internally developed SAE specification. For ComEd, AEO energy intensities were used. For both Nicor gas and Ameren gas, fireplace energy was derived from information provided by Nicor from its prior baseline analysis.

For commercial segments, the GSD Team primarily used EIA's 2023 Annual Energy Outlook Reference Case for the East North Central Census region to determine forecasted consumption by major electric and natural gas end-uses.[13] or the industrial sector, the analysis relied on the EIA's 2018 Manufacturing Energy Consumption survey to disaggregate industry-specific estimates of electric and natural gas consumption into end uses.[14]

Table 2-3Table 2-3 and Table 2-4 lists the potential electric end-uses and natural gas end-uses, respectively, that were reflected in the forecast disaggregation and subsequent potential assessment.

TABLE 2-3 ELECTRIC END USES

Residential	Commercial	Industrial
Appliances	Cooking	Compressed Air
Electronics	Compressed Air	HVAC
HVAC Equipment	Cooling	Lighting
Building Shell	Heating	Motors
Hot Water	Ventilation	Process Heat
Lighting	Hot Water	Process Other

[11] Manufactured housing was included in the single-family market segments.
[12] Multifamily sales under the commercial class were ultimately moved to the residential sector for purposes of assessing savings potential.
[13]U.S. Energy Information Agency. *Annual Energy Outlook*. Published March 16, 2023.
[14] U.S. EIA. *Manufacturing Energy Consumption Survey (MECS) 2018*. https://www.eia.gov/consumption/manufacturing/data/2018/.

Residential	Commercial	Industrial
Miscellaneous Appliances	Lighting Plug Loads Refrigeration Miscellaneous	Process Refrigeration Miscellaneous Compressed Air

TABLE 2-4 NATURAL GAS END-USES

Residential	Commercial	Industrial
Appliances HVAC Building Shell Hot Water Miscellaneous	HVAC Equipment Cooling Hot Water Cooking Misc	HVAC Equipment Process Heat Process Other Other Facility

2.3.2 Building Stock/Equipment Saturation

To assess the potential electric energy efficiency savings available, estimates of the current saturation of baseline equipment and energy efficiency measures are necessary. For purposes of our analysis, baseline equipment saturation estimates refer to the percent of homes or business that are currently equipped with a particular technology or building characteristic (i.e. the fraction of buildings with air conditioning, or the fraction with natural gas furnaces). Energy efficient saturation estimates refer to the percent of equipment that is already energy efficient. These estimates, paired with the market forecast data, allow the GSD Team to analyze the total number of eligible homes and business that can convert their existing equipment or building characteristics to the more efficient alternative throughout the study timeframe.

2.3.2.1 Residential Sector

GDS leveraged the results of the Baseline Study and a variety of other sources to develop estimates of the baseline saturation and energy efficient saturation of measures included in the residential sector market potential analysis. The baseline saturation is defined as the percentage of homes with a type of technology of heating/cooling fuel and/or equipment type, for a given home and income type. These estimates were derived primarily from the Baseline Study, using the online survey responses. Where possible, adjusted estimates were developed by combining the results of the onsite and online survey responses. In cases where the Baseline Study could not inform an estimate for a particular measure, GDS leveraged secondary sources, such as EIA Residential Energy Consumption Survey "RECS" data. To develop estimates of measure-level energy efficient saturations, which is the percentage of homes with a given technology or heating/cooling fuel and/or equipment type, GDS relied on RECS data, as well as ENERGY STAR unit shipment data. The results of the Baseline Study were also used when possible.

2.3.2.2 Nonresidential Sector

GDS primarily used the latest market research collected from the baseline study as well as data from the EIA Annual Energy Outlook (AEO) to inform two main assumptions for the potential study, the Base Case factor and saturation of efficient equipment.

The Base Case Factor is the fraction of the end use energy that is applicable for the efficient technology in given market segment. The EIA AEO data provides a regional forecast of energy consumption by end-use and equipment type (e.g. lighting type, major HVAC equipment, refrigeration equipment) that can be used to further disaggregate end-use sales to major equipment type. This data was supplemented with data collected as part of the detailed baseline study research efforts. Illinois baseline study data included collected counts for equipment and energy usage levels for the lighting, heating, cooling, water heating, motors and refrigeration end-uses.

GDS reviewed and developed additional base case factors for other end-uses through review of the Energy Savings Potential and R&D Opportunities for Commercial Building Appliances (2015 Update) report developed by the U.S. Department of Energy (DOE). This report also provided end-use consumption estimates by equipment type for commercial cooking equipment, dishwashers, IT and office equipment, water heaters and commercial laundry equipment. Refrigeration base case factors were supplemented with data from DOE Refrigeration Study - Energy Savings Potential and Research & Development Opportunities for Commercial Refrigeration.

Data collected for the Illinois baselines study was leveraged to develop remaining factors for many of the measures. Saturation data from this study was used to estimate the current remaining factors for measures within the lighting, ventilation and office & computing end-use categories. The ENERGY STAR® Unit Shipment and Market Penetration Report for Calendar Year 2022 was also used to determine remaining factors for commercial cooking equipment, refrigerators and freezers, computer and data center equipment and commercial dishwashers.

2.3.3 Remaining Factor/Market Refill

The remaining factor is the proportion of a given market segment that is not yet efficient and can still be converted to an efficient alternative. It is, by definition, the inverse of the saturation of an energy efficient measure. For this study, the GSD Team, in discussions with the joint utilities and intervenors, have made several assumptions regarding the future potential of equipment that is already efficient, or will become efficient, over the analysis timeframe.

For measures that are not yet efficient, the GSD Team estimated savings that reflect the initial measure assumptions developed as part of the MPS, are consistent with the latest Illinois TRM, and discussed in Section 2.3.4, below. The question, then, is whether there is any additional future potential to be quantified from homes/businesses that already possess the efficient measure. Following discussions with the joint utilities and intervenors, the GDS Team developed our models to allow these existing measures to be refilled, during their natural replacement cycle, by assuming that advances in the efficiency of equipment will enable new technologies, tiers, or improved standards to replace the current measure and allow for continued savings opportunities. Since the precise level of savings and measure characterizations for these future measures is not presently known, the methodology adopted assumes that subsequent equipment replacement that occurs over the course of the 20-year study timeframe, and at the end of the initial equipment’s useful life, will continue to achieve similar levels of energy savings, at similar incremental costs.

The MPS has several key exceptions to the refill approach described above. Some select measures were considered one-time efficiency opportunities and are not eligible to be replaced/refilled in the analysis once it has been initially converted to efficient status. Examples of these measures include: low flow savings devices, water heater wraps, ECM motors, refrigerator door retrofits, data center hot/cold aisle configurations, guest room energy management systems, and most shell measures (insulation, air sealing, door improvements). Other exceptions in the MPS include measures that are known to have reached the limit of technological advancements in efficiency (e.g. commercial LEDs being treated as the baseline and only subject to advanced lighting packages for additional savings) and miscellaneous residential electronics with high market penetration.

The MPS includes limited screw-based lighting energy savings for the residential sector. This includes EISA exempt bulbs and ultra-efficient LEDs. Residential lighting savings also include occupancy sensors and controls.

2.4 MEASURE/PROGRAM CHARACTERIZATION

2.4.1 Initial Measure Lists & Emerging Technologies

Energy efficiency measures considered in the 2024 Illinois Market Potential Study include measures in the latest version of the Illinois Technical Reference Manual (v12) as well as a subset of near-term, mid-term, and long-term emerging technologies for additional consideration. Near-term and mid-term emerging technology measures in the residential sector included Home Energy Management Systems, Ultrasonic Clothes Dryers, Advanced Air Source Heat Pumps, Advanced Central ACs, Advanced Duct Sealing, Advanced Insulation, Advanced Windows, Advanced Lighting Controls, and Advanced Heat Pump Water Heaters. Near-term emerging technologies measures included in the nonresidential sector included Advanced Laundry, Absorbent Air Filtration, Advanced Duct Sealing, Condensing Gas Rooftop Units, Natural Gas Heat Pumps, Advanced EMS, Advanced Envelope, Advanced HVAC Controls, Advanced Lighting Controls, Advanced Refrigeration and could generally be characterized as unique, prescriptive measures. Other emerging technology measures, characterized as “innovative” emerging technology measures, were characterized within a broader end-use perspective (i.e., Future Cooling Improvement, Future Heating Improvement, Future Lighting Improvement, Future Water Heating Improvement, Future Ventilation & Circulation.) and were not expected to realize any market share until the 7th year of the analysis. Emerging technology savings and costs were generally characterized relevant to the current efficient measure baseline.

Table 2-5 provides a breakdown of the electric and natura gas measures by sector and measure type.

TABLE 2-5 NUMBER OF MEASURES EVALUATED

Sector	# of EE Measures	# of Near/Mid Emerging Tech.	# of Innovative Emerging Tech	# of Electrification Measures[15]	Total # of Permutations
Electric Measures					
Residential	97	13	4	21	1,108
Nonresidential	143	10	10	191	2,965
Natural Gas Measures					
Residential	38	5	2	0	358
Nonresidential	47	2	0	0	1,248

2.4.2 Assumptions & Sources

A significant amount of data is needed to estimate and model the electric and natural gas savings potential for individual energy efficiency measures or programs across the residential and nonresidential customer sectors in Illinois. GDS utilized data specific to each joint utility where it was available and current. GDS used the Illinois Technical Reference Manual (v12) and its supporting workbooks as the main sources of data for developing measure assumptions.

Measure Savings: GDS utilized the Illinois TRM and its supporting workbooks to inform calculations supporting estimates of annual measure savings as a percentage of base equipment usage. For custom measures and measures not included in the IL TRM, GDS estimated savings from a variety of sources, including:

- Engineering analyses
- Known changes in federal codes and standards
- Secondary sources such as the American Council for an Energy-Efficient Economy (ACEEE), Department of Energy (DOE), Energy Information Administration (EIA), ENERGY STAR©, and other technical potential studies

Measure Costs: Measure costs represent either incremental or full costs. These costs typically include the incremental cost of measure installation, when appropriate based on the measure definition. For purposes of this study, nominal measure costs were held constant over time. GDS obtained measure cost estimates primarily from the Illinois TRM. GDS used the following data sources to supplement the IL TRM:

- Secondary sources such as the ACEEE, ENERGY STAR, National Renewable Energy Lab (NREL), California Database for Energy Efficient Resources (DEER) database, Northeast Energy Efficiency Partnership (NEEP) Incremental Cost Study, and other technical potential studies
- Market retail prices

[15] Electrification measures are discussed in Section 2.2.

Measure Life: Measure life represents the number of years that energy using equipment is expected to operate. GDS obtained measure life estimates from the Illinois TRM.

2.4.3 Measures with Secondary Energy Savings

Several measures in the residential and nonresidential sectors include both electric and natural gas savings. For most measures in this group, GDS assumed that the joint utilities would share the savings and costs associated with these measures. Specifically, the associated electric utility would receive the electric savings, and the associated gas utility would receive the gas savings, with the incentive being split (or shared) by both utilities based on the share of the lifetime benefits of each fuel. However, based on discussions with the utilities, ComEd and Nicor Gas noted that there were a few select measures (low flow devices, thermostats, door sweeps, etc.) where the utilities provided rebates and claimed savings irrespective of the baseline fuel type of the home. In these instances, ComEd would pay the full rebate and convert any associated gas savings into converted electric savings in the program plan offerings.[16] GDS allowed for this treatment in our assessment of achievable potential and subsequent scenarios by altering the baseline saturation and savings estimates for these measures to reflect all households, but also limiting the ability of ComEd and Nicor Gas to affect the same specific households.

Given Ameren Illinois' status as a combined electric and gas utility, the GDS Team and Ameren coordinated to continue to proportionally share/split the savings and costs across the electric and gas service areas, with electric savings accounted for in the electric potential and the gas savings in the gas potential.[17]

2.4.4 Non-Incentive Costs

Non-incentive costs were estimated based on recent historical annual report data from each of the utilities. Non-incentive costs reflect program administrative costs but do not reflect program "overhead," which incurs costs that are not related to specific programs.[18] The GDS Team leveraged the annual reports to develop estimates of non-incentive costs per first-year gross kWh (or therm) saved at a utility and program level. These cost estimates were shared with the utilities for review and feedback. If needed, GDS made adjustments to the non-incentive costs assumptions based on this feedback. The non-incentive costs were mapped to each measure based on their assigned program. Table 2-6 below provides the range of program non-incentive costs (per first-year kWh/therm saved) by utility.

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[16] Converted savings were only claimed by ComEd as Nicor Gas does not claim converted electric savings.

[17] Ameren Illinois may also elect to convert and claim some gas savings in their electric portfolio instead of their gas portfolio, but the magnitude of these impacts is better informed by program planning efforts versus a market potential study.

[18] Program "overhead" costs include portfolio costs such as EM&V, R&D efforts to support future innovations, and some general program overhead and marketing costs. These costs and their percentage of overall portfolio expenses varied by utility. The non-incentive costs are specific to program delivery and reflect a portion of the acquisition cost associated with measures. For the constrained scenarios (addressed later in the report), program overhead cost were first accounted for separately to ensure alignment with their absence from the non-incentive costs in the achievable potential.

TABLE 2-6 RANGE OF NON-INCENTIVE COSTS PER UNIT SAVED BY SECTOR/PROGRAM TYPE

Sector/Program Type	ComEd	Ameren-Electric	Nicor Gas	Ameren-Gas
Residential Market Rate	$0.035/kWh-$.389/kWh	$0.05/kWh-$.50/kWh	$0.44/therm-$3.00/therm	$0.10/therm-$1.32/therm
Income-Eligible	$0.035/kWh-$.528/kWh	$0.25/kWh-$1.50/kWh	$5.86/therm-$6.26/therm	$1.26/therm-$5.29/therm
Nonresidential	$0.015/kWh-$.040/kWh	$0.07/kWh-$.040/kWh	$0.50/therm-$1.10/therm	$0.50/therm-$1.34/therm

2.4.5 Net-to-Gross (NTG) Assumptions

All estimates of technical and economic potential, as well as measure level cost-effectiveness screening are conducted in terms of gross savings to reflect the absence of program design considerations for these portions of potential modeling. The estimates of maximum and program achievable potential are, however, presented in terms of net savings to reflect the importance of program design in overcoming market barriers to participation.[19] Net energy savings consider free-riders (participants who would have installed the high efficiency option in the absence of the program) and spillover customers (participants who install efficiency measures due to program activities, but never receive a program incentive). Net-to-gross (NTG) ratios were based on the program-level NTG ratios provided by utilities in late 2023 and early 2024 and mapped to individual measures in both the residential and nonresidential sectors. Table 2-7 below provides the range of NTG assumptions used across sectors and programs by utility. These NTG assumptions were not varied by achievable potential scenario and applied at the measure-level with measures being mapped to specific programs, which varied by utility.[20]

TABLE 2-7 RANGE OF NET-TO-GROSS RATIOS BY SECTOR/PROGRAM TYPE

Sector/Program Type	ComEd	Ameren-Electric	Nicor Gas	Ameren-Gas
Residential Market Rate	65%-100%	80%-100%	82%-100%	83%-100%
Income-Eligible	100%	100%	100%	100%
Nonresidential	80%-100%	80%-100%	54%-94%	79%-92%

2.5 POTENTIAL SAVINGS OVERVIEW

Potential studies often distinguish between several types of energy efficiency potential: technical, economic, achievable, and program. However, because there are often important definitional issues between studies, it is important to understand the definition and scope of each potential estimate as it applies to the MPS analysis.

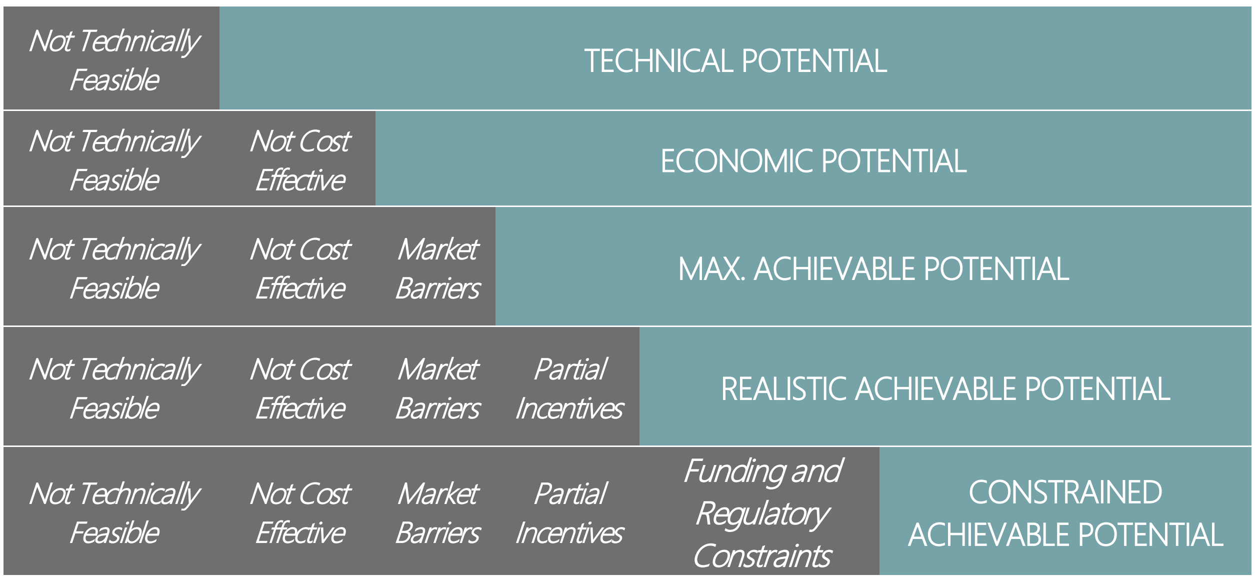
[19] While savings are net, utility costs are calculated based on gross participation.

[20] It is possible that, in practice, NTG results could vary by achievable potential scenario. However, such variances are theoretical and without available supporting research. For example, the higher incentives used to model MAP could lead to more free ridership due to the attractiveness of the incentives that encourage natural market adopters to receive incentives or drive lower free ridership by moving customers to select a program-eligible technology more efficient than they otherwise would. Program delivery approaches may also change in response to each scenario, which could affect NTG.

The first two types of potential, technical and economic, provide a theoretical upper bound for energy savings from energy efficiency measures. Still, even the best-designed portfolio of programs is unlikely to capture 100% of the technical or economic potential. Therefore, achievable potential attempts to estimate what savings may realistically be achieved through market interventions, when it can be captured, and how much it would cost to do so. Figure 2-2 illustrates the types of energy efficiency potential considered in this analysis.

As further discussed in Section 2.5.4, the MPS also included additional potential scenarios based on specific statutory and/or stipulated funding scenarios.

FIGURE 2-2 TYPE OF ENERGY EFFICIENCY POTENTIAL[21]



2.5.1 Technical Potential Savings

Technical potential is the theoretical maximum amount of energy use that could be displaced by efficiency, disregarding all non-engineering constraints such as cost-effectiveness and the willingness of end users to adopt the efficiency measures. Technical potential is only constrained by factors such as technical feasibility and applicability of measures. GDS assumes a "phased-in" technical potential, where 100% of new construction and market opportunity measures are adopted as those opportunities become available (e.g., as new buildings are constructed, they immediately adopt efficiency measures, or as existing measures reach the end of their useful life). For retrofit measures, implementation will assume to be resource constrained and that it is not possible to install all retrofit measures all at once. Rather, retrofit (and early retirement) opportunities were assumed to be replaced incrementally until 100% of stock were converted to the efficient measure over a period of no more than 20 years. One hundred percent of income-eligible, direct-install measures were also assumed to be targeted over a period of 20 years.

[21] Reproduced from "Guide to Resource Planning with Energy Efficiency." November 2007. US Environmental Protection Agency (EPA). Figure 2-1.

2.5.1.1 Interactive Effects Adjustment

The GDS Team prevents double-counting of savings, and accounts for competing measures and interactive savings effects, through three primary adjustment factors:

Baseline Saturation Adjustment. Competing measure shares are factored into the baseline saturation estimates. For example, nearly all homes can receive insulation, but the analysis creates multiple measure permutations to account for varying impacts of different heating equipment types and have applied baseline saturations to reflect proportions of households with each heating equipment type.

Applicability Factor Adjustment. Combined measures into measure groups, where total applicability factor across measures is set to 100%. In instances where there are two (or more) competing technologies for the same electrical end use, such as central air conditioners with different tiers of efficiency, an applicability factor aids in determining the proportion of the available population assigned to each measure. In general, measure applicability was assigned based on cost-effectiveness screening results. For example, if one competing measure had a TRC benefit-cost ratio of 2.0, and another competing measure had a TRC ratio of 1.0, the measure with the higher TRC score would receive 66% applicability, with the secondary competing measure receiving the remaining 34% applicability.

Interactive Savings Adjustment. As savings are introduced from select measures, the per-unit savings from other measures need to be adjusted (downward) to avoid over-counting. For example, the savings from installing high efficiency space heating equipment in the residential sector would impact the baseline consumption that remaining building shell efficiency measures could affect.

2.5.2 Economic Potential Savings

Economic potential refers to the subset of the technical potential that is economically cost-effective (based on screening with the TRC Test) as compared to conventional supply-side energy resources. Both technical and economic potential ignore market barriers to ensuring actual implementation of energy efficiency. Finally, they typically only consider the costs of efficiency measures themselves, ignoring any programmatic costs (e.g., marketing, analysis, administration, program evaluation, etc.) that would be necessary to capture them.

All measures, except for income-eligible[22] measures, that were not found to be cost-effective based on the results of the measure-level cost effectiveness screening were excluded from the economic and achievable potential. Income- eligible measures were included in the assessments of economic and achievable potential regardless of cost-effectiveness. Feasibility factors were then re-adjusted and applied to the remaining measures that are cost effective, where appropriate.

[22] Income-eligible is defined as households at or below 80 percent of Area Median Income (AMI). This definition was used in the Baseline Study, with AMI being calculated at the county-level.

2.5.3 Achievable Potential Savings

Achievable potential is the amount of energy that can realistically be saved given various market barriers. Achievable potential considers real-world barriers to encouraging end users to adopt efficiency measures; the non-measure costs of delivering programs (for administration, marketing, analysis, and EM&V); and the capability of programs and administrators to boost program activity over time. Barriers include financial, customer awareness and willingness to participate in programs, technical constraints, and other barriers the "program intervention" is modeled to overcome. The achievable potential does not consider any specific funding or regulatory constraints. These factors were considered in the additional scenarios discussed in Section 2.5.4.

2.5.3.1 MAP vs. RAP Distinctions

The potential study evaluated two achievable potential scenarios:

- *Maximum Achievable Potential* estimates achievable potential from aggressive adoption rates based on paying incentives equal to 100% of measure incremental costs
- *Realistic Achievable Potential* estimates achievable potential with the utilities paying incentive levels (as a percent of incremental measure costs) closely calibrated to historical levels but is not constrained by any previously determined spending levels. As a result, the near-term RAP is unconstrained and may produce savings that are higher than recent historical savings limited by funding levels and other regulatory requirements. The actual ability of utilities to ramp up to the unconstrained RAP in a short window may be highly variable. However, the GDS Team intentionally did not calibrate our estimates of near-term annual RAP because it was important to understand the implications on the constrained potential scenarios.

2.5.3.2 Adoption Curve Research

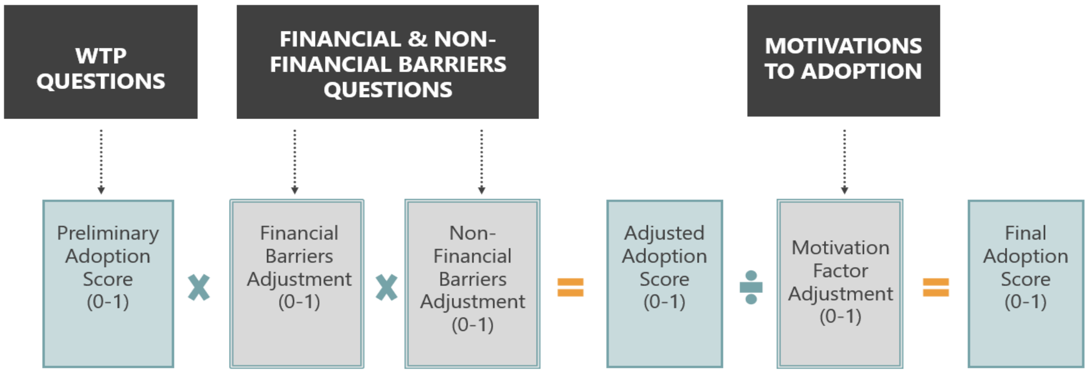
The primary baseline study research conducted as part of the overall Illinois Baseline Study and Potential Study included a survey effort dedicated to understanding residential and nonresidential willingness-to-participate (WTP). The WTP research was designed to examine the long-term willingness for consumers to purchase and install energy efficient equipment across different end-use categories and incentive levels, as well as understand the importance of different non-financial barriers and motivations towards participation. This research is further summarized in Appendix A and B of this report. The major objective of this element of primary research was to develop measure/program adoption curves for estimates of achievable potential. Table 2-8 describes the end-uses or categories in which adoption rate estimates were developed for energy efficiency measures by the GDS Team.

TABLE 2-8 ADOPTION RATE CATEGORIES ANALYZED

Willingness to Participate	EE End-Uses
Residential Customers	Heating/CAC Water Heating Major Appliances Insulation/Air Sealing
Nonresidential Customers	Heating/CAC Water Heating Refrigeration

Adoption rate calculations were based on questions which assessed (1) the respondent's willingness to adopt energy efficiency in scenarios with varying levels of program support, (2) the magnitude of the respondent's financial and non-financial barriers to adoption/participation. Adoption rates were calculated based on the equation shown below.

EQUATION 2-1 ADOPTION RATE FORMULA FOR FINAL ADOPTION SCORE



Direct willingness-to-participate questions are the starting point of measure/program-specific adoption curve calculations. For each item, respondents were asked to rate the likelihood that they would purchase the energy efficient version of the equipment at various incentive levels, including no incentive and an incentive that covers the full incremental (or total) cost.

Responses to financial and non-financial barrier questions were then used to adjust the preliminary adoption score. If "cost" was a consideration to prevent customers from purchasing energy efficient equipment, GDS assumed a financial barrier adjustment. The 0% incentive level was reduced by 100%, the 25% incentive level was reduced by 80%, the 50% incentive level was reduced by 60%, the 75% incentive level was reduced by 40%, and the 100% incentive level was reduced by 20%.

If another reason (i.e., lack of knowledge, uncertainty about bill savings, etc.) was a consideration to prevent customers from purchasing energy efficient equipment, GDS assumed a non-financial barrier adjustment. The 0% incentive level was reduced by 50%, the 25% incentive level was reduced by 40%, the 50% incentive level was reduced by 30%, the 75% incentive level was reduced by 20%, and the 100% incentive level was reduced by 10%.

Last, if the respondent indicated a strong motivation for purchasing an efficient technology or participating in a demand response program (i.e., bill savings, progress towards sustainability goals, etc.) then the adjusted adoption score was increased. The 0% incentive was increased by 25%, the adjusted adoption rate at the 25% incentive level was increased by 66%, the 50% incentive level by 150%. Respondents who indicated a strong motivation factor were typically assigned a 100% adoption score at the 75% and 100% incentive levels.

Table 2-9 presents the adjusted adoption scores (after financial and non-financial adjustments) for residential customers at the combined utility perspective. The table segments adoption score by market rate (MR), income-eligible (IE), and housing type (SF and MF). In general, residential customers indicated a willingness to participate between 80-90% at 100% incentive levels, and even some modest level of willingness to participate with 0% incentives. Typically, adoption rates were lower for income-eligible consumers at lower incentive levels.

TABLE 2-9 RESIDENTIAL FINAL ADOPTION SCORES BY INCENTIVE LEVEL

	Annual Incentive (% of incremental measure cost)				
	0%	25%	50%	75%	100%
SF-MR					
HVAC	36%	56%	70%	82%	91%
Water Heat	28%	49%	68%	81%	92%
Insulation/Air Sealing	21%	45%	69%	81%	90%
Appliances	23%	40%	58%	74%	87%
SF-IE					
HVAC	34%	53%	68%	82%	91%
Water Heat	16%	40%	62%	79%	91%
Insulation/Air Sealing	13%	36%	58%	76%	87%
Appliances	12%	34%	57%	75%	88%
MF-MR					
HVAC	21%	42%	59%	73%	82%
Water Heat	25%	46%	63%	76%	86%
Insulation/Air Sealing	20%	39%	60%	75%	86%
Appliances	23%	40%	58%	75%	88%
MF-IE					
HVAC	20%	40%	57%	72%	84%
Water Heat	20%	40%	58%	74%	84%
Insulation/Air Sealing	17%	39%	57%	72%	81%
Appliances	21%	38%	55%	71%	82%

Table 2-10 presents the adjusted adoption scores (after financial and non-financial adjustments) for nonresidential customers across several end-uses. In contrast to the residential sector energy efficiency WTP research, the nonresidential WTP survey questions were described in the form of payback periods to better align with how purchasing decisions are likely to be considered. The GDS Team analyzed the nonresidential data by utility, investment type (major/minor), and small vs. large customers with minimal differences across the groups. Due to these minimal differences and that individual segment response options resulted in low counts for cases, GDS utilized the average results across categories.

TABLE 2-10 NONRESIDENTIAL FINAL ADOPTION SCORES BY PAYBACK PERIOD

	Payback Performance (after incentive)				
	10 Years	5 Years	3 Years	1 Year	0 Years
HVAC	26%	48%	64%	76%	85%
Water Heat	25%	48%	64%	76%	84%
Refrigeration	22%	43%	58%	72%	81%

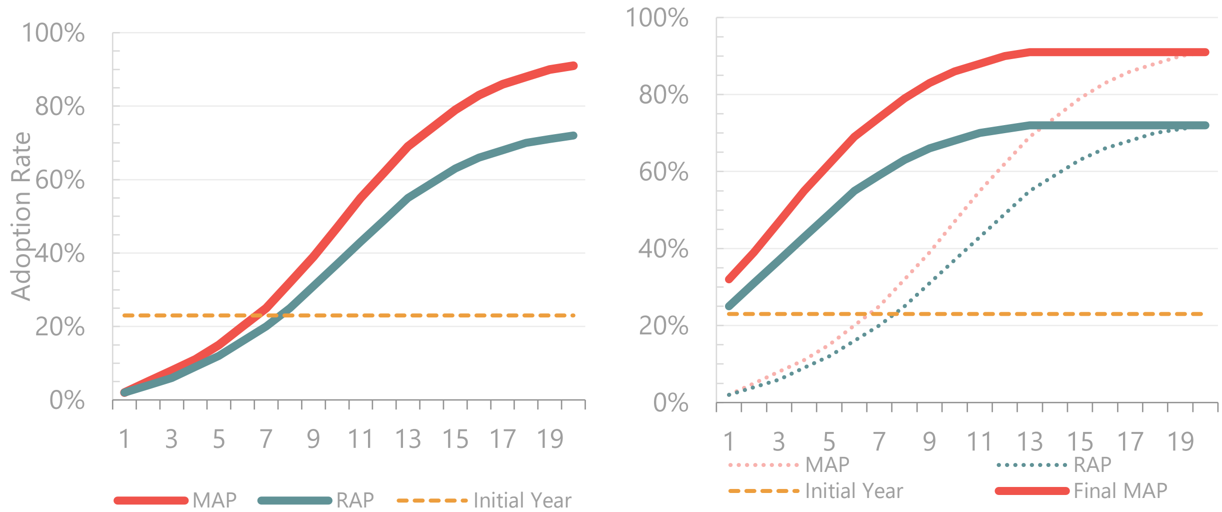
The assumed level of customer participation (take rate) for each energy efficiency measure is a key driver of achievable potential estimates. Ultimately, one of the final adoption scores noted above were mapped to each residential and nonresidential measure, serving as the point estimate for the long-term adoption rate. The final adoption rate from the market research reflects the presence of possible market barriers and associated difficulties in achieving the 100% market adoption assumed in the technical and economic scenarios. Meanwhile, the current energy efficient saturation was used to serve as an initial "ground-floor" market adoption rate. Additional detail, including an example demonstrating how the final market adoption curve was developed is provided below.

Initial Year Measure Adoption. First year adoption levels were informed by the primary or secondary market research indicating the current saturation of energy efficient equipment.

Long-Term Market Adoption Rates. The final adoption scores that resulted from the willingness-to-participate (WTP) surveys serve as the point-estimate for the long-term market adoption potential for the achievable scenarios. The MAP scenario assumed that incentives cover 100% of the incremental (or full) measure cost and/or create a payback performance of 0 years. The RAP long-term adoption rates were based on typical historical incentive levels and associated payback performance.

Adoption Curve. Once the initial year adoption rate (Point A) and long-term adoption rates (Point B) are determined, the remaining step was to determine the rate and duration to get from Point A to Point B. The MPS employed a standard s-curve that was set to either 20 years (traditional EE technologies) or 30 years (emerging technologies) paired with reaching the long-term end-point estimate from the market research. The 1st year point estimate was then generally used to establish the number of years remaining to reach the long-term adoption rate and the slope of adoption. See example below.

Using a central air conditioner as an example, the maximum adoption rate for the market-rate single family HVAC end-use is 91%, assuming 100% incentive. The realistic adoption rate, also for the market-rate single family appliance end-use, is 72% (based on an assumed incentive covering 50% of the incremental cost of an energy efficient AC). Also, according to the primary market research, approximately 23% of air conditioners in the ComEd service area are already energy efficient, serving as the point-estimate for the initial year adoption rate. The assumed MAP and RAP adoption curves, as well as the initial year adoption rate are all shown in the left line chart.



For the final adjusted adoption curve, the intersection of the initial year adoption rate and the unadjusted MAP and RAP adoption curve identifies the new shape of the curve. Using the initial year adoption rate of approximately 23% for energy-efficient refrigerators the starting point shifts along the initial curve to Year 7, with 13 years remaining to reach the long-term adoption rate of 91% and 72% respectively. The final adjusted MAP and RAP adoption curves are shown in the right line chart.

FIGURE 2-3: EXAMPLE INITIAL ADOPTION CURVES *(left)* AND FINAL ADJUSTED ADOPTION CURVES FOR MAP AND RAP *(right)*

A few exceptions to this approach warrant additional discussion. Due to impending legislation and suggested changes to the market baseline conditions for linear LED lighting in the commercial sector, the GDS Team assumed that the electric utilities would focus near-term programmatic efforts to drive successful conversions of LED lighting in the nonresidential sector. As a result, the model technique was altered to assume that all LED lighting equipment (i.e., bulbs/fixtures) opportunities were exhausted over a four (4) year period. Lighting controls, however, followed the general modeling logic. In addition, the GDS Team also adjusted the model logic for HVAC Shell measures to assume that the remaining opportunities were achieved consistently over the model timeframe (5% per year).

2.5.4 Scenarios

Following the estimates of maximum and realistic achievable potential, the GDS Team coordinated with the Joint Utilities and other interested Parties to develop additional scenarios that more closely aligned with current funding constraints and other related spending and/or savings targets. In addition to an overall spending target, these additional scenarios included spending and savings targets that considered income-eligible spending, electrification savings targets, public sector spending, multi-family sector spending, and whole building spending.[23] A more detailed review of these additional scenarios is included below. Each scenario is a subset of the realistic achievable potential savings.

2.5.4.1 Scenario Definitions

In total, the market potential study includes an analysis of four (4) additional scenarios assuming different savings and spending priorities. Table 2-11 provides an overall summary of each of the scenarios, with additional detail, by utility, show in Table 2-12 through Table 2-15. Cross-cutting portfolio costs, as a percentage of spending, were provided by utilities and are deliberately consistent with the current portfolio spending on cross-cutting portfolio expenditures. Income-eligible spending levels in the SMAP scenario reflect legislated minimums, while the STIP scenarios reflect current stipulation levels of income-eligible spending.

TABLE 2-11 OVERVIEW OF ADDITIONAL SAVINGS SCENARIOS

Scenario	General Definition
Statutory Maximum Achievable Potential (SMAP)	Includes statutory maximum overall spending levels and income-eligible spending levels. In addition, there are statutory defined targets for spending on multi-family households, whole building measures, and the public sector. Electrification impacts has a maximum allowable limit of 10% of overall savings, and income-eligible electrification should represent 25% of all electrification impacts.
Stipulated Spending Achievable Potential (STIP)	Overall spending levels are consistent with the SMAP scenario, but income-eligible spending is increased to align with current stipulated levels, resulting in fewer overall dollars for market rate and nonresidential spending. Similar spending targets for whole building, multifamily and public sector as SMAP. Electrification savings targets are designed to ramp up from 5% to 15% of total savings over a 10-year period. 25% of electrification impacts should still be achieved by the income-eligible sector. In addition, the STIP scenario prioritized current program measures, allocating 80% of the total spend on current program measures, with the remaining 20% for not currently offered measures.
STIP Plus (+)	Overall spending allocations consistent with the STIP scenario. In the STIP+ scenario, 80% of the spending was reserved for the cheapest (on a $/kWh or therm saved) measures, with the remaining 20% for all other measures. Electrification targets are the same as the STIP scenario.
STIP Weatherization (Wx)	Overall spending allocations consistent with the STIP scenario. In the STIP Wx scenario, up to 80% of the spending was allocated to building shell measures for residential market rate and income-eligible sectors, with the remaining spending allocated to all remaining measures. Electrification targets are the same as the STIP scenario.

TABLE 2-12 COMED SCENARIO OVERVIEW

[23] Cross-cutting portfolio function costs that do not have any directly associated energy savings in our analysis were based on recent historical levels as well as expected future levels based on utility input.

Sector	SMAP	STIP	STIP+	STIP Wx
Total Budget (2026)	$454,000,000	$454,000,000	$454,000,000	$454,000,000
% for Cross-Cutting Portfolio Functions	9%	9%	9%	9%
Remaining EE/Electrification $	$413,140,000	$413,140,000	$413,140,000	$413,140,000
Income Eligible $	$40,000,000	$100,000,000	$100,000,000	$100,000,000
Residential Market Rate $	$93,285,000	$71,040,000	$71,040,000	$71,040,000
C&I Spend	$279,855,000	$242,100,000	$242,100,000	$242,100,000
Other Targets				
IE Whole Building $	$32,000,000	$70,000,000	$70,000,000	$70,000,000
IE Health & Safety	$4,800,000	$10,500,000	$10,500,000	$10,500,000
IE MF Target $	-	$32,000,000	$32,000,000	$32,000,000
Public Sector $	$45,400,000	$45,400,000	$45,400,000	$45,400,000
Electrification Savings (% of Total Savings)	10%	10%	10%	10%
IE Electrification Savings (% of Electrification)	25%	25%	25%	25%
Additional Prioritization				
	Behavior Savings consistent with historical levels (both residential market rate and IE)			
		80% of spending toward current program measures	80% of spending towards cheapest ($/kWh saved) measures	Up to 80% of spending toward building shell/Wx measures

TABLE 2-13 AMEREN-ELECTRIC SCENARIO OVERVIEW

Sector	SMAP	STIP	STIP+	STIP Wx
Total Budget (2026)	$126,200,000	$126,200,000	$126,200,000	$126,200,000
% for Cross-Cutting Portfolio Functions	14.5%	14.5%	14.5%	14.5%
Remaining EE/Electrification $	$107,901,000	$107,901,000	$107,901,000	$107,901,000
Income Eligible $	$13,000,000	$38,500,000	$38,500,000	$38,500,000
Residential Market Rate $	$28,470,300	$20,820,300	$20,820,300	$20,820,300
C&I Spend	$66,430,700	$48,580,700	$48,580,700	$48,580,700
Other Targets				
IE Whole Building $	$10,400,000	$26,950,000	$26,950,000	$26,950,000
IE Health & Safety	$1,560,000	$4,042,500	$4,042,500	$4,042,500
IE MF Target $	-	$4,000,000	$4,000,000	$4,000,000
Public Sector $	$8,834,000	$8,834,000	$8,834,000	$8,834,000
Electrification Savings (% of Total Savings)	10%	10%	10%	10%
IE Electrification Savings (% of Electrification)	25%	25%	25%	25%
Additional Prioritization				
		80% of spending toward current	80% of spending towards	Up to 80% of spending toward

Sector	SMAP	STIP	STIP+	STIP Wx
		program measures	cheapest ($/kWh saved) measures	building shell/Wx measures

TABLE 2-14 NICOR GAS SCENARIO OVERVIEW

Sector	SMAP	STIP	STIP+	STIP Wx
Total Budget (2026)	$60,000,000	$60,000,000	$60,000,000	$60,000,000
% for Cross-Cutting Portfolio Functions	21%	21%	21%	21%
Remaining EE $	$47,400,000	$47,400,000	$47,400,000	$47,400,000
Income Eligible $	$5,200,000	$17,333,333	$17,333,333	$17,333,333
Residential Market Rate $	$28,470,000	$16,236,000	$16,236,000	$16,236,000
C&I Spend	$19,412,000	$13,830,667	$13,830,667	$13,830,667
Other Targets				
IE Whole Building $	$5,200,000	$17,333,333	$17,333,333	$17,333,333
IE Health & Safety	$520,000	$2,000,000	$2,000,000	$2,000,000
IE MF Target $	-	$4,000,000	$4,000,000	$4,000,000
Public Sector $	$6,000,000	$6,000,000	$6,000,000	$6,000,000
Additional Prioritization				
	Behavior Savings consistent with historical levels (both residential market rate and IE)			
	$6,000,000 of residential market rate for furnaces & thermostats	$6,000,000 of residential market rate for furnaces & thermostats	$6,000,000 of residential market rate for furnaces & thermostats	
		80% of spending toward current program measures	80% of spending towards cheapest ($/kWh saved) measures	Up to 80% of spending toward building shell/Wx measures

TABLE 2-15 AMEREN-GAS SCENARIO OVERVIEW

Sector	SMAP	STIP	STIP+	STIP Wx
Total Budget (2026)	$19,330,000	$19,330,000	$19,330,000	$19,330,000
% for Cross-Cutting Portfolio Functions	14.5%	14.5%	14.5%	14.5%
Remaining EE $	$16,526,982	$16,526,982	$16,526,982	$16,526,982
Income Eligible $	$3,400,000	$7,000,000	$7,000,000	$7,000,000
Residential Market Rate $	$2,796,047	$2,029,247	$2,029,247	$2,029,247
C&I Spend	$10,330,935	$7,497,735	$7,497,735	$7,497,735
Other Targets				
IE Whole Building $	$3,400,000	$7,000,000	$7,000,000	$7,000,000
IE Health & Safety	$340,000	$650,000	$650,000	$650,000
IE MF Target $	-	$727,273	$727,273	$727,273
Public Sector $	$1,933,000	$1,933,000	$1,933,000	$1,933,000

Sector	SMAP	STIP	STIP+	STIP Wx
Additional Prioritization				
	$2,500,000 of residential market rate for furnaces & thermostats	$2,500,000 of residential market rate for furnaces & thermostats	$2,500,000 of residential market rate for furnaces & thermostats	
		80% of spending toward current program measures	80% of spending towards cheapest ($/kWh saved) measures	Up to 80% of spending toward building shell/Wx measures

2.5.4.2 Scenario Modeling Approaches

Each of the provided scenarios based on statutory or stipulated requirements are subsets of the estimate of realistic achievable savings potential. Measure participation, savings, and costs are scaled to meet the specific spending and/or savings target parameters outlined above.

2.5.4.2.1 Electrification Targets

A key first step in modeling each of the funding scenarios discussed above was to assess the associated cost of achieving the electrification savings targets identified for each scenario. This step allowed the GDS Team to determine to what extent the cost of electrification savings might limit the funds available for traditional energy efficiency measures.

In developing the scenario funding constraints and associated electrification savings targets, the GDS Team has observed that in many cases the budget needed to meet the income-eligible sector electrification savings target is great enough to appropriate a significant portion of the budget allocated to the income-eligible sector. The GDS Team did not believe the intended outcome is to limit the amount of budget for traditional EE to achieve the electrification target.

Therefore, the GDS Team recommended to the Joint Utilities and other Parties the action of setting a cap on the allocation of the electrification spending at 20% of the income-eligible sector budget, in order allocate at least 80% of income-eligible funding towards traditional energy efficiency programs and measures. In turn, the amount of savings achieved by the income-eligible electrification spending cap would dictate the required level of savings from market rate & nonresidential electrification (i.e., combined, no more than the 75% of electrification savings). The split between market rate and nonresidential electrification was dependent on both the current allocations of costs between residential market rate and nonresidential, as well as the associated electrification costs in both segments.

The result was that we were often unable to meet the electrification savings targets in the SMAP scenario and in most STIP years, though the early years of the various STIP scenarios could typically meet a 5% target, but did not hit the 10% savings cap. This approach served to provide some insight into what could be achieved given some general guard rails on electrification spending relative to total budgets and allowed the GDS Team to narrow in on the remaining funds available for traditional energy efficiency measures.[24]

2.5.4.2.2 SMAP

For each major sector category (residential market rate, income-eligible, and nonresidential) GDS determined the annual utility costs associated with the realistic achievable potential and developed unique scaling factors for each sector (or sub-sector) category to constrain the achievable costs to the statutory spending requirements. For utilities with behavior savings programs, this scenario achieved 100% of the achievable behavior potential to remain consistent with historical levels and scaled all remaining measures to the remaining budget within a customer sector uniformly. Similarly, for gas utilities with significant historical savings and costs associated with furnace/thermostat measures, the GDS Team allowed the model to scale these measures at unique levels to maintain a similar focus and level of achievement.

2.5.4.2.3 STIP

The modeling approach was generally consistent for the STIP scenario as the SMAP, with two key differences. First, utility spending for the income-eligible sector was increased, creating lower scaling factors across the residential market rate and nonresidential sectors/sub-sectors. Second, the GDS Team reserved 80% of the sector spend targets for measures that are currently offered in existing utility portfolios. Only 20% of the spending target was permitted for measures that were designated as "not currently offered.[25]" This helped to ensure that the STIP savings levels were derived primarily from measures that are currently offered by utilities versus potentially more costly "no program" measures.[26]

2.5.4.2.4 STIP+

The STIP+ scenario leverages the same budget parameters as the STIP scenario. The key differentiating aspect of the STIP+ scenario was to prioritize the measures within each customer/program sector with the lowest cost per lifetime kWh saved. For each sector/subsector spending target. The GDS Team ranked each measure based on a cost per lifetime kWh saved, and achieved 100% of the realistic achievable potential of each incremental measure until 80% of the spend target had been achieved. The remaining 20% of the spending target on energy efficiency was then spread across the remaining achievable potential savings and costs. This approach was intended to prioritize the cheapest savings, thus maximizing the savings potential as utility programs will typically prioritize low-cost measures.

2.5.4.2.5 STIP Wx

The STIP+ scenario again leverages the same budget parameters as the STIP scenario. The key differentiating aspect of the STIP Wx scenario was to prioritize the weatherization and shell measures

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[24] Electrification spending assumes customer uptake of those measures. Each electric utility may have differences in its markets, program plans, or program results that could lead to different outcomes.

[25] This prioritization in the STIP scenario primarily impacted the residential sector, as all nonresidential measures could be mapped to the "custom" program if not part of a prescriptive offering.

[26] Electrification measures did not receive this limiting factor. As such, electrification measures that are not currently offered by a utility in its current portfolio are not limited by the 20% factor.

within the residential market rate and income-eligible sectors over equipment-based measures. In this scenario, 80% of the spending was reserved for shell measures, with the remaining 20% spread across the achievable potential for equipment measures. As with the other STIP scenarios, unique scaling factors were determined for each sector/subsector spend target and all achievable savings from measures within those groups were scaled proportionally.

2.5.4.3 Scenario Caveats

The scenario results reflect an independent estimate of program potential under various constraints. The results are not the equivalent of utility program plans, but provide results that, when compared, indicate the potential impact of program plans that may emphasize alternative mixes of measures, resources, and experience. While the Joint Utility and other involved Parties had input throughout the study process and assisted the GDS Team with data, general guidance, and their experience, it is possible and likely that the scenarios identified here will differ from draft or final utility plans. This is to be expected and appropriate given the collaborative nature of the market potential study process.

The GDS Team had to make assumptions regarding the future of energy efficiency programs. These assumptions are explicit in each scenario but have a potentially material effect. Below we list several caveats that drive the analysis but could also be changed should programs or policies shift in the future.

- Annual Sector Spending, and Segment Allocations or Program Allocations. Allocation between residential market rate segment and nonresidential spending were generally informed by recent historical levels. These allocations may shift in the future as measure acquisition costs or other planning priorities change. Additionally, the GDS Team identified that segment spending targets (i.e., multifamily and/or public buildings) may be more difficult to maintain in one utility service area over another. For example, the Ameren Illinois service area has limited multifamily households relative to the ComEd service area. Finally, allocations for individual program and end use opportunities may also shift from historical levels as planning tradeoffs are made. For example, as the STIP Wx scenario results illustrate, within the fixed budget available in the STIP scenarios, higher budget allocation to residential weatherization measures reduces the residential savings potential.

- Income-Eligible Spending. The GDS Team notes that spending on the income-eligible sector is significantly increased in the STIP scenarios relative to the statutory minimum spending modeled in the SMAP scenario. While there appears to be sufficient achievable potential savings and costs to achieve the stipulated levels, the resulting decrease in portfolio savings is substantial, as income-eligible acquisition costs are higher than other savings opportunities in other segments or sectors. These higher acquisition costs and income-eligible budgets could create limitations to achieving overall savings targets.

- Electrification. As noted above (Section 2.5.4.2.1), the GDS projection of electrification savings is below legislative limits on the share of electric portfolio savings that come from electrification measures (which are set at 10% of portfolio savings for the 2026-2029 plan cycle and increase to 15% in future years). The additional legislative requirement that income-eligible electrification savings must represent at least 25% of overall electrification savings, was the driving factor limiting overall electrification savings. At higher levels of overall electrification, the 25% income-eligible requirement absorbs a significant portion of all income-eligible funds and limits opportunities for traditional energy efficiency measures. Additionally, the substantial utility bill increases associated with most electrification measures, as well as additional market barriers related to issues such as unfamiliar new technologies, impact on comfort, and workforce needs, are likely to limit electrification adoption in the near term. Illinois is nascent in the electrification market space, with limited market data or market discovery available to inform the study. Markets for electrification may shift in the future in novel ways.

- Commercial Lighting. Given current legislation affecting the future market for commercial fluorescent lighting, the GDS Team assumed that all remaining achievable LED bulb/fixture retrofits would occur over the 2026-2029 time period. Only savings from lighting controls, or other lighting emerging technologies would remain after this time. However, it is possible that the legislation may enable additional achievable potential (as adoption rates may approach 100%) and it is also possible that opportunities will exist beyond the 2029 time period. These alternative assumptions could impact the cost and savings opportunities within the nonresidential sector, and alternative program plan assumptions may be warranted.

- Pace of Innovation. GDS incorporated emerging technologies into the analysis. The study models specific technologies under development, and also incorporates more general assumptions about additional technological progress farther out in the future. The costs, savings, and market adoption of these emerging technologies are more uncertain than those for existing technologies delivered by the current utility portfolios. In addition, the pace and timing of technological change introduces further uncertainties, as new technologies will enter the market with highly uncertain timing and impact levels.

- General Model Caveats. The achievable potentials in a market potential study is designed to inform where savings opportunities remain as well as where opportunities may become more constrained or difficult to achieve at an aggregate population level. A market potential study can adequately address one or several specific constraints but is challenged to address different spending and/or savings targets across a myriad of cross-cutting sectors/subsectors under a wide range of policy directives. In some instances, identifying the ability to meet one target may indirectly limit the ability to meet a second (or tertiary) target. In these instances, program planning models covering the 2026-2029 plans may be more effective at addressing multiple targets, goals, opportunities, and their timing without the inherent generalizations and interactions present in a broader market potential study.

The combined effect of these assumptions and considerations reflects the GDS Team's independent judgement as well as the collaboration with the Joint Utilities and interested Parties. As these parties move forward toward finalizing near-term plans or plans that emerge for 2030 or later, the GDS Team believes that is reasonable for alternatives to the modeled scenarios to emerge.

3 CHARACTERIZATION OF ILLINOIS SERVICE AREAS

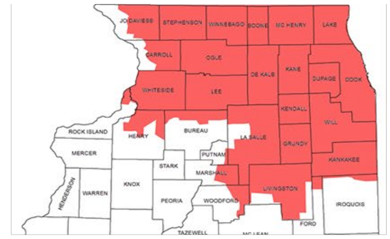
Energy efficiency potential studies and other market assessment studies are valuable sources of information for planning energy efficiency programs. To develop estimates of electricity savings potential, it is important to understand the extent to which electricity and natural gas is used by households and businesses in Illinois in the joint utility service areas. This chapter describes the various ways in which the forecast is used for this study, presents the baseline and disaggregated forecasts, and describes the methodology and data sources used by GDS for the purposes of generating the load forecasts that were used in the potential analysis.

This study includes the assessment of electric and natural gas potential for the Commonwealth Edison Company ("ComEd") electric service area, Nicor gas service area, and Ameren electric and natural gas service areas. Figure 3-1 maps the numerous service areas for each of these utilities.

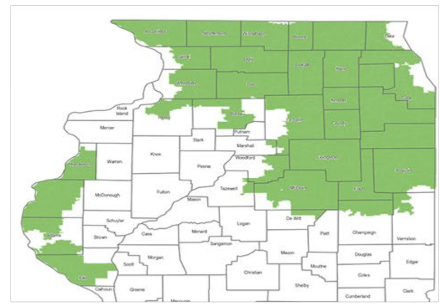
Commonwealth Edison Company, a subsidiary of Exelon Corporation ("Exelon"), is a large, investor-owned electric utility with headquarters in Chicago, Illinois. ComEd's service territory borders Iroquois County to the south, the Wisconsin border to the north, the Iowa border to the west, and Lake Michigan and the Indiana border to the east. ComEd provides service to approximately 4 million customers across northern Illinois, or 70 percent of the state's population.

Northern Illinois Gas Company, dba Nicor Gas COMPANY (Nicor Gas), operates over 34,000 miles of distribution and transmission mains and pipelines and serves two million customers in a service territory that encompasses most of the northern third of Illinois, excluding the city of Chicago.

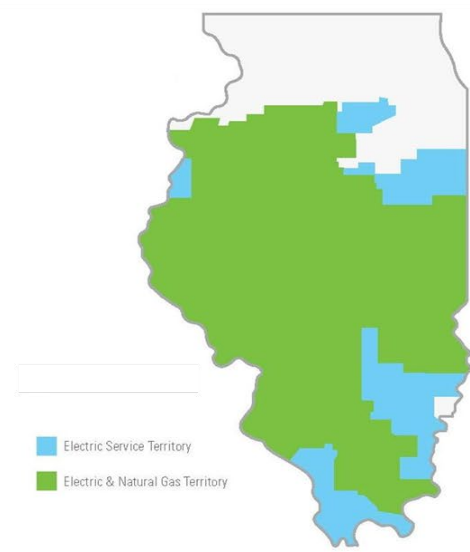
The Ameren Illinois service territory spans 43,700 square miles across the lower three-quarters of Illinois. Ameren Illinois serves approximately 1.2 million electric and 800,000 natural gas customers across 1,200 communities.



ComEd Electric Service Area



Nicor Natural Gas Service Area



Ameren Electric and Gas Service Areas

TERRITORIES

FIGURE 3-1: UTILITY SERVICE

3.1 LOAD FORECASTS

The analysis of the potential for energy efficiency savings begins with utilizing the most recent and available electric and/or natural gas sales forecast for each utility for a period of 20 years beginning in

2026. If a utility was not able to provide a sales forecast for the 20-year timeframe, the GDS Team extrapolated the sales forecast by applying a compound average growth rate calculated from the available forecast. The GDS Team then made two additional adjustments to the sales forecast data.

The first adjustment was to make minor redistributions between the commercial and industrial sales based on utility provided customer industry classification codes. This serves to place sales of facilities of commercial type buildings in the commercial sector regardless of their initial placement in the sales forecast (and vice versa for industrial facilities). The second adjustment was to remove the sales from customers are exempt from or who have opted out of contributing to energy efficiency program funds.

3.1.1 ComEd Load Forecast

ComEd provided the GDS Team with a load forecast for the 2024-2040 forecast period. Table 3-1 shows the % of sales by sector, following any needed minor adjustments to redistribute load across customer classes based on industry codes and excluding opt-out sales. On average, forecasted sales were assumed to grow by approximately 0.7% annually over the 20-year analysis timeframe.

TABLE 3-1 2026 COMED SALES BY SECTOR

Residential	Commercial	Industrial/Agr.	Other
36.6%	48.1%	14.3%	1.2%

3.1.2 Ameren Electric Load Forecast

Ameren Illinois provided the GDS Team with an electric load forecast for the 2024-2028 forecast period. Table 3-2 shows the % of sales by sector, following any needed minor adjustments to redistribute load across customer classes based on industry codes and excluding opt-out sales. On average, forecasted sales were assumed to decrease by approximately 0.4% annually over the 20-year analysis timeframe.

TABLE 3-2 2026 AMEREN ILLINOIS-ELECTRIC SALES BY SECTOR

Residential	Commercial	Industrial/Agr.	Other
42.9%	42.4%	13.1%	1.6%

3.1.3 Nicor Gas Load Forecast

Nicor Gas provided the GDS Team with a natural gas load forecast for the 2024-2025 forecast period. Table 3-3 shows the % of sales by sector, following any needed minor adjustments to redistribute load across customer classes based on industry codes and excluding exempt or opt-out sales. On average, forecasted sales were assumed to increase by approximately 0.2% annually over the 20-year analysis timeframe, driven primarily by growth in the residential customer class.

TABLE 3-3 2026 NICOR GAS SALES BY SECTOR

Residential	Commercial	Industrial/Agr.	Other
55.6%	32.9%	11.5%	0%

3.1.4 Ameren Gas Load Forecast

Ameren Illinois provided the GDS Team with a natural gas load forecast for the 2024-2028 forecast period. Table 3-4 shows the % of sales by sector, following any needed minor adjustments to redistribute load across customer classes based on industry codes and excluding opt-out customer sales. On average, forecasted sales were assumed to decrease by approximately 0.4% annually over the 20-year analysis timeframe.

TABLE 3-4 2026 AMEREN ILLINOIS-GAS SALES BY SECTOR

Residential	Commercial	Industrial/Agr.	Other
47.6%	33.9%	18.2%	0.4%

3.2 RESIDENTIAL SECTOR LOAD DETAIL

3.2.1 ComEd

For the bottom-up modeling approach to assess future remaining potential, it is important to understand the breakdown of the ComEd housing stock. Based on a review of the residential customer database and responses to the baseline study, the GDS Team estimated that roughly 59% of households were single-family, with the remaining 41% categorized as multifamily. In addition, for single-family households, approximately 32% qualified as income-eligible households, while 46% of multifamily households qualified as income-eligible.

The GDS Team also disaggregated the forecasted sales by housing type and end-use based on a combination of utility-specific data and data from the Energy Information Administration's (EIA) Annual Energy Outlook (AEO) and from the US Census Bureau. Figure 3-2 shows the breakdown by housing type and by end-use.

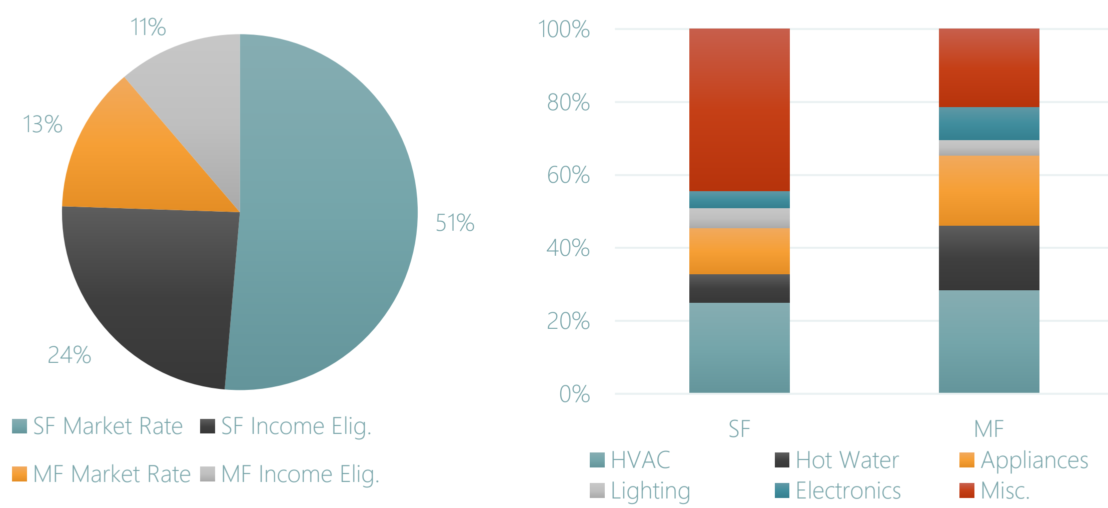


FIGURE 3-2: COMED SALES BREAKDOWN BY HOME TYPE *(left)* AND BY END-USE *(right)*

3.2.2 Ameren Electric

Based on a review of the Ameren Illinois electric residential customer database and responses to the baseline study, the GDS Team estimated that roughly 94% of households were single-family, with the remaining 6% categorized as multifamily. In addition, for single-family households, approximately 37% qualified as income-eligible households, while 64% of multifamily households qualified as income-eligible.

The GDS Team also disaggregated the forecasted sales by housing type and end-use based on a combination of utility-specific data and data from the Energy Information Administration's (EIA) Annual Energy Outlook (AEO) and from the US Census Bureau. Figure 3-3 shows the breakdown by housing type and by end-use.

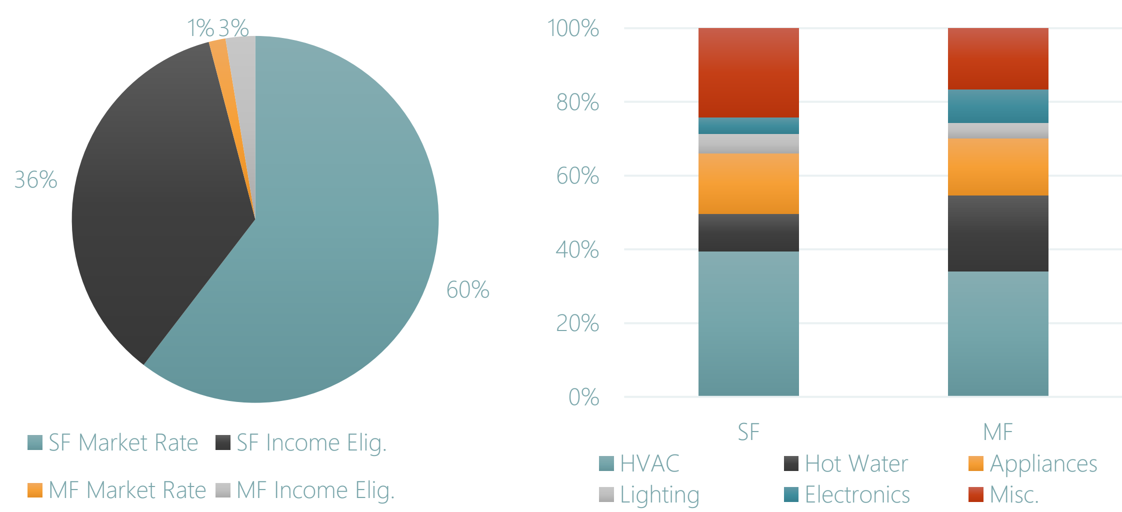


FIGURE 3-3: AMEREN ILLINOIS ELECTRIC SALES BREAKDOWN BY HOME TYPE *(left)* AND BY END-USE *(right)*

3.2.3 Nicor Gas

Based on a review of the Nicor Gas residential customer database and responses to the baseline study, the GDS Team estimated that roughly 86% of households were single-family, with the remaining 14% categorized as multifamily. In addition, for single-family households, approximately 30% qualified as income-eligible households, while 51% of multifamily households qualified as income-eligible.

The GDS Team also disaggregated the forecasted sales by housing type and end-use based on a combination of utility-specific data and data from the Energy Information Administration's (EIA) Annual Energy Outlook (AEO) and from the US Census Bureau. Figure 3-4 shows the breakdown by housing type and by end-use.

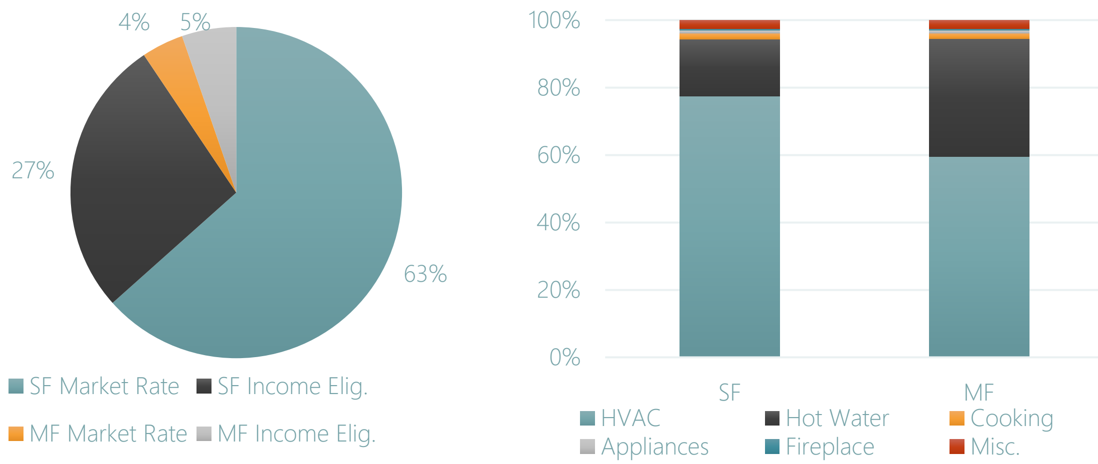


FIGURE 3-4: NICOR GAS SALES BREAKDOWN BY HOME TYPE *(left)* AND BY END-USE *(right)*

3.2.4 Ameren Gas

Based on a review of the Ameren Illinois gas residential customer database and responses to the baseline study, the GDS Team estimated that roughly 94% of households were single-family, with the remaining 6% categorized as multifamily. In addition, for single-family households, approximately 37% qualified as income-eligible households, while 63% of multifamily households qualified as income-eligible.

The GDS Team also disaggregated the forecasted sales by housing type and end-use based on a combination of utility-specific data and data from the Energy Information Administration's (EIA) Annual Energy Outlook (AEO) and from the US Census Bureau. Figure 3-5 shows the breakdown by housing type and by end-use.

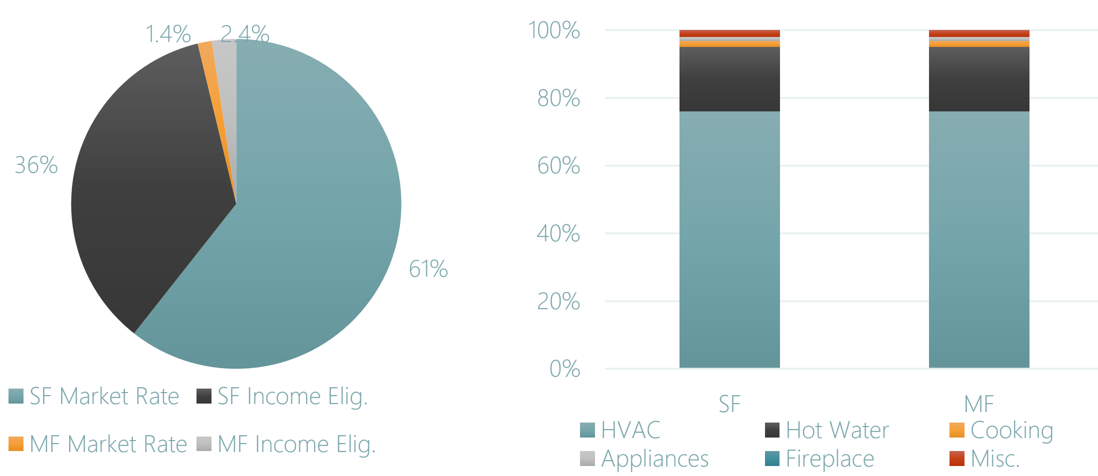


FIGURE 3-5: AMEREN ILLINOIS-GAS SALES BREAKDOWN BY HOME TYPE *(left)* AND BY END-USE *(right)*

3.3 COMMERCIAL/INDUSTRIAL SECTOR LOAD DETAIL

3.3.1 ComEd

Nonresidential sales in the ComEd service territory were first disaggregated based on sales by building type using the ComEd nonresidential customer database sales by industry code (Figure 3-6.). The GDS Team further segmented sales between private and public businesses based on specific industry codes. Overall, approximately 13.7% of commercial sales were considered public buildings, primarily across education, office, and other business types. Overall sales by end-use (across all business types) is also shown in Figure 3-6, with Interior Lighting (12%), Refrigeration (12%), Plug/Office (17%) and Miscellaneous (27%) making up 2/3rds of the total commercial sales. Combined HVAC (heating, cooling, and ventilation) make up an additional 24% of commercial sales.

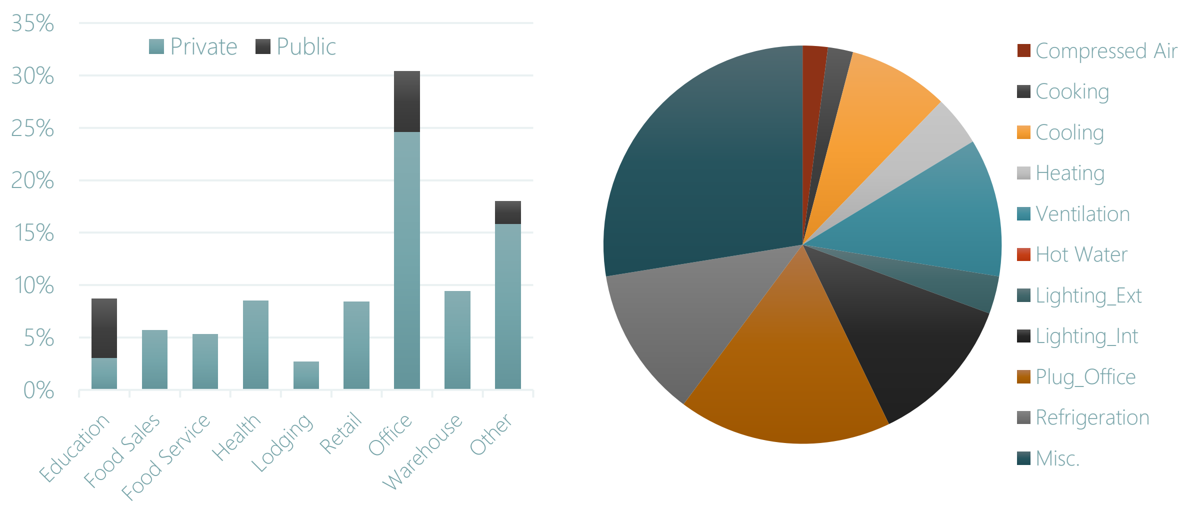


FIGURE 3-6: COMED COMMERCIAL SALES BREAKDOWN BY BUSINESS TYPE *(left)* AND BY END-USE *(right)*

Similarly, industrial sales in the ComEd service territory were first disaggregated based on sales by industry type using the ComEd nonresidential customer database sales by industry code, with sales by end-use derived from 2018 MECS data and weighted to the sector level[27]. (Figure 3-7).

[27] Industrial end-use shares by industry type were derived from the 2018 MECS data using nation-level shares of end-uses by industry type. For more information see: https://www.eia.gov/consumption/manufacturing/data/2018/

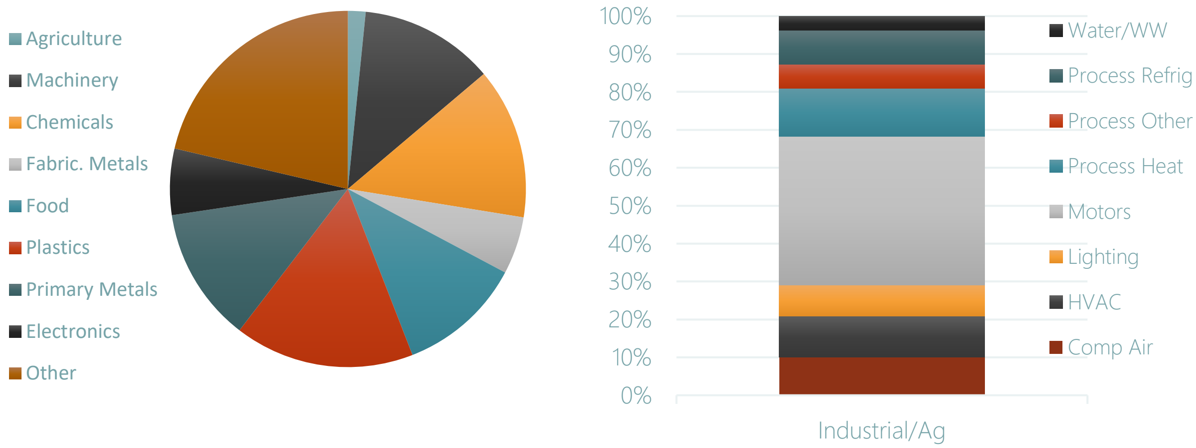


FIGURE 3-7: COMED INDUSTRIAL SALES BREAKDOWN BY BUSINESS TYPE *(left)* AND BY END-USE *(right)*

3.3.2 Ameren Electric

Nonresidential sales in the Ameren Illinois electric service territory were first disaggregated based on sales by building type using the Ameren Illinois electric nonresidential customer database sales by industry code (Figure 3-8). The GDS Team further segmented sales between private and public businesses based on specific industry codes. Overall, approximately 13.1% of commercial sales were considered public buildings, primarily across education, office, and other business types. Overall sales by end-use (across all business types) is also shown in Figure 3-8, with Interior Lighting (13%), Refrigeration (11%), Plug/Office (16%) and Miscellaneous (30%) making up 2/3rds of the total commercial sales. Combined HVAC (heating, cooling, and ventilation) make up an additional 24% of commercial sales.

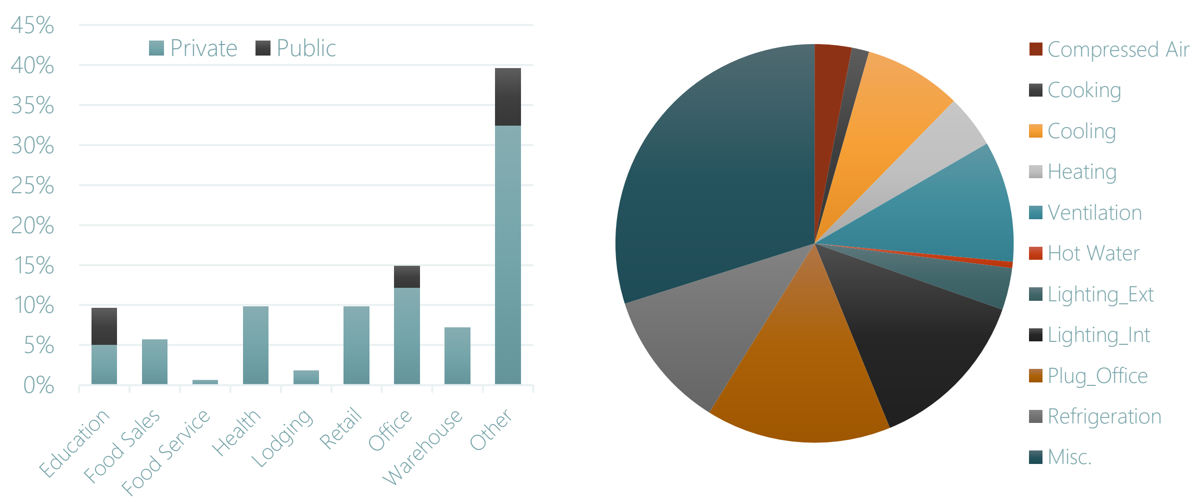
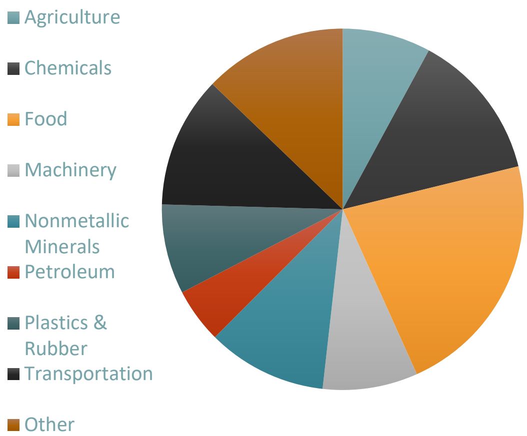


FIGURE 3-8: AMEREN ILLINOIS ELECTRIC COMMERCIAL SALES BREAKDOWN BY BUSINESS TYPE *(left)* AND BY END-USE *(right)*

Similarly, industrial sales in the Ameren Illinois electric service territory were first disaggregated based on sales by industry type using the Ameren Illinois nonresidential customer database sales by industry code, with sales by end-use derived from 2018 MECS data and weighted to the sector level. (Figure 3-9).



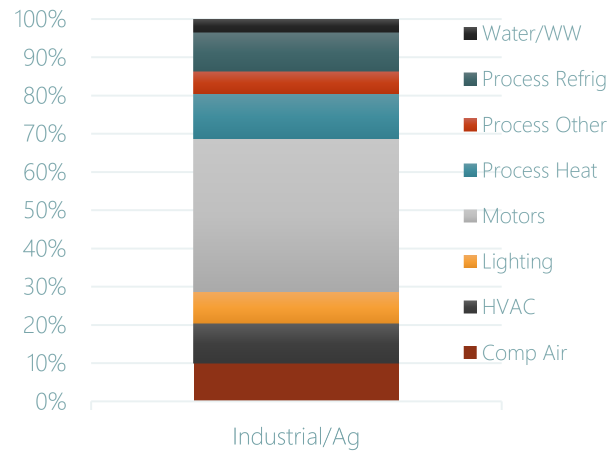
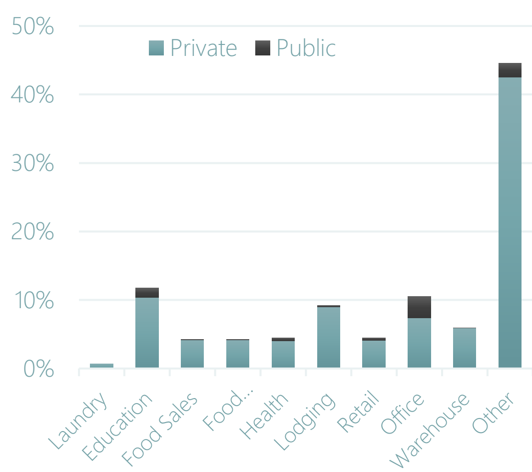


FIGURE 3-9: AMEREN ILLINOIS INDUSTRIAL SALES BREAKDOWN BY BUSINESS TYPE *(left)* AND BY END-USE *(right)*

3.3.3 Nicor Gas

Nonresidential sales in the Nicor Gas service territory were first disaggregated based on sales by building type using the Nicor Gas nonresidential customer database sales by industry code (Figure 3-10) and information regarding exempt or opt-out customers. The GDS Team further segmented sales between private and public businesses based on specific industry codes. Overall, approximately 7.7% of commercial sales were considered public buildings, primarily across education, office, and other business types. Overall sales by end-use (across all business types) is also shown in Figure 3-10, with HVAC (Heating) (74%) and Hot Water (16%) making up 90% of the total commercial sales.



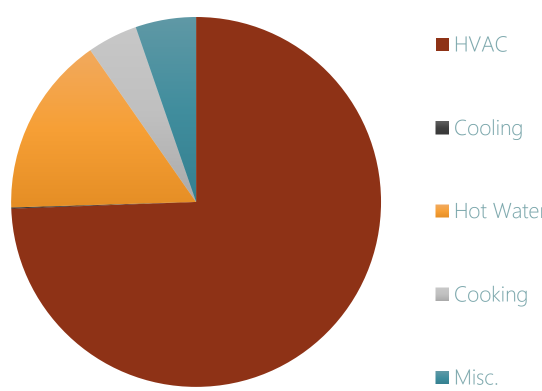


FIGURE 3-10: NICOR GAS COMMERCIAL SALES BREAKDOWN BY BUSINESS TYPE *(left)* AND BY END-USE *(right)*

Similarly, industrial sales in the Nicor Gas service territory were first disaggregated based on sales by industry type using the Nicor Gas nonresidential customer database sales by industry code, with sales by end-use derived from 2018 MECS data and weighted to the sector level. (Figure 3-11).[28]

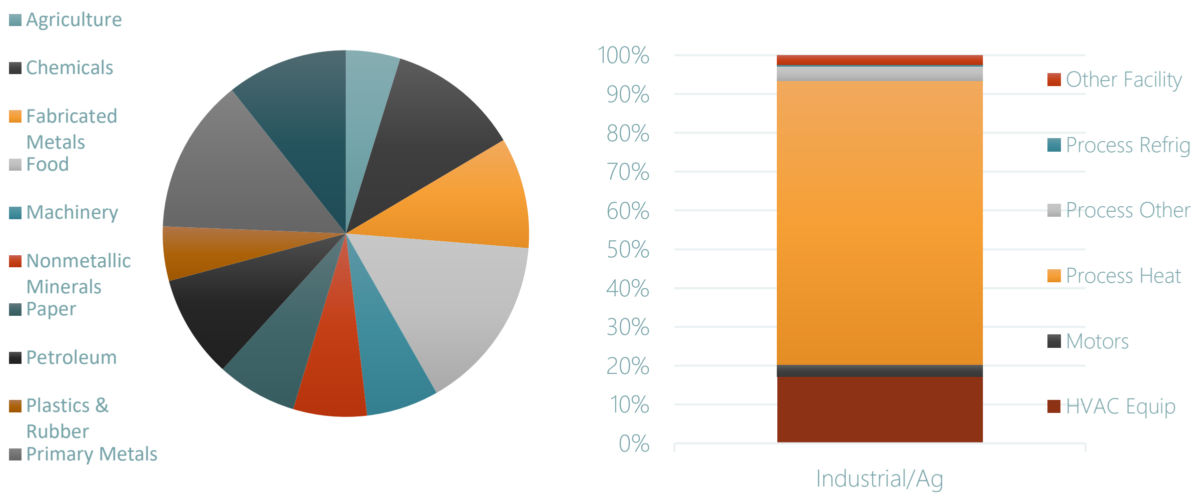


FIGURE 3-11: NICOR GAS INDUSTRIAL SALES BREAKDOWN BY BUSINESS TYPE *(left)* AND BY END-USE *(right)*

3.3.4 Ameren Gas

Nonresidential sales in the Ameren Illinois gas service territory were disaggregated based on sales by building type using the Ameren Illinois gas nonresidential customer database sales by industry code (Figure 3-12). The GDS Team further segmented sales between private and public businesses based on specific industry codes. About 14.1% of commercial sales were considered public buildings, primarily across education, office, and other business types. Sales by end-use (across all business types) is shown in Figure 3-12, with HVAC (Heating) (81%) and Hot Water (13%) making up 94% of commercial sales.

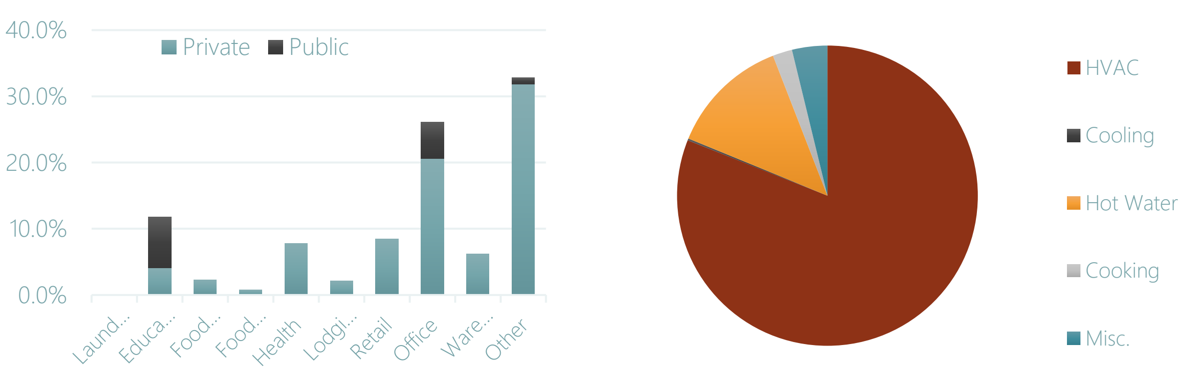
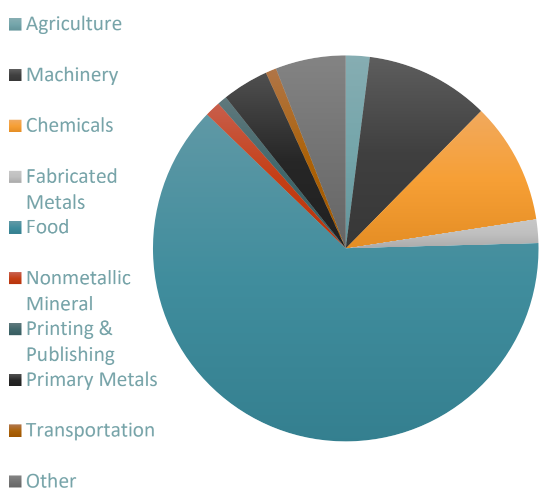


FIGURE 3-12: AMEREN ILLINOIS GAS COMMERCIAL SALES BREAKDOWN BY BUSINESS TYPE *(left)* AND BY END-USE *(right)*

[28] A portion of industrial segment sales are identified as combined heat and power (CHP) in the 2018 Manufacturing Energy Consumption Survey. GDS removed the share of load associated with CHP under the assumption that these represent very large customers and are not program eligible. This is true for both Nicor Gas and Ameren Gas.

Similarly, industrial sales in the Ameren Illinois gas service territory were first disaggregated based on sales by industry type using the Ameren Illinois gas nonresidential customer database sales by industry code, with sales by end-use derived from 2018 MECS data and weighted to the sector level. (Figure 3-13).



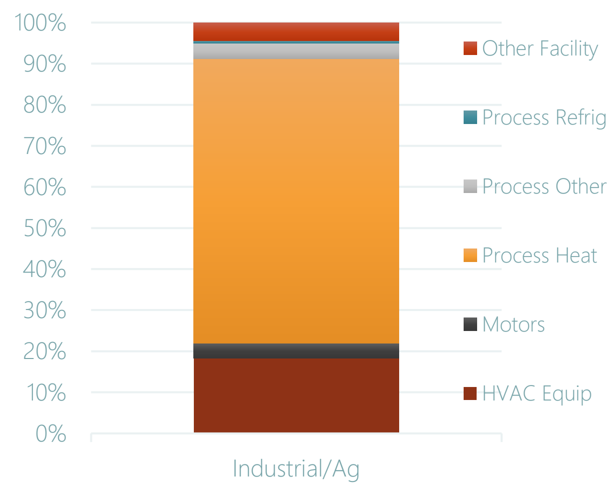


FIGURE 3-13: AMEREN ILLINOIS GAS INDUSTRIAL SALES BREAKDOWN BY BUSINESS TYPE *(left)* AND BY END-USE *(right)*

4 JOINT UTILITY MARKET POTENTIAL SAVINGS SUMMARY

This chapter provides an overview of the combined market potential savings[29] and costs. This helps provide some high-level context of the overall potential of the electric and gas utilities in Illinois that participated in the study. Subsequent chapters provide additional utility-level results and more details regarding sector-level, end-use level, and market-segment level potential, as well as savings opportunities and costs associated with various program planning considerations and policy goals.

4.1 ELECTRIC UTILITIES

Figure 4-1 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes for the electric utilities combined. Across the first four years of the study, the cumulative annual RAP savings reach 8% of forecasted sales, which is on average about 2% per year. These achievable potential savings vary by utility and sector and may not reflect what can actually be achieved by utilities. Scenario level estimates within each of the subsequent chapters provide additional insights into what can be achieved with funding constraints associated with the scenarios and parameters described in Chapter 2.

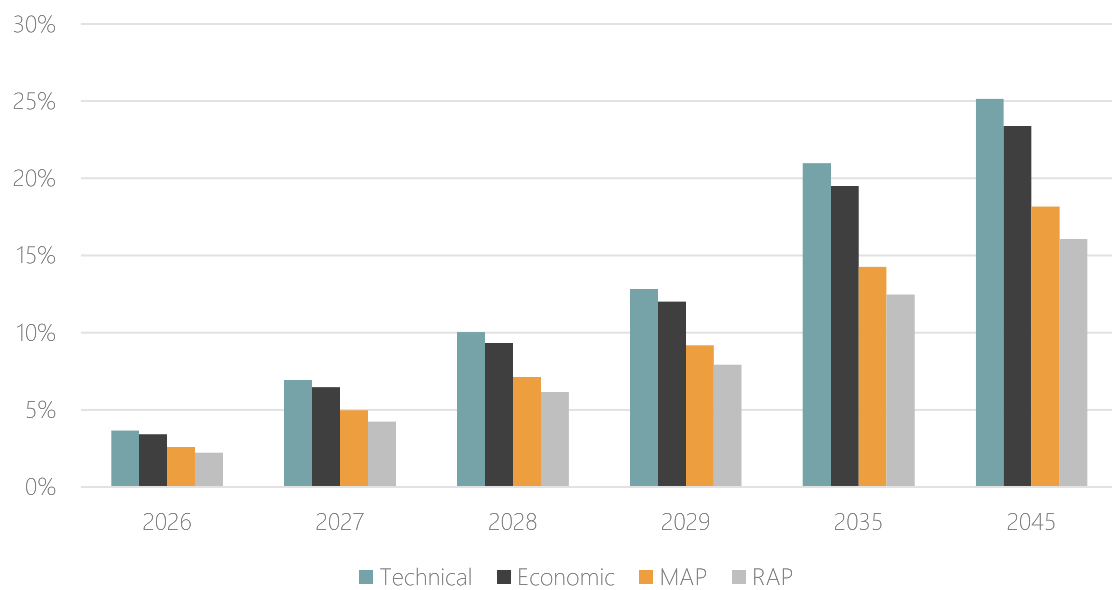


FIGURE 4-1: CUMULATIVE ANNUAL ELECTRIC ENERGY SAVINGS POTENTIAL (ALL SECTORS)

Table 4-1 provides additional near-term detail of the RAP savings on an annual basis. The incremental annual electric savings increase from 3.2 million MWh to 3.7 million MWh with an estimated cost of increasing from $1.7 billion to $2.2 billion.

[29] All market potential savings and additional constrained savings are provided as net savings.

TABLE 4-1: ANNUAL RAP MWH SAVINGS AND COSTS – BY SECTOR AND TOTAL (2026-2029)

	2026	2027	2028	2029
RAP Savings	3,224,020	3,538,306	3,583,814	3,662,680
RAP Budget	$1,661,675,719	$1,934,037,259	$2,051,656,963	$2,207,355,869

4.2 GAS UTILITIES

Figure 4-2 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes combined for Nicor Gas and Ameren Gas. Across the first four years of the study, the cumulative annual RAP savings reach 5% of forecasted sales, which is on average about 1.25% per year. These achievable potential savings vary by utility and sector and may not reflect what can actually be achieved by utilities. Scenario level estimates within each of the subsequent chapters provide additional insights into what can be achieved with funding constraints associated with the scenarios and parameters described in Chapter 2.

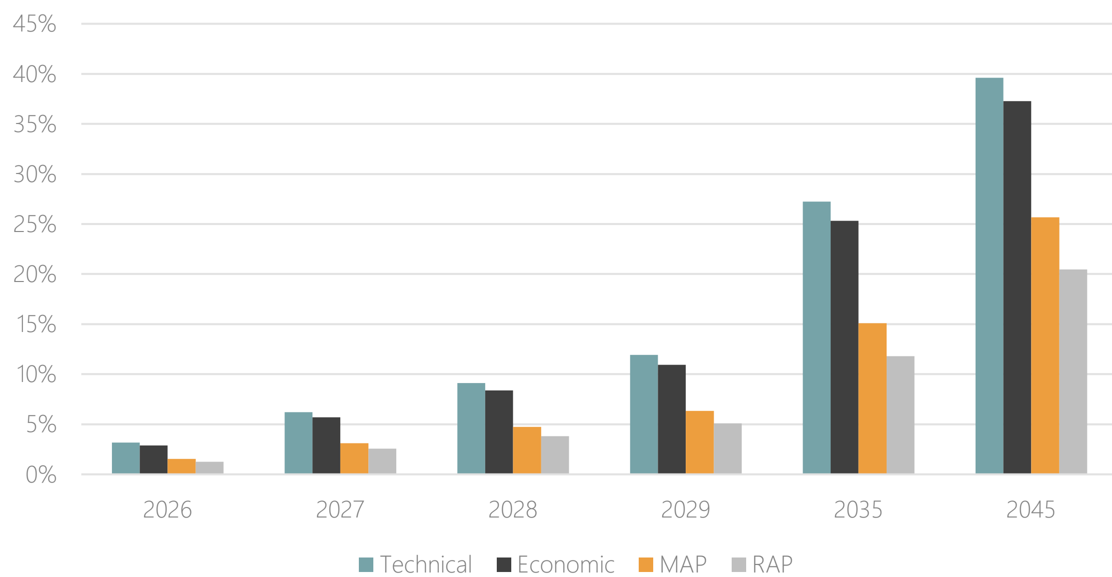


FIGURE 4-2: CUMULATIVE ANNUAL GAS ENERGY SAVINGS POTENTIAL (ALL SECTORS)

Table 4-2 provides additional near-term detail of the RAP savings on an annual basis. The incremental annual electric savings increase from 71 million therms to 79 million therms with an estimated cost increasing from $409 million to $476 million.

TABLE 4-2: ANNUAL RAP THERM SAVINGS AND COSTS – BY SECTOR AND TOTAL (2026-2029)

	2026	2027	2028	2029
RAP Savings	71,053,867	72,735,730	73,333,958	79,361,111
RAP Budget	$409,132,194	$439,107,497	$453,445,199	$475,698,525

5 COMED MARKET POTENTIAL ASSESSMENT

This chapter provides an overview of the ComEd market potential savings and costs. The overall savings in the near and long term are shown, along with sector-level summary data. Sector-level detail is also provided to illustrate where potential exists among end-uses, housing and income types, sub-sectors, and technology types. The chapter concludes with a review of the savings and costs associated with the scenarios described in Chapter 2 above.

5.1 ENERGY SAVINGS POTENTIAL SUMMARY

Figure 5-1 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes.[30] The constrained scenarios, most relevant for comparing practicable potential with policy, funding, or portfolio emphasis constraints, follow. While the achievable potential provides estimates of what could be achieved by utility programs, the technical and economic potential are important to understand as these estimates lay the groundwork for developing subsequent achievable potential estimates and program potential estimates that have budget and policy considerations. The cumulative annual 4-year technical potential is 13% of the forecasted sales, and the economic potential is 12% of forecasted sales. The cumulative annual 4-year MAP is 9% and the RAP is 8%, as a percentage of forecasted sales. Over the duration of the study timeframe the technical potential rises to 31% and the economic potential rises to 28% of forecasted sales. The MAP and RAP rise respectively to 22% and 19% of forecasted sales over the study timeframe. The gap between economic potential and MAP/RAP represents market barriers to prospective program participants.

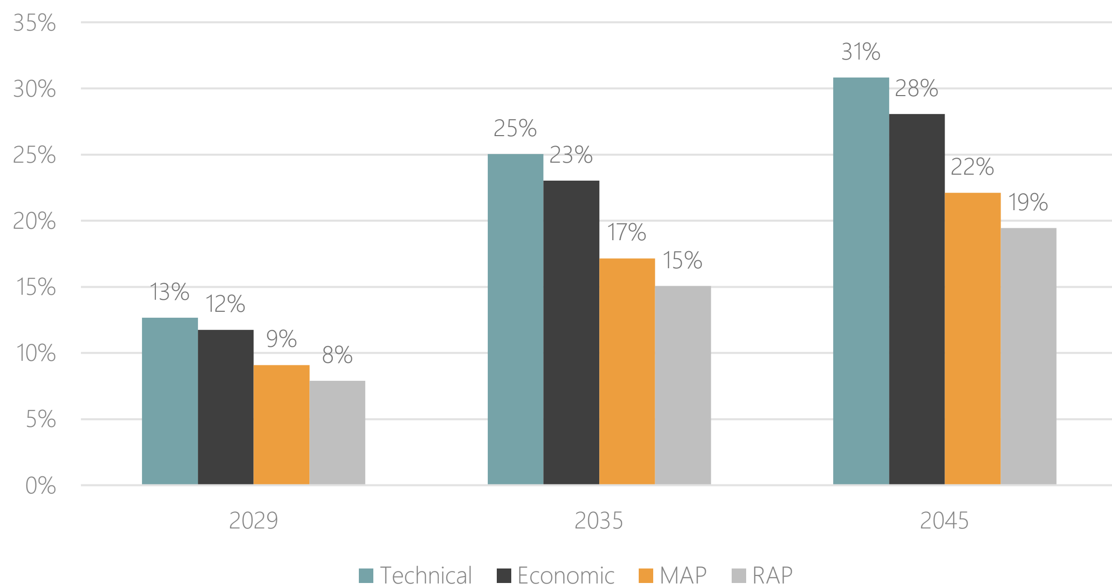


FIGURE 5-1: CUMULATIVE ANNUAL ELECTRIC ENERGY SAVINGS POTENTIAL (ALL SECTORS)

30 The savings shown here are energy efficiency savings only. This is because it is helpful to know the long-term savings estimates from energy efficiency alone. Conversely, it is also helpful to have an understanding of the electrification and converted gas savings in the near term. Savings from electrification and converted gas savings are provided in the sector-level results, where indicated. These savings do not include possible voltage optimization savings, an option for electric utilities.

Figure 5-2 provides the overall residential and C&I sector's combined annual MAP and RAP savings and costs for the 2026-2029 timeframe.[31] This helps provide a snapshot of the near-term savings potential and associated costs. The RAP savings rise from 2.5 million MWh to 2.8 million MWh of energy efficiency savings, with an estimated cost ranging from $1.1 billion to $1.5 billion. These near-term RAP estimates include both energy efficiency and net energy impacts of electrification.[32]

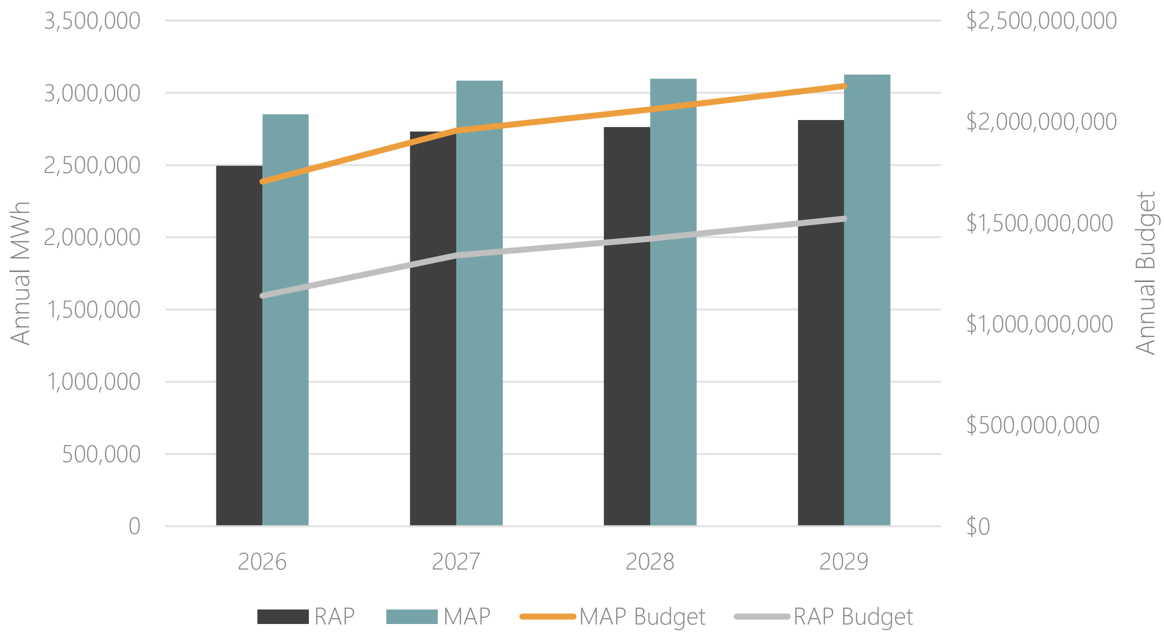


FIGURE 5-2: ANNUAL MAP AND RAP SAVINGS AND COSTS (2026-2029)

Table 5-1 below provides additional sector level detail associated with MAP and RAP savings and budgets over the 2026-2029 timeframe. Residential RAP savings range from 1.1 million to 1.4 million MWh, at a cost of $800 million up to $1.2 billion. C&I savings range from 1.3 million to 1.6 million MWh, at a cost of $350 million up to approximately $370 million.

TABLE 5-1: ANNUAL RAP MWH SAVINGS AND PROGRAM COSTS – BY SECTOR AND TOTAL (2026-2029)

Sector	2026	2027	2028	2029
Total Savings				
MAP	2,851,624	3,083,867	3,097,550	3,125,702
RAP	2,494,877	2,730,915	2,762,723	2,811,489
Residential Savings[33]				

31 MAP reflects costs and savings associated with programs offering incentives of 100% of measure cost, while RAP reflects costs and savings associated with programs offering incentives typical of current practices. Neither are constrained by policy.

32 RAP budgets exceed current spending at a greater rate than savings, indicating that additional savings are likely to be from more expensive sectors and measures.

33 Residential sector data includes both income-eligible and market rate customers unless otherwise noted. Income-eligible sector details are included in the residential sector section of the chapter.

Sector	2026	2027	2028	2029
MAP	1,253,366	1,466,705	1,523,070	1,564,800
RAP	1,073,440	1,272,215	1,330,061	1,378,533
C&I Savings				
MAP	1,598,259	1,617,161	1,574,480	1,560,902
RAP	1,421,436	1,458,700	1,432,663	1,432,957
Total Budget				
MAP	$1,635,393,439	$1,853,686,931	$1,946,073,973	$2,053,824,795
RAP	$1,122,192,822	$1,313,413,250	$1,391,887,867	$1,489,426,109
Residential Budget				
MAP	$892,090,875	$1,094,894,599	$1,177,223,857	$1,270,490,775
RAP	$791,474,254	$979,195,708	$1,058,428,919	$1,151,590,575
C&I Budget				
MAP	$1,703,679,380	$1,956,115,843	$2,059,883,876	$2,175,763,977
RAP	$1,139,441,338	$1,339,286,025	$1,420,635,395	$1,520,227,031

5.2 RESIDENTIAL SECTOR MARKET POTENTIAL

Figure 5-3 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes, for the residential sector.[34] The cumulative annual 4-year technical potential is 16% of the residential forecasted sales, and the economic potential is 14% of forecasted sales. The cumulative annual 4-year MAP is 9% and the RAP is 8%, as a percentage of forecasted residential sales. Over the duration of the study timeframe the technical potential rises to 33% and the economic potential rises to 30% of forecasted sales. The MAP and RAP rise respectively to 21% and 19% of forecasted sales over the study timeframe.

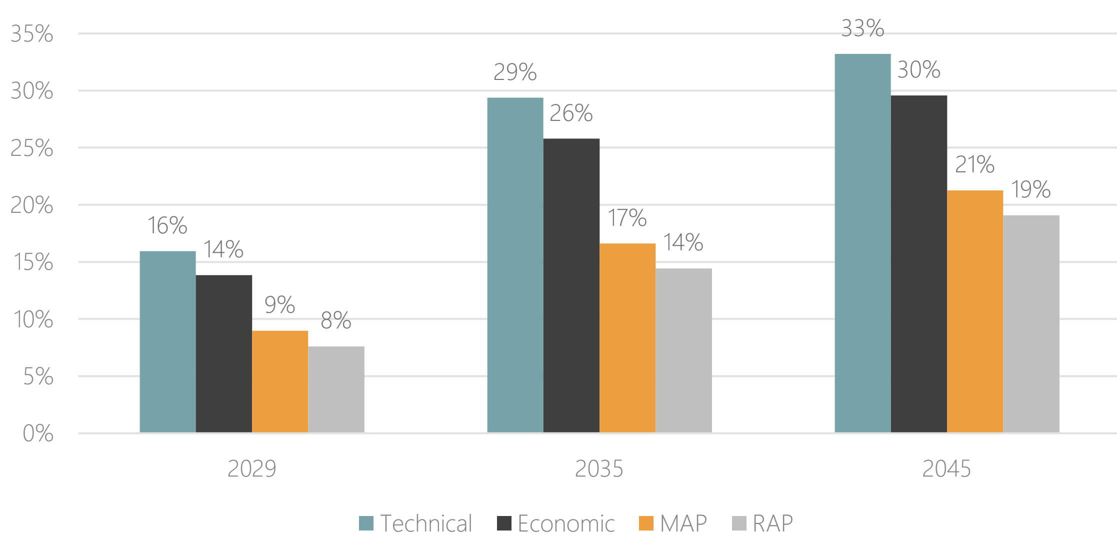


FIGURE 5-3: RESIDENTIAL CUMULATIVE ANNUAL ELECTRIC ENERGY SAVINGS POTENTIAL

[34] The savings shown here are energy efficiency savings only. Savings from electrification and converted gas savings are provided, where indicated.

Figure 5-4 below shows the annual MAP and RAP savings in the residential sector by income type over the 2026-2029 timeframe. The RAP savings are between 86% and 88% of the MAP savings, due to the lower assumed incentive levels in the RAP scenario. The income-eligible savings are about 45% of the total savings in both the MAP and RAP scenarios over the 2026-2029 timeframe, indicating there may be slightly greater proportional achievable efficiency opportunities among income-eligible customers compared to the general population. The MAP and RAP savings shown in this figure include savings associated with both EE and net energy impacts of electrification. [35] Further detail on the share of RAP savings associated with electrification and energy efficiency are included in Table 5-2.

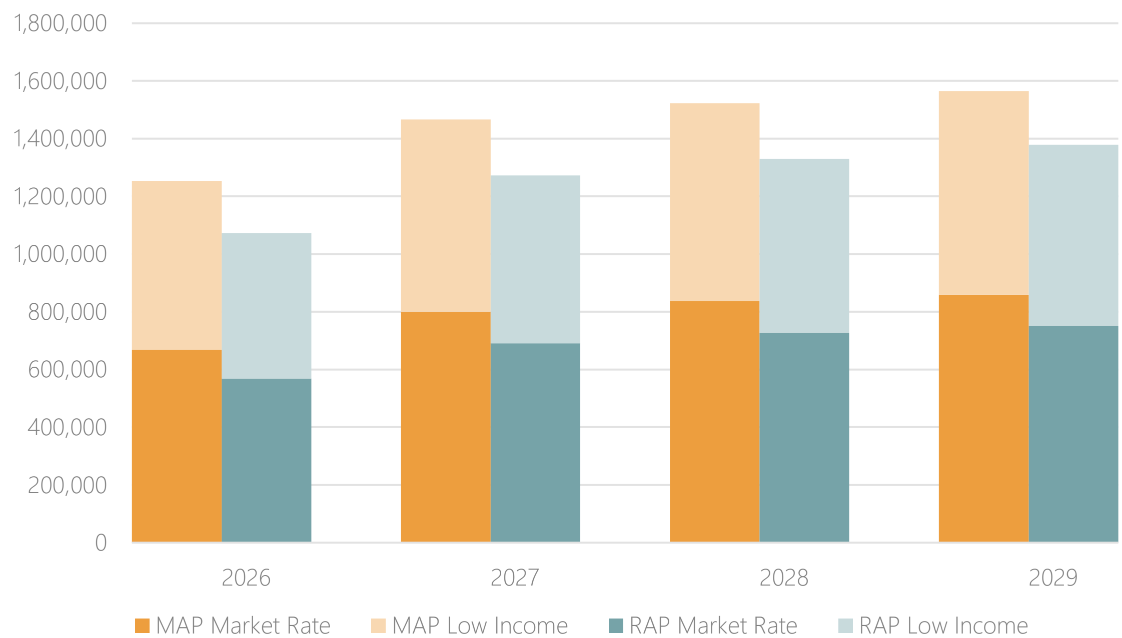


FIGURE 5-4: ANNUAL MAP AND RAP MWH SAVINGS BY INCOME TYPE (2026-2029)

Table 5-2 below provides additional detail for the RAP scenario. The savings and costs for energy efficiency and electrification are provided. Energy efficiency accounts for about 57% of the total energy savings and costs, on average over the 2026-2029 timeframe, whereas electrification accounts for the remaining 43% of the savings in the RAP scenario.

TABLE 5-2: ANNUAL RESIDENTIAL RAP MWH SAVINGS AND COSTS – EE AND ELECTRIFICATION (2026-2029)

	2026	2027	2028	2029
Energy Savings				
Energy Efficiency	700,742	713,164	709,021	713,212
Electrification	372,699	559,051	621,039	665,321
Total Energy Savings	1,073,440	1,272,215	1,330,061	1,378,533

35 Electrification results are combined with energy efficiency savings to align savings metrics into single energy units. Additional details are available in supporting detailed workbooks. Savings of fossil fuels are converted to MWh using IL TRM V12 standard conversion rate of 29.3 kWh per therm of fossil fuel energy.

	2026	2027	2028	2029
Budget				
Energy Efficiency	$518,988,821	$570,465,119	$604,385,435	$665,177,370
Electrification	$272,485,434	$408,730,589	$454,043,484	$486,413,204
Total Budget	*$791,474,254*	*$979,195,708*	*$1,058,428,919*	*$1,151,590,575*

Figure 5-5 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by end use.[36] HVAC Equipment and Building Shell measures account for approximately 50% of the savings, and the remaining end uses of Hot Water, Lighting, Appliances, Electronics and Miscellaneous end uses account for the remaining 50% of the potential. The short-term breakdown is similar, though the higher cost measures of the Building Shell end-use take some time to ramp-up towards higher participation levels.

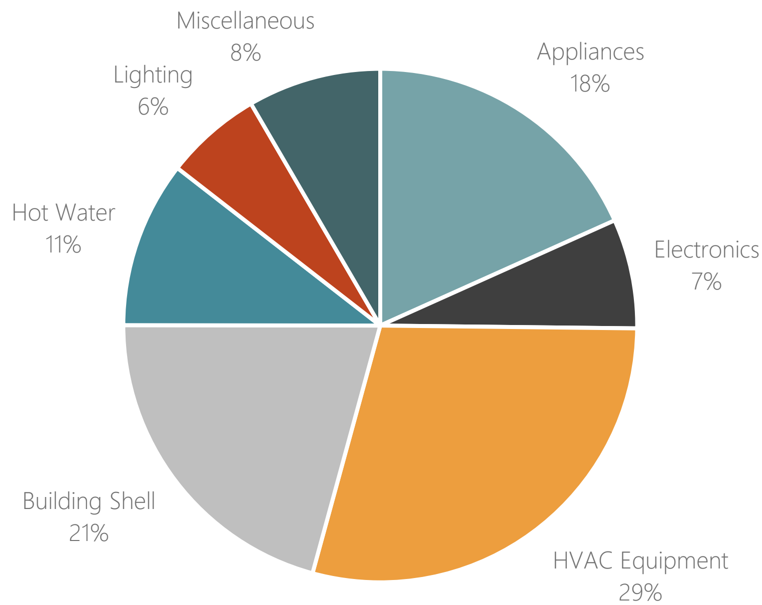


FIGURE 5-5: RESIDENTIAL SAVINGS BY END USE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 5-6 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by housing/income type. Market-rate customers combine for 46% of the potential, and income-eligible customers (including public housing) account for 54% of the long-term potential.

36 Though not included in the pie chart, electrification savings are largely from the HVAC Equipment-use.

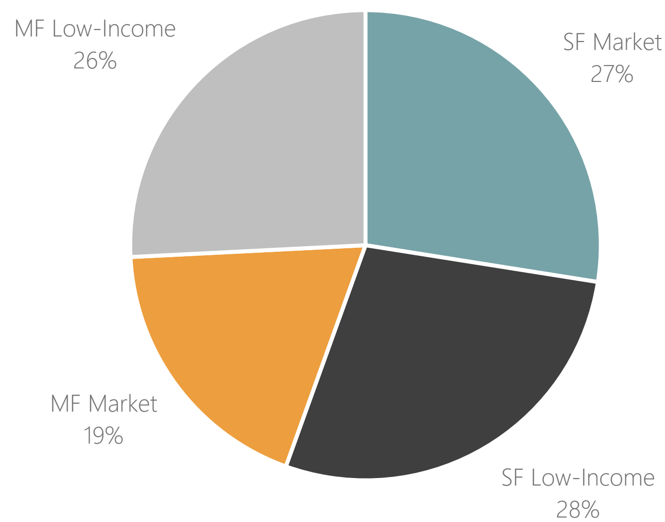


FIGURE 5-6: RESIDENTIAL SAVINGS BY HOUSING AND INCOME TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 5-7 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by technology type. Measures that are currently offered by ComEd[37] or are otherwise commonly available in the marketplace account for 79% of the potential, whereas emerging (new technology with low market availability or uptake) and innovative technologies account for 21% of the potential.

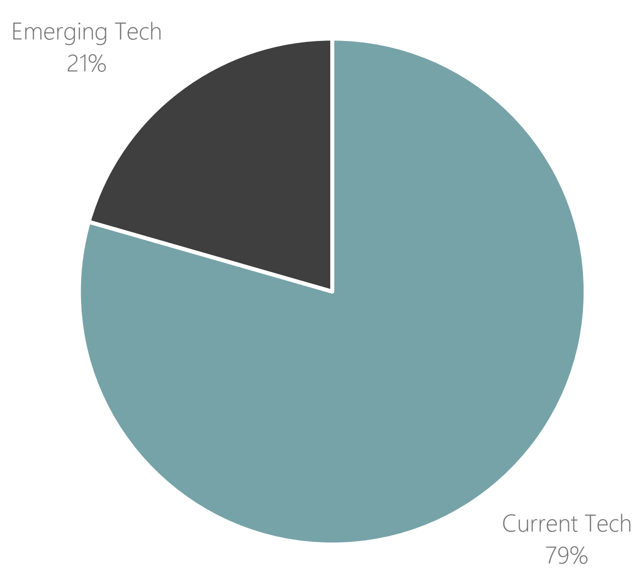


FIGURE 5-7: RESIDENTIAL SAVINGS BY TECHNOLOGY TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

[37] ComEd offers emerging technologies in its programs. These measures are treated as emerging technology in the analysis.

5.3 COMMERCIAL/INDUSTRIAL SECTOR MARKET POTENTIAL

Figure 5-8 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes, for the C&I sector.[38] The cumulative annual 4-year technical potential is 11% of the C&I forecasted sales, and the economic potential is 10% of forecasted sales. The cumulative annual 4-year MAP is 9% and the RAP is 8%, as a percentage of forecasted C&I sales. Over the duration of the study timeframe the technical potential rises to 29% and the economic potential rises to 27% of forecasted sales. The MAP and RAP rise respectively to 23% and 20% of forecasted sales over the study timeframe.

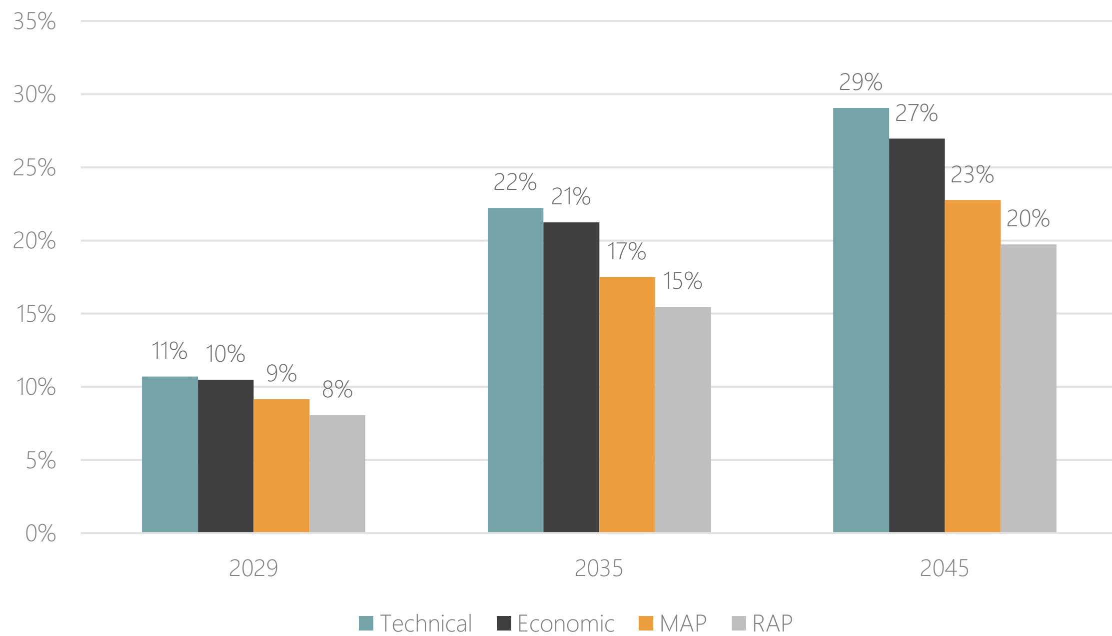


FIGURE 5-8: C&I CUMULATIVE ANNUAL ELECTRIC ENERGY SAVINGS POTENTIAL

Figure 5-9 below shows the annual MAP and RAP savings in the C&I sector over the 2026-2029 timeframe. The RAP savings are between 89% and 92% of the MAP savings, due to the lower assumed incentive levels in the RAP scenario. The MAP and RAP savings shown in this figure include savings associated with both EE and the net energy impacts of electrification.[39]

[38] The savings shown here are energy efficiency savings only. Savings from electrification and converted gas savings are provided, where indicated.

39 Electrification results are combined with energy efficiency savings to align savings metrics into single energy units. Additional details are available in supporting detailed workbooks. Savings of fossil fuels are converted to MWh using IL TRM V12 standard conversion rate of 29.3 kWh per therm of fossil fuel energy.

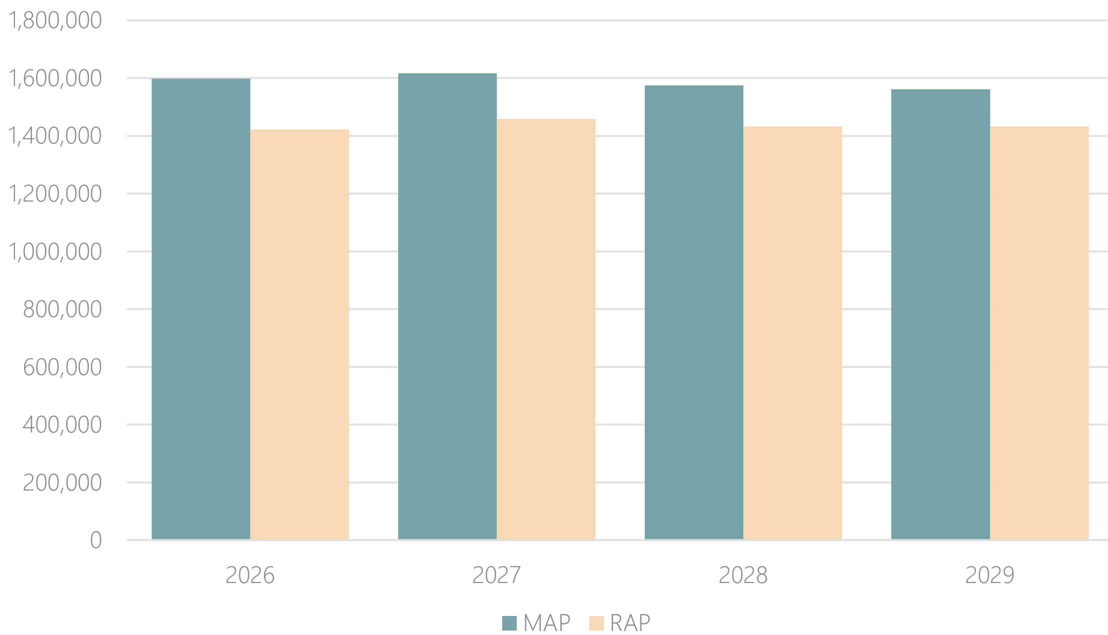


FIGURE 5-9: C&I ANNUAL MAP AND RAP MWH SAVINGS (2026-2029)

Table 5-3 below provides additional detail for the RAP scenario. The savings and costs for energy efficiency and electrification are provided. Energy efficiency accounts for about 76% of the total energy savings and about 87% of costs, on average, over the 2026-2029 timeframe, whereas electrification accounts for the remaining 10% of savings and 5% of costs, in the RAP scenario.

TABLE 5-3: ANNUAL C&I RAP MWH SAVINGS AND COSTS – EE AND ELECTRIFICATION (2026-2029)

	2026	2027	2028	2029
Energy Savings				
Energy Efficiency	1,188,215	1,108,868	1,043,961	1,016,490
Electrification	233,221	349,832	388,702	416,466
Total Energy Savings	1,421,436	1,458,700	1,432,663	1,432,957
Budget				
Energy Efficiency	$316,226,521	$312,479,472	$309,305,538	$311,956,880
Electrification	$31,740,563	$47,610,844	$52,900,938	$56,679,577
Total Budget	$347,967,084	$360,090,316	$362,206,476	$368,636,456

Figure 5-10 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by end use. HVAC and Lighting measures account for approximately 50% of the savings, and the remaining end uses of Compressed Air, Cooking, Hot Water, Plug Loads, Refrigeration, Industrial Process and Whole Building / Miscellaneous end uses account for the remaining 46% of the potential.

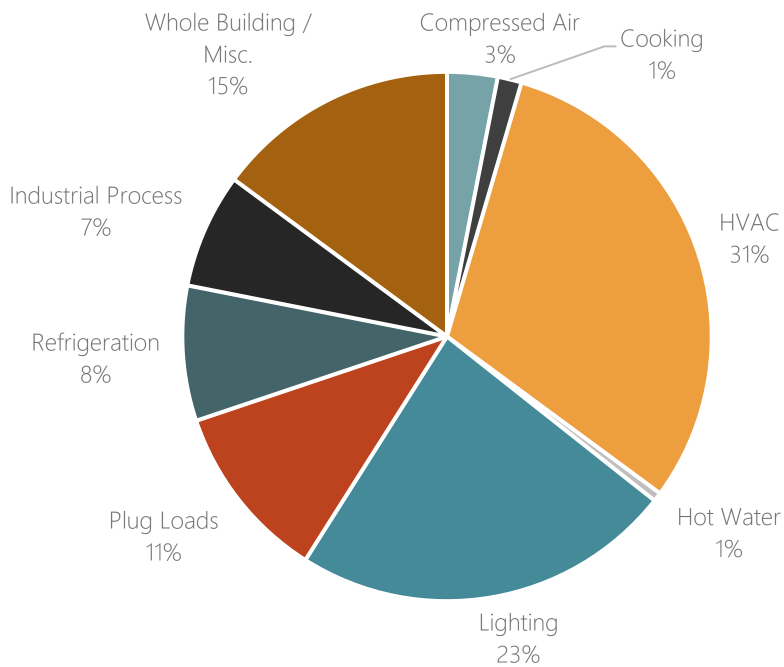


FIGURE 5-10: C&I SAVINGS BY END USE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 5-11 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by C&I sub-sector. Commercial customers account for 87% of the potential, and Industrial customers account for 13% of the potential. Potential study estimates of industrial loads have uncertainty due to segment- or facility-specific processes, equipment, and reliance on custom measures.

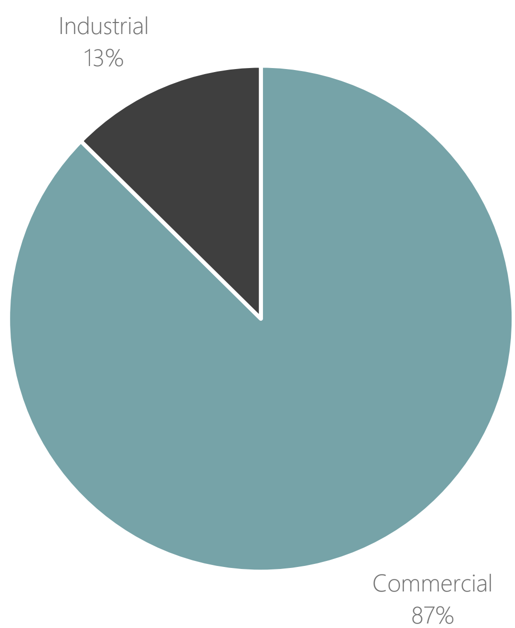


FIGURE 5-11: SAVINGS BY C&I SUB-SECTOR (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 5-12 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by technology type. Measures that are currently offered by ComEd or are otherwise available in the marketplace account for 92% of the potential, whereas emerging and innovative technologies account for 8% of the potential.

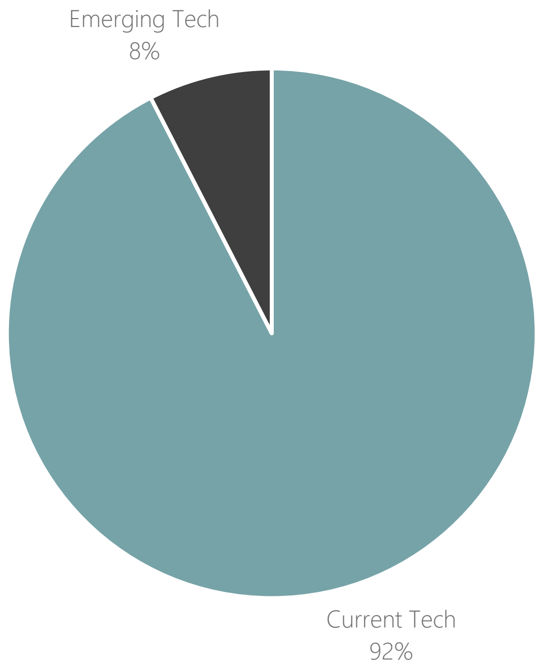


FIGURE 5-12: C&I SAVINGS BY TECHNOLOGY TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 5-13 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by building ownership type (private vs public). Private buildings account for 88% of the potential, and public buildings account for 12% of the potential.

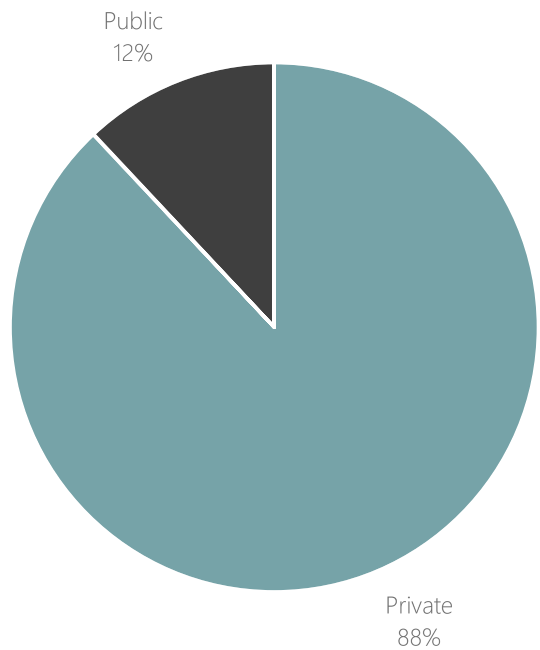


FIGURE 5-13: C&I SAVINGS BY OWNERSHIP TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

5.4 SCENARIO BUDGETS & ACQUISITION COSTS

Figure 5-14 below provides an overview of the annual savings in the Statutory Maximum Achievable Potential ("SMAP") scenario, as well as the three Stipulated Funding Achievable Potential ("STIP") scenarios, all sectors combined, along with the RAP savings. Note that the RAP scenario has unconstrained funding levels, and the additional scenarios have budget parameters and other constraints, which can dictate the level of spending on electrification in each sector, the amount of savings from converted gas savings and other priorities. The annual SMAP savings start off at 1.5 million MWh in 2026 and drop to 1.4 million MWh by 2029.[40] The residential SMAP is relatively steady, with an overall decrease due to a drop in the C&I sector.

[40] The savings for SMAP and the STIP scenarios include both electrification and converted gas savings, while RAP includes electrification, but not converted gas savings. This distinction is made between RAP and the scenarios, because RAP is intended to focus on achievable potential, and the scenarios provide a more portfolio-design based perspective of what ComEd could claim from converted gas savings as well as energy efficiency and electrification.

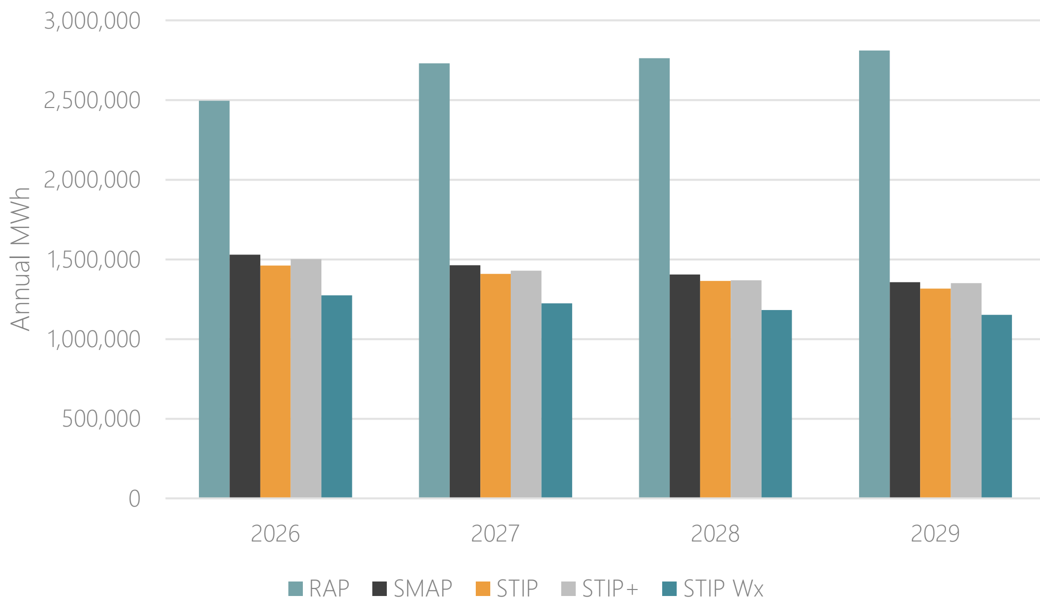


FIGURE 5-14: ANNUAL SAVINGS BY SCENARIO (2026-2029)

Table 5-4 below provides a breakdown of sector-level energy efficiency and electrification savings in the SMAP scenario. Energy efficiency accounts for more than 97% of the total energy savings over the 2026-2029 timeframe, whereas electrification accounts for the remaining 3% of savings.

TABLE 5-4: ANNUAL SMAP MWH SAVINGS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				
Energy Efficiency	382,791	373,902	364,180	348,075
Electrification	7,197	7,197	7,197	7,197
Total Residential	389,988	381,099	371,377	355,272
Income-Eligible				
Energy Efficiency	67,221	67,735	68,051	68,355
Electrification	9,596	9,596	9,596	9,596
Total Income-Eligible	76,817	77,331	77,647	77,951
C&I				
Energy Efficiency	1,040,590	982,978	934,983	902,370
Electrification	21,591	21,591	21,591	21,591
Total C&I	1,062,181	1,004,569	956,574	923,962
Combined Sectors				
Energy Efficiency	1,490,602	1,424,615	1,367,215	1,318,800
Electrification	38,384	38,384	38,384	38,384
Total – All	1,528,986	1,462,999	1,405,599	1,357,185

Table 5-5 below provides a breakdown of sector-level energy efficiency and electrification costs in the SMAP scenario. Energy efficiency accounts for about 96% of the total costs over the 2026-2029 timeframe, whereas electrification accounts for the remaining 4% of the costs.

TABLE 5-5: ANNUAL SMAP BUDGETS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				
Energy Efficiency	$88,483,359	$88,483,358	$88,483,401	$88,483,425
Electrification	$4,801,641	$4,801,642	$4,801,599	$4,801,575
Total Residential	**$93,285,000**	**$93,285,000**	**$93,285,000**	**$93,285,000**
Income-Eligible				
Energy Efficiency	$32,000,000	$32,000,000	$32,000,000	$32,000,000
Electrification	$8,000,000	$8,000,000	$8,000,000	$8,000,000
Total Income-Eligible	**$40,000,000**	**$40,000,000**	**$40,000,000**	**$40,000,000**
C&I				
Energy Efficiency	$276,916,567	$276,916,568	$276,916,531	$276,916,509
Electrification	$2,938,433	$2,938,432	$2,938,469	$2,938,491
Total C&I	**$279,855,000**	**$279,855,000**	**$279,855,000**	**$279,855,000**
Combined Sectors				
Energy Efficiency	$397,399,926	$397,399,926	$397,399,931	$397,399,934
Electrification	$15,740,074	$15,740,074	$15,740,069	$15,740,066
Portfolio Costs				
Sub-Totals	$413,140,000	$413,140,000	$413,140,000	$413,140,000
Cross-Cutting Costs	$40,860,000	$40,860,000	$40,860,000	$40,860,000
Total – All	**$454,000,000**	**$454,000,000**	**$454,000,000**	**$454,000,000**

Table 5-6 below provides a breakdown of sector-level energy efficiency and electrification savings in the Stipulated Funding Achievable Potential ("STIP") scenario. Energy efficiency accounts for about 94% of the total energy savings over the 2026-2029 timeframe, whereas electrification accounts for the remaining 6% of savings.

TABLE 5-6: ANNUAL STIP MWH SAVINGS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				
Energy Efficiency	366,452	360,609	353,253	334,472
Electrification	12,318	14,275	16,144	16,328
Total Residential	**378,770**	**374,884**	**369,397**	**350,800**
Income-Eligible				
Energy Efficiency	135,695	130,951	126,562	124,861
Electrification	18,099	20,975	23,721	23,990
Total Income-Eligible	**153,794**	**151,926**	**150,283**	**148,851**
C&I				
Energy Efficiency	885,483	833,177	789,595	761,849
Electrification	41,980	48,649	55,019	55,643
Total C&I	**927,462**	**881,826**	**844,614**	**817,492**

	2026	2027	2028	2029
Combined Sectors				
Energy Efficiency	1,387,630	1,324,737	1,269,409	1,221,182
Electrification	72,397	83,899	94,884	95,961
Total – All	1,460,027	1,408,637	1,364,294	1,317,143

Table 5-7 below provides a breakdown of sector-level energy efficiency and electrification savings in the STIP+ scenario. Energy efficiency accounts for about 94% of the total energy savings over the 2026-2029 timeframe, whereas electrification accounts for the remaining 6% of savings.

TABLE 5-7: ANNUAL STIP+ MWH SAVINGS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				
Energy Efficiency	246,537	239,282	229,024	231,219
Electrification	12,748	14,606	16,239	16,328
Total Residential	259,284	253,888	245,263	247,547
Income-Eligible				
Energy Efficiency	166,343	156,336	148,426	146,618
Electrification	18,730	21,461	23,861	23,990
Total Income-Eligible	185,073	177,797	172,287	170,608
C&I				
Energy Efficiency	1,012,886	946,891	896,559	876,113
Electrification	43,444	49,776	55,343	55,643
Total C&I	1,056,330	996,667	951,901	931,756
Combined Sectors				
Energy Efficiency	1,425,765	1,342,509	1,274,009	1,253,950
Electrification	74,922	85,843	95,442	95,961
Total – All	1,500,687	1,428,352	1,369,451	1,349,911

Table 5-8 below provides a breakdown of sector-level energy efficiency and electrification savings in the STIP Wx scenario. Energy efficiency accounts for more than 92% of the total energy savings over the 2026-2029 timeframe, whereas electrification accounts for the remaining 8% of savings.

TABLE 5-8: ANNUAL STIP WX MWH SAVINGS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				
Energy Efficiency	184,021	180,990	176,494	170,267
Electrification	8,070	9,420	10,865	14,573
Total Residential	192,090	190,410	187,360	184,840
Income-Eligible				
Energy Efficiency	138,024	133,664	129,649	125,880
Electrification	18,730	21,461	23,861	23,990
Total Income-Eligible	156,754	155,125	153,509	149,871
C&I				

	2026	2027	2028	2029
Energy Efficiency	888,083	836,144	792,912	762,941
Electrification	36,987	42,620	47,926	53,222
Total C&I	**925,070**	**878,763**	**840,838**	**816,164**
Combined Sectors				
Energy Efficiency	1,210,127	1,150,798	1,099,055	1,059,088
Electrification	63,787	73,501	82,652	91,786
Total – All	**1,273,914**	**1,224,299**	**1,181,707**	**1,150,874**

Table 5-9 below provides a breakdown of energy efficiency and electrification spending by sector in the SMAP scenario as well as the three STIP scenarios. The STIP scenarios have a greater emphasis on income-eligible spending, as well as electrification, which varies slightly among the three STIP scenarios. The STIP+ scenario provides the highest savings opportunities, followed by the STIP scenario, with the STIP Wx scenario providing the lowest savings among the three. This is expected, as the STIP+ prioritizes cost-effectiveness, and STIP Wx prioritizes higher cost, but long-lasting, building shell weatherization measures.

Scenario results demonstrate the level of potential savings given consistent total funding, but variances across different sectors as well as competing prioritization of savings. Generally, increased income-eligible sector spending creates a reduction in savings that may be offset by prioritization of current program and/or low acquisition cost measures. However, this prioritization may limit measure and/or end-use diversity within the portfolio, with building shell measures and future emerging technologies being reduced or eliminated. Utility program plans are expected to balance these considerations to develop a diverse set of programs that serve all customers.

TABLE 5-9: ANNUAL SMAP AND STIP SCENARIO BUDGETS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
SMAP				
Residential	$93,285,000	$93,285,000	$93,285,000	$93,285,000
Income-Eligible	$40,000,000	$40,000,000	$40,000,000	$40,000,000
C&I	$279,855,000	$279,855,000	$279,855,000	$279,855,000
EE	$397,399,926	$397,399,926	$397,399,931	$397,399,934
Electrification	$15,740,074	$15,740,074	$15,740,069	$15,740,066
Sub-Total	$413,140,000	$413,140,000	$413,140,000	$413,140,000
Cross-Cutting	$40,860,000	$40,860,000	$40,860,000	$40,860,000
Total	**$454,000,000**	**$454,000,000**	**$454,000,000**	**$454,000,000**
STIP				
Residential	$71,040,000	$71,040,000	$71,040,000	$71,040,000
Income-Eligible	$100,000,000	$100,000,000	$100,000,000	$100,000,000
C&I	$242,100,000	$242,100,000	$242,100,000	$242,100,000
EE	$384,119,145	$379,508,343	$375,105,499	$374,674,135
Electrification	$29,020,855	$33,631,657	$38,034,501	$38,465,865
Sub-Total	$413,140,000	$413,140,000	$413,140,000	$413,140,000
Cross-Cutting	$40,860,000	$40,860,000	$40,860,000	$40,860,000
Total	**$454,000,000**	**$454,000,000**	**$454,000,000**	**$454,000,000**

	2026	2027	2028	2029
STIP+				
Residential	$71,040,000	$71,040,000	$71,040,000	$71,040,000
Income-Eligible	$100,000,000	$100,000,000	$100,000,000	$100,000,000
C&I	$242,100,000	$242,100,000	$242,100,000	$242,100,000
EE	$383,107,118	$378,729,169	$374,881,733	$374,674,135
Electrification	$30,032,882	$34,410,831	$38,258,267	$38,465,865
Sub-Total	$413,140,000	$413,140,000	$413,140,000	$413,140,000
Cross-Cutting	$40,860,000	$40,860,000	$40,860,000	$40,860,000
Total	**$454,000,000**	**$454,000,000**	**$454,000,000**	**$454,000,000**
STIP Wx				
Residential	$71,040,000	$71,040,000	$71,040,000	$71,040,000
Income-Eligible	$100,000,000	$100,000,000	$100,000,000	$100,000,000
C&I	$242,100,000	$242,100,000	$242,100,000	$242,100,000
EE	$387,570,485	$383,676,679	$380,008,783	$376,347,793
Electrification	$25,569,515	$29,463,321	$33,131,217	$36,792,207
Sub-Total	$413,140,000	$413,140,000	$413,140,000	$413,140,000
Cross-Cutting	$40,860,000	$40,860,000	$40,860,000	$40,860,000
Total	**$454,000,000**	**$454,000,000**	**$454,000,000**	**$454,000,000**

Table 5-10 provides a breakdown of the savings across energy efficiency (without gas conversions), electrification, and savings from gas conversions associated with each scenario. The SMAP scenario yields the greatest overall savings, due to the gas conversions comprising close to 10% of the savings.

TABLE 5-10: SCENARIO BREAKDOWN OF SAVINGS ACROSS ENERGY EFFICIENCY, ELECTRIFICATION AND CONVERTED GAS SAVINGS (2026-2029)

	2026	2027	2028	2029
SMAP				
Energy Efficiency (electric)	1,349,418	1,287,306	1,233,664	1,195,236
Electrification	38,384	38,384	38,384	38,384
Energy Efficiency (converted)	141,184	137,310	133,551	123,564
Total	**1,528,986**	**1,462,999**	**1,405,599**	**1,357,185**
STIP				
Energy Efficiency (electric)	1,231,132	1,170,712	1,118,054	1,082,241
Electrification	72,397	83,899	94,884	95,961
Energy Efficiency (converted)	156,497	154,026	151,355	138,941
Total	**1,460,027**	**1,408,637**	**1,364,294**	**1,317,143**
STIP+				
Energy Efficiency (electric)	1,390,621	1,311,216	1,246,049	1,229,163
Electrification	74,922	85,843	95,442	95,961
Energy Efficiency (converted)	35,144	31,293	27,960	24,787
Total	**1,500,687**	**1,428,352**	**1,369,451**	**1,349,911**
STIP Wx				
Energy Efficiency (electric)	1,157,650	1,103,969	1,056,874	1,023,091
Electrification	63,787	73,501	82,652	91,786
Energy Efficiency (converted)	52,477	46,829	42,181	35,997
Total	**1,273,914**	**1,224,299**	**1,181,707**	**1,150,874**

Table 5-11 provides a breakdown of the acquisition costs of the SMAP and STIP scenarios. The acquisition costs are shown both with and without the converted gas savings. This is done because converted gas savings are not prioritized as an electric energy savings measure in any of the scenarios, and coincidentally appears to make the STIP scenario comparable to the STIP+ scenario in terms of overall cost-effectiveness when the converted gas savings are included. The gap between STIP+ and the other scenarios is more pronounced when the converted gas savings are excluded.

TABLE 5-11: SCENARIO ACQUISITION COSTS ($/MWH) (2026-2029)

	2026	2027	2028	2029
Converted Gas Included				
SMAP	$270	$282	$294	$304
STIP	$283	$293	$303	$314
STIP+	$275	$289	$302	$306
STIP Wx	$324	$337	$350	$359
Converted Gas Excluded				
SMAP	$298	$312	$325	$335
STIP	$317	$329	$341	$351
STIP+	$282	$296	$308	$312
STIP Wx	$338	$351	$363	$371

6 AMEREN ELECTRIC MARKET POTENTIAL ASSESSMENT

This chapter provides an overview of the Ameren Electric market potential savings and costs. The overall savings in the near and long term are shown, along with sector-level summary data. Sector-level detail is also provided to illustrate where potential exists among end-uses, housing and income types, sub-sectors, and technology types. The chapter concludes with a review of the savings and costs associated with the scenarios described in Chapter 2 above.

6.1 ENERGY SAVINGS POTENTIAL SUMMARY

Figure 6-1 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes.[41] The constrained scenarios, most relevant for comparing practicable potential with policy, funding, or portfolio emphasis constraints, follow. While the achievable potential provides estimates of what could be achieved by utility programs, the technical and economic potential are important to understand as these estimates lay the groundwork for developing subsequent achievable potential estimates and program potential estimates that have budget and policy considerations. The cumulative annual 4-year technical potential is 13% of the forecasted sales, and the economic potential is 13% of forecasted sales. The cumulative annual 4-year MAP is 9% and the RAP is 8%, as a percentage of forecasted sales. Over the duration of the study timeframe the technical potential rises to 37% and the economic potential rises to 35% of forecasted sales. The MAP and RAP rise respectively to 27% and 24% of forecasted sales over the study timeframe. The gap between economic potential and MAP/RAP represents market barriers to prospective program participants.

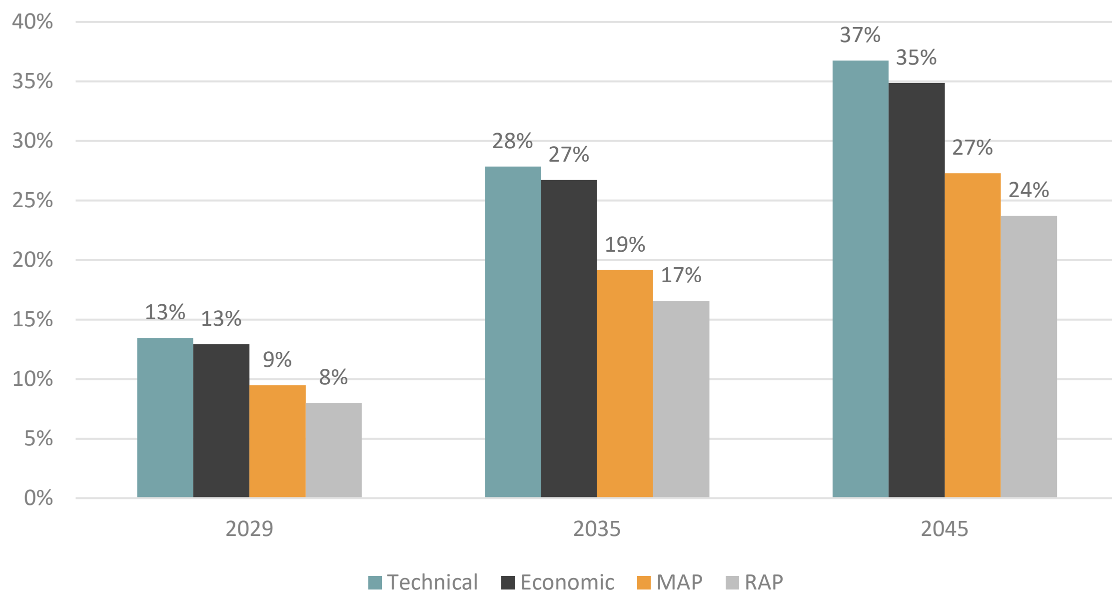


FIGURE 6-1: CUMULATIVE ANNUAL ELECTRIC ENERGY SAVINGS POTENTIAL (ALL SECTORS)

41 The savings shown here are energy efficiency savings only. This is because it is helpful to know the long-term savings estimates from energy efficiency alone. Conversely, it is also helpful to have an understanding of the electrification savings in the near term. Savings from electrification and are provided in the sector-level results, where indicated. There are no converted gas savings for Ameren Electric. These savings do not include possible voltage optimization savings, an option for electric utilities.

Figure 6-2 provides the overall residential and C&I sector's combined annual MAP and RAP savings and costs for the 2026-2029 timeframe.[42] This helps provide a snapshot of the near-term savings potential and associated costs. The RAP savings rise from 729,000 MWh to 851,000 MWh of energy efficiency savings, with an estimated cost ranging from $520 million to $690 million. These near-term RAP estimates include both energy efficiency and net energy impacts of electrification.

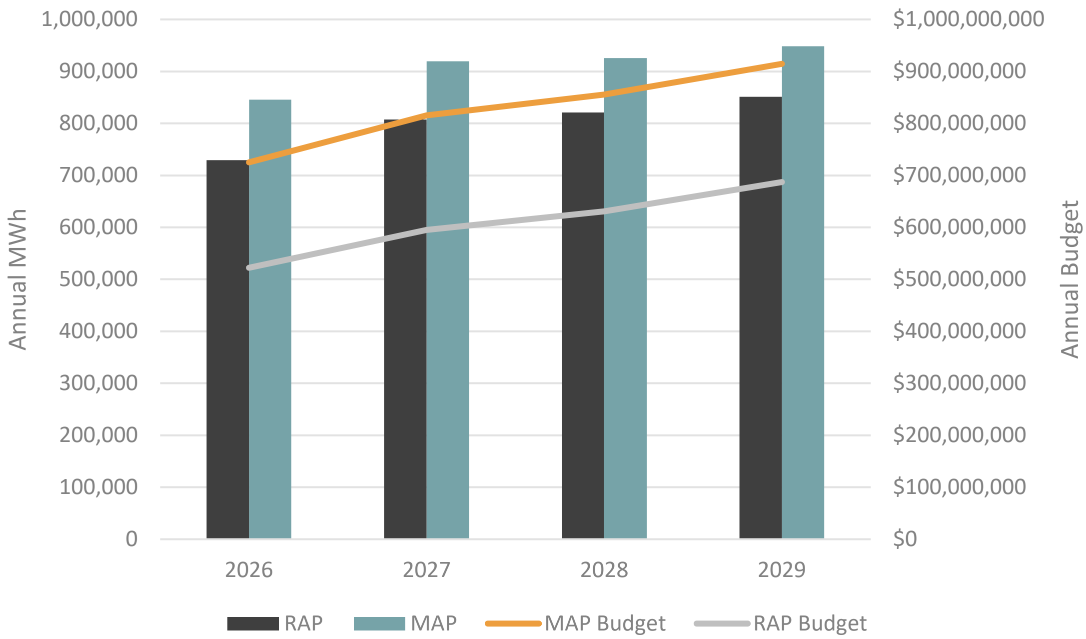


FIGURE 6-2: ANNUAL MAP AND RAP SAVINGS AND COSTS (2026-2029)

Table 6-1 below provides additional sector level detail associated with MAP and RAP savings and budgets over the 2026-2029 timeframe. Residential RAP savings range from 350,000 to 440,000 MWh, at a cost of $422 million to $578 million. C&I savings range from 381,000 to 412.000 MWh, at a cost of $100 million up to approximately $109 million.

TABLE 6-1: ANNUAL RAP MWH SAVINGS AND PROGRAM COSTS – BY SECTOR AND TOTAL (2026-2029)

Sector	2026	2027	2028	2029
Total Savings				
MAP	845,811	919,291	925,381	948,334
RAP	729,144	807,391	821,091	851,191
Residential Savings[43]				
MAP	397,292	455,904	472,812	489,243
RAP	348,423	404,238	421,365	438,847

[42] MAP reflects costs and savings associated with programs offering incentives of 100% of measure cost, while RAP reflects costs and savings associated with programs offering incentives typical of current practices. Neither are constrained by policy.

[43] Residential sector data includes both income-eligible and market rate customers unless otherwise noted. Income-eligible sector details are included in the residential sector section of the chapter.

Sector	2026	2027	2028	2029
C&I Savings				
MAP	448,519	463,388	452,569	459,091
RAP	380,720	403,152	399,726	412,344
Total Budget				
MAP	$725,060,313	$815,466,849	$855,438,982	$914,552,161
RAP	$522,234,381	$594,751,234	$631,021,568	$687,128,838
Residential Budget				
MAP	$446,080,194	$520,760,607	$558,565,973	$609,365,820
RAP	$422,063,557	$492,522,309	$528,693,831	$578,458,067
C&I Budget				
MAP	$278,980,119	$294,706,242	$296,873,009	$305,186,341
RAP	$100,170,825	$102,228,925	$102,327,736	$108,670,772

6.2 RESIDENTIAL SECTOR MARKET POTENTIAL

Figure 6-3 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes, for the residential sector.[44] The cumulative annual 4-year technical potential is 17% of the residential forecasted sales, and the economic potential is 16% of forecasted sales. The cumulative annual 4-year MAP is 10% and the RAP is 9%, as a percentage of forecasted residential sales. Over the duration of the study timeframe the technical potential rises to 47% and the economic potential rises to 45% of forecasted sales. The MAP and RAP rise respectively to 34% and 30% of forecasted sales over the study timeframe.

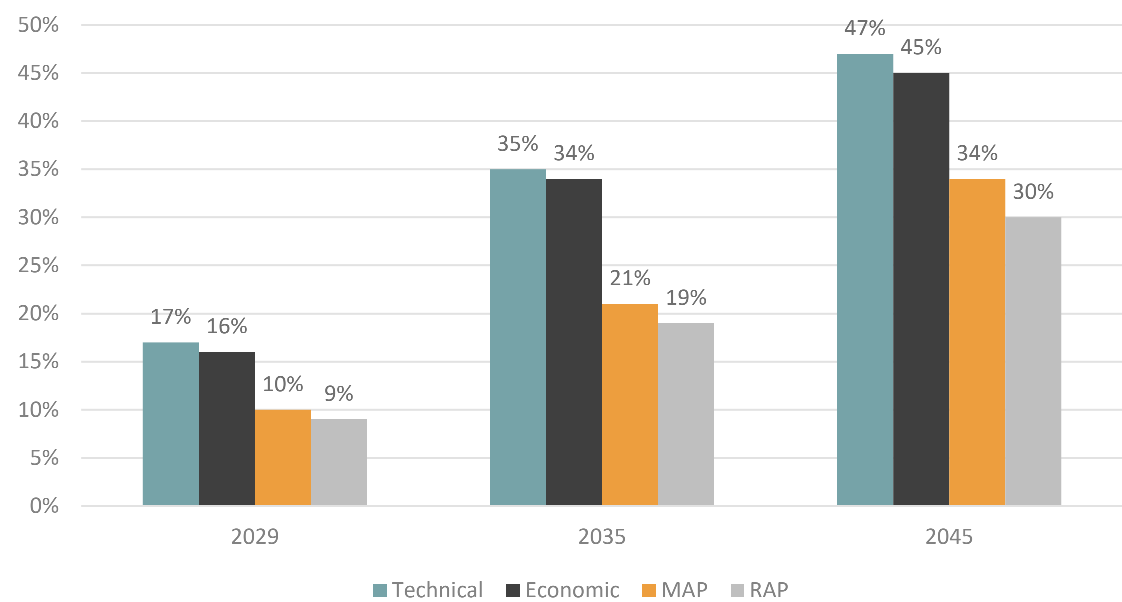


FIGURE 6-3: RESIDENTIAL CUMULATIVE ANNUAL ELECTRIC ENERGY SAVINGS POTENTIAL

[44] The savings shown here are energy efficiency savings only. Savings from electrification and converted gas savings are provided, where indicated.

Figure 6-4 below shows the annual MAP and RAP savings in the residential sector by income type over the 2026-2029 timeframe. The RAP savings are between 88% and 90% of the MAP savings, due to the lower assumed incentive levels in the RAP scenario over the 2026-2029 timeframe. The income-eligible savings are about 30% of the total savings in the MAP scenario and about 50% in the RAP scenario. The MAP and RAP savings shown in this figure include savings associated with both EE and net energy impacts of electrification. [45] Further detail on the share of RAP savings associated with electrification and energy efficiency are included in Table 6-2.

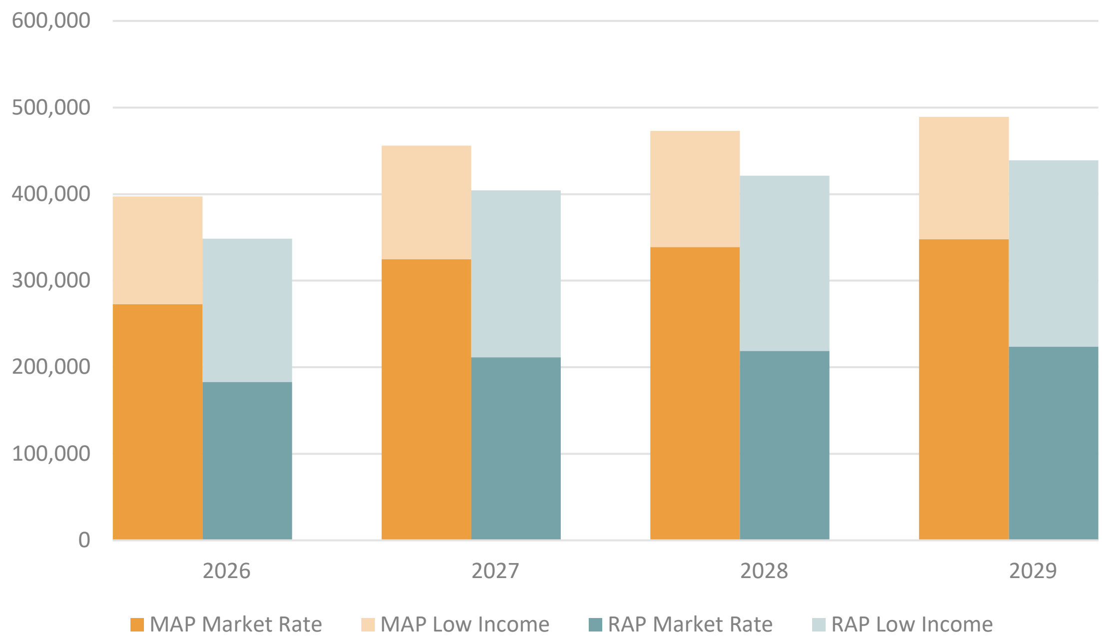


FIGURE 6-4: RESIDENTIAL ANNUAL MAP AND RAP MWH SAVINGS BY INCOME TYPE (2026-2029)

Table 6-2 below provides additional detail for the RAP scenario. The savings and costs for energy efficiency and electrification are provided. Energy efficiency accounts for about 64% of the total energy savings and costs, on average over the 2026-2029 timeframe, whereas electrification accounts for the remaining 36% of the savings in the RAP scenario.

TABLE 6-2: ANNUAL RESIDENTITAL RAP MWH SAVINGS AND COSTS – EE AND ELECTRIFICATION (2026-2029)

	2026	2027	2028	2029
Energy Savings				
Energy Efficiency	249,632	256,051	256,713	262,434
Electrification	98,791	148,187	164,652	176,413
Total Energy Savings	348,423	404,238	421,365	438,847

45 Electrification results are combined with energy efficiency savings to align savings metrics into single energy units. Additional details are available in supporting detailed workbooks. Savings of fossil fuels are converted to MWh using IL TRM V12 standard conversion rate of 29.3 kWh per therm of fossil fuel energy.

	2026	2027	2028	2029
Budget				
Energy Efficiency	$355,695,879	$392,970,793	$418,081,035	$459,944,357
Electrification	$66,367,678	$99,551,516	$110,612,796	$118,513,710
Total Budget	$422,063,557	$492,522,309	$528,693,831	$578,458,067

Figure 6-5 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by end use. [46] HVAC Equipment and Building Shell measures account for approximately 50% of the savings, and the remaining end uses of Hot Water, Lighting, Appliances, Electronics and Miscellaneous end uses account for the remaining 50% of the potential. The short-term breakdown is similar, though the higher cost measures of the Building Shell end-use take some time to ramp-up towards higher participation levels.

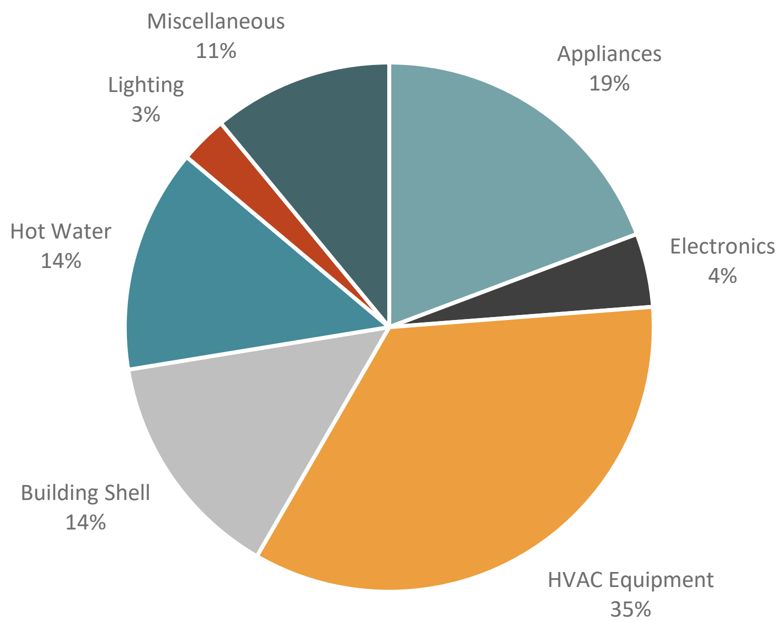


FIGURE 6-5: RESIDENTIAL SAVINGS BY END USE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 6-6 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by housing/income type. Market-rate customers combine for 46% of the potential, and income-eligible customers (including public housing) account for 54% of the long-term potential.

46 Though not included in the pie chart, electrification savings are largely from the HVAC Equipment-use.

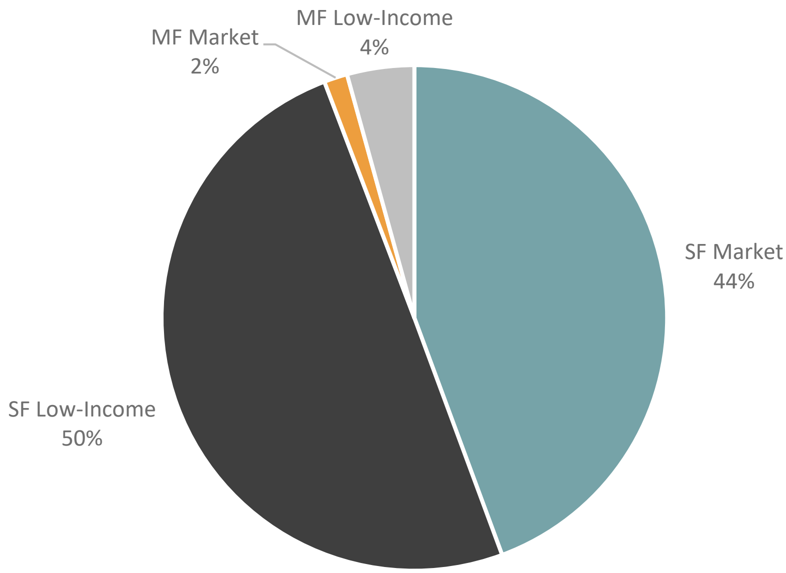


FIGURE 6-6: RESIDENTIAL SAVINGS BY HOUSING AND INCOME TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 6-7 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by technology type. Measures that are currently offered by Ameren Electric or are otherwise available in the marketplace account for 80% of the potential, whereas emerging and innovative technologies account for 20% of the potential.

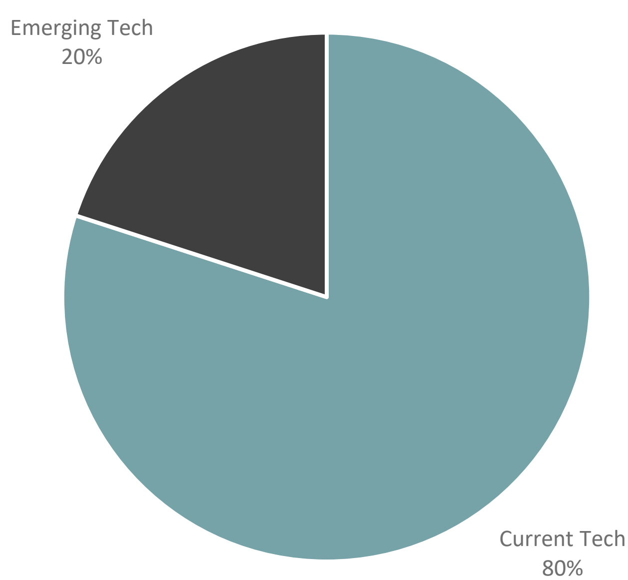


FIGURE 6-7: RESIDENTIAL SAVINGS BY TECHNOLOGY TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

6.3 COMMERCIAL/INDUSTRIAL SECTOR MARKET POTENTIAL

Figure 6-8 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes, for the C&I sector.[47] The cumulative annual 4-year technical potential is 11% of the C&I forecasted sales, and the economic potential is 11% of forecasted sales. The cumulative annual 4-year MAP is 9% and the RAP is 8%, as a percentage of forecasted C&I sales. Over the duration of the study timeframe the technical potential rises to 29% and the economic potential rises to 27% of forecasted sales. The MAP and RAP rise respectively to 23% and 19% of forecasted sales over the study timeframe.

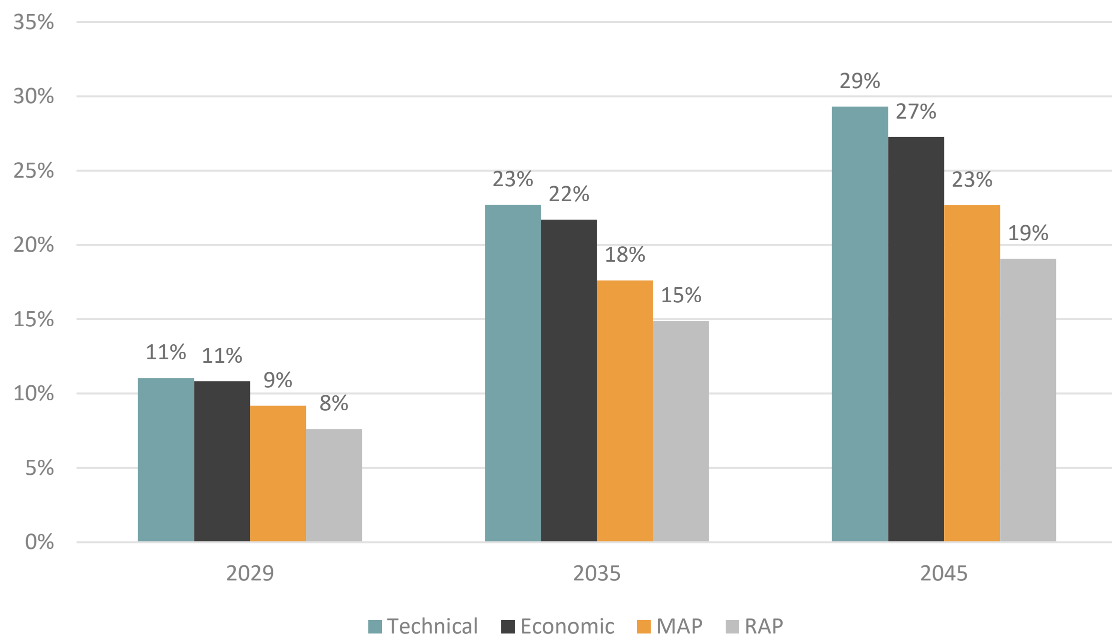


FIGURE 6-8: C&I CUMULATIVE ANNUAL ELECTRIC ENERGY SAVINGS POTENTIAL

Figure 6-9 below shows the annual MAP and RAP savings in the C&I sector over the 2026-2029 timeframe. The RAP savings are between 85% and 90% of the MAP savings, due to the lower assumed incentive levels in the RAP scenario. The MAP and RAP savings shown in this figure include savings associated with both EE and the net energy impacts of electrification. [48]

47 The savings shown here are energy efficiency savings only. Savings from electrification are provided, where indicated.

48 Electrification results are combined with energy efficiency savings to align savings metrics into single energy units. Additional details are available in supporting detailed workbooks. Savings of fossil fuels are converted to MWh using IL TRM V12 standard conversion rate of 29.3 kWh per therm of fossil fuel energy.

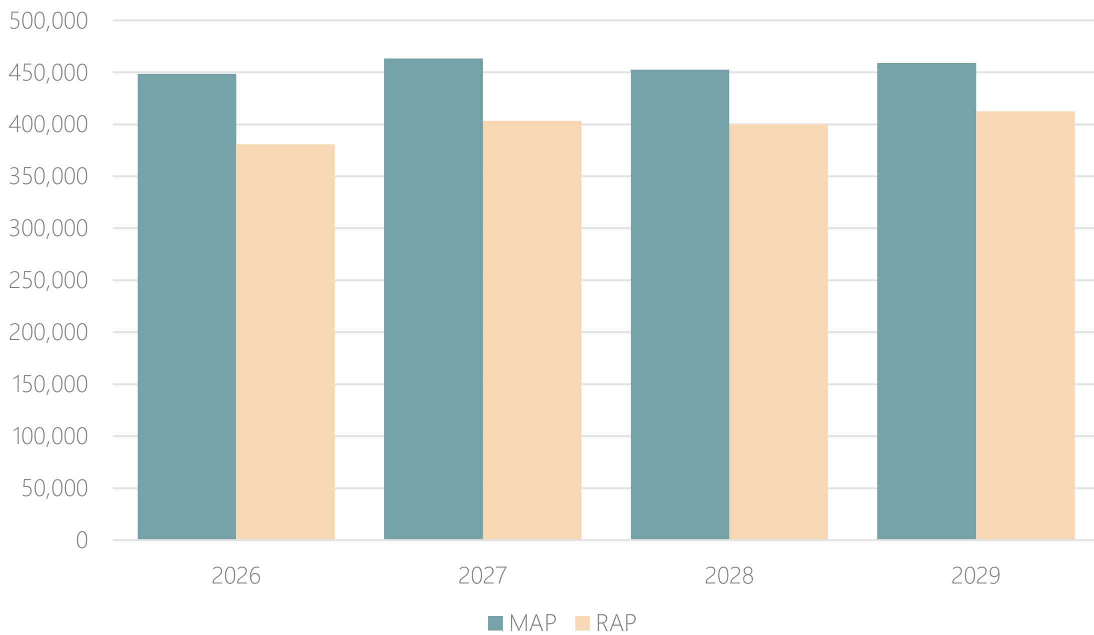


FIGURE 6-9: C&I ANNUAL MAP AND RAP MWH SAVINGS (2026-2029)

Table 6-3 below provides additional detail for the RAP scenario. The savings and costs for energy efficiency and electrification are provided. Energy efficiency accounts for about 78% of the total energy savings and about 90% of costs, on average, over the 2026-2029 timeframe, whereas electrification accounts for the remaining 22% of savings and 10% of costs, in the RAP scenario.

TABLE 6-3: ANNUAL C&I RAP MWH SAVINGS AND COSTS – EE AND ELECTRIFICATION (2026-2029)

	2026	2027	2028	2029
Energy Savings				
Energy Efficiency	297,773	278,731	261,480	264,223
Electrification	82,948	124,422	138,246	148,121
Total Energy Savings	380,720	403,152	399,726	412,344
Budget				
Energy Efficiency	$93,430,683	$92,118,713	$91,094,168	$96,634,805
Electrification	$6,740,141	$10,110,212	$11,233,569	$12,035,967
Total Budget	$100,170,825	$102,228,925	$102,327,736	$108,670,772

Figure 6-10 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by end use. HVAC and Lighting measures account for approximately 53% of the savings, and the remaining end uses of Compressed Air, Cooking, Hot Water, Plug Loads, Refrigeration, Industrial Process and Whole Building / Miscellaneous end uses account for the remaining 43% of the potential.

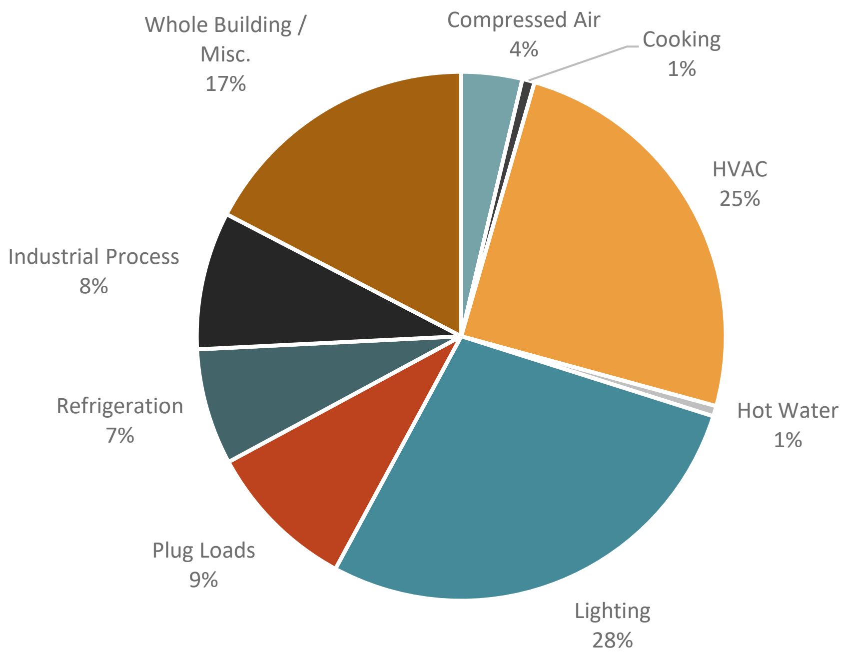


FIGURE 6-10: C&I SAVINGS BY END USE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 6-11 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by C&I sub-sector. Commercial customers combine for 83% of the potential, and Industrial customers account for 17% of the potential. Potential study estimates of industrial loads have uncertainty due to segment- or facility-specific processes, equipment, and reliance on custom measures.

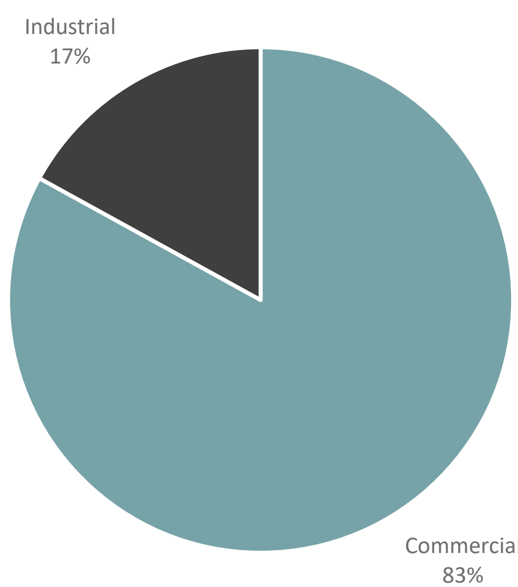


FIGURE 6-11: SAVINGS BY C&I SUB-SECTOR (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 6-12 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by technology type. Measures that are currently offered by Ameren Electric or are otherwise available in the marketplace account for 93% of the potential, whereas emerging and innovative technologies account for 7% of the potential.

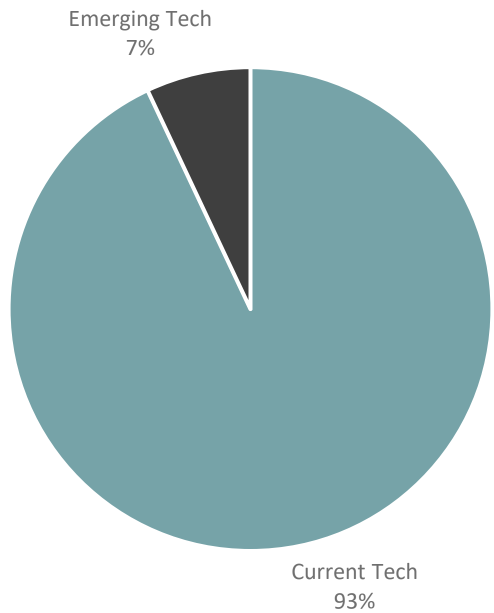


FIGURE 6-12: C&I SAVINGS BY TECHNOLOGY TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 6-13 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by building ownership type (private vs public). Private buildings account for 93% of the potential, and public buildings account for 7% of the potential.

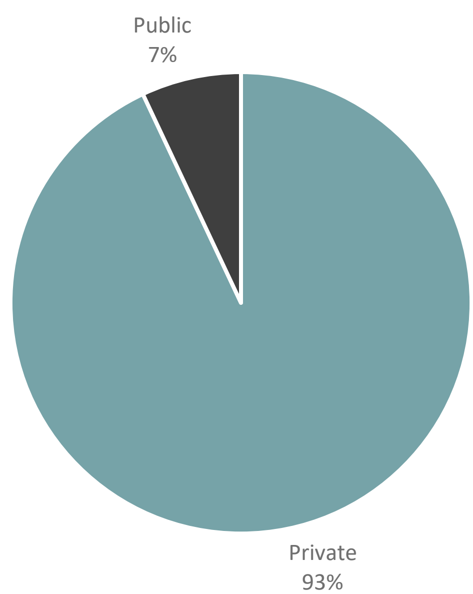


FIGURE 6-13: C&I SAVINGS BY OWNERSHIP TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

6.4 SCENARIO BUDGETS & ACQUISITION COSTS

Figure 6-14 below provides an overview of the annual savings in the Statutory Maximum Achievable Potential ("SMAP") scenario, as well as the three Stipulated Funding Achievable Potential ("STIP") scenarios, all sectors combined, along with the RAP savings. The annual SMAP savings start off at 275,000 MWh in 2026 and drop to 240,000 MWh by 2029.[49]

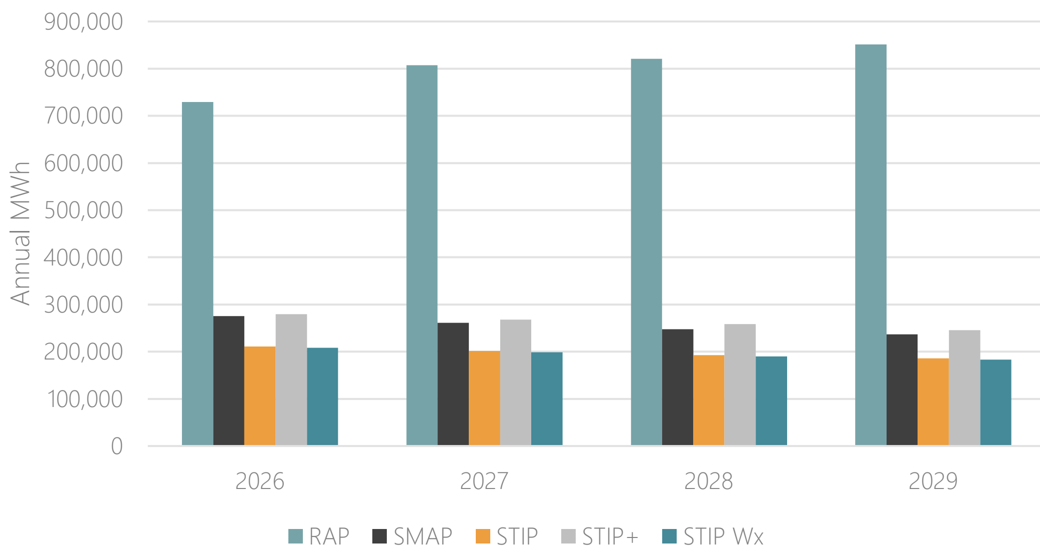


FIGURE 6-14: ANNUAL SAVINGS BY SCENARIO (2026-2029)

Table 6-4 below provides a breakdown of sector-level energy efficiency and electrification savings in the SMAP scenario. Energy efficiency accounts for more than 95% of the total energy savings over the 2026-2029 timeframe, whereas electrification accounts for the remaining 5% of savings.

TABLE 6-4: ANNUAL SMAP MWH SAVINGS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				
Energy Efficiency	49,216	45,683	42,966	40,790
Electrification	4,560	4,560	4,560	4,560
Total Residential	53,777	50,244	47,526	45,350
Income-Eligible				
Energy Efficiency	3,387	3,320	3,235	3,185
Electrification	2,400	2,400	2,400	2,400
Total Income-Eligible	5,787	5,720	5,635	5,586
C&I				
Energy Efficiency	210,587	199,971	189,740	181,025
Electrification	5,040	5,040	5,040	5,040

[49] The savings for SMAP in this section of the chapter (and the STIP scenarios below) include electrification savings.

	2026	2027	2028	2029
Total C&I	**215,627**	**205,012**	**194,780**	**186,065**
Combined Sectors				
Energy Efficiency	263,189	248,974	235,941	225,000
Electrification	12,001	12,001	12,001	12,001
Total – All	**275,191**	**260,975**	**247,942**	**237,001**

Table 6-5 below provides a breakdown of sector-level energy efficiency and electrification costs in the SMAP scenario. Energy efficiency accounts for about 96% of the total costs over the 2026-2029 timeframe, whereas electrification accounts for the remaining 4% of the costs.

TABLE 6-5: ANNUAL SMAP PROGRAM BUDGETS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				
Energy Efficiency	$27,671,761	$27,671,761	$27,671,761	$27,671,761
Electrification	$798,539	$798,539	$798,539	$798,539
Total Residential	**$28,470,300**	**$28,470,300**	**$28,470,300**	**$28,470,300**
Income-Eligible				
Energy Efficiency	$10,400,000	$10,400,000	$10,400,000	$10,400,000
Electrification	$2,600,000	$2,600,000	$2,600,000	$2,600,000
Total Income-Eligible	**$13,000,000**	**$13,000,000**	**$13,000,000**	**$13,000,000**
C&I				
Energy Efficiency	$65,857,295	$65,857,295	$65,857,295	$65,857,295
Electrification	$573,405	$573,405	$573,405	$573,405
Total C&I	**$66,430,700**	**$66,430,700**	**$66,430,700**	**$66,430,700**
Combined Sectors				
Energy Efficiency	$103,929,056	$103,929,056	$103,929,056	$103,929,056
Electrification	$3,971,944	$3,971,944	$3,971,944	$3,971,944
Portfolio Costs				
Sub-Total	$107,901,000	$107,901,000	$107,901,000	$107,901,000
Cross-Cutting Costs	$18,299,000	$18,299,000	$18,299,000	$18,299,000
Total – All	**$126,200,000**	**$126,200,000**	**$126,200,000**	**$126,200,000**

Table 6-6 below provides a breakdown of sector-level energy efficiency and electrification savings in the Stipulated Funding Achievable Potential ("STIP") scenario. Energy efficiency accounts for about 93% of the total energy savings over the 2026-2029 timeframe, whereas electrification accounts for the remaining 7% of savings.

TABLE 6-6: ANNUAL STIP MWH SAVINGS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				
Energy Efficiency	32,966	30,280	28,235	26,581
Electrification	2,494	2,855	3,183	3,497
Total Residential	**35,460**	**33,135**	**31,418**	**30,078**

	2026	2027	2028	2029
Income-Eligible				
Energy Efficiency	13,439	12,910	12,372	11,798
Electrification	2,771	3,173	3,537	3,886
Total Income-Eligible	**16,210**	**16,082**	**15,909**	**15,684**
C&I				
Energy Efficiency	153,596	145,683	138,081	131,774
Electrification	5,819	6,662	7,428	8,160
Total C&I	**159,415**	**152,346**	**145,509**	**139,934**
Combined Sectors				
Energy Efficiency	200,001	188,873	178,687	170,152
Electrification	11,084	12,690	14,148	15,544
Total – All	**211,084**	**201,563**	**192,836**	**185,696**

Table 6-7 below provides a breakdown of sector-level energy efficiency and electrification savings in the STIP+ scenario. Energy efficiency accounts for about 93% of the total energy savings over the 2026-2029 timeframe, whereas electrification accounts for the remaining 7% of savings.

TABLE 6-7: ANNUAL STIP+ MWH SAVINGS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				
Energy Efficiency	68,754	64,828	61,835	56,605
Electrification	3,237	3,702	4,144	4,504
Total Residential	**71,991**	**68,530**	**65,979**	**61,109**
Income-Eligible				
Energy Efficiency	18,992	19,119	18,296	16,869
Electrification	3,597	4,113	4,604	5,005
Total Income-Eligible	**22,589**	**23,232**	**22,900**	**21,874**
C&I				
Energy Efficiency	177,607	167,692	159,745	152,051
Electrification	7,553	8,638	9,669	10,510
Total C&I	**185,160**	**176,330**	**169,414**	**162,561**
Combined Sectors				
Energy Efficiency	265,353	251,639	239,877	225,526
Electrification	14,387	16,453	18,417	20,018
Total – All	**279,740**	**268,092**	**258,294**	**245,544**

Table 6-8 below provides a breakdown of sector-level energy efficiency and electrification savings in the STIP Wx scenario. Energy efficiency accounts for more than 93% of the total energy savings over the 2026-2029 timeframe, whereas electrification accounts for the remaining 7% of savings.

TABLE 6-8: ANNUAL STIP WX MWH SAVINGS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential				

	2026	2027	2028	2029
Energy Efficiency	30,014	27,382	25,656	24,291
Electrification	1,603	1,837	2,035	2,296
Total Residential	**31,617**	**29,219**	**27,691**	**26,587**
Income-Eligible				
Energy Efficiency	13,455	12,928	12,391	11,817
Electrification	3,597	4,113	4,604	5,005
Total Income-Eligible	**17,052**	**17,042**	**16,995**	**16,821**
C&I				
Energy Efficiency	153,614	145,704	138,101	131,794
Electrification	5,747	6,577	7,338	8,069
Total C&I	**159,361**	**152,281**	**145,440**	**139,863**
Combined Sectors				
Energy Efficiency	197,084	186,014	176,148	167,902
Electrification	10,946	12,527	13,978	15,369
Total – All	**208,029**	**198,541**	**190,126**	**183,271**

Table 6-9 below provides a breakdown of energy efficiency and electrification spending by sector in the SMAP scenario as well as the three STIP scenarios. The STIP scenarios have a greater emphasis on income-eligible spending, as well as electrification, which varies slightly among the three STIP scenarios. The STIP+ scenario provides the highest savings opportunities, followed by the STIP scenario, with the STIP Wx scenario providing the lowest savings among the three. This is expected, as the STIP+ prioritizes cost-effectiveness, and STIP Wx prioritizes higher cost, but long-lasting, building shell weatherization measures.

Scenario results demonstrate the level of potential savings given consistent total funding, but variances across different sectors as well as competing prioritization of savings. Generally, increased income-eligible sector spending creates a reduction in savings that may be offset by prioritization of current program and/or low acquisition cost measures. However, this prioritization may limit measure and/or end-use diversity within the portfolio, with building shell measures and future emerging technologies being reduced or eliminated. Utility program plans are expected to balance these considerations to develop a diverse set of programs that serve all customers.

TABLE 6-9: ANNUAL SMAP AND STIP SCENARIO BUDGETS – EE AND ELECTRIFICATION BY SECTOR (2026-2029)

	2026	2027	2028	2029
SMAP				
Residential	$28,470,300	$28,470,300	$28,470,300	$28,470,300
Income-Eligible	$13,000,000	$13,000,000	$13,000,000	$13,000,000
C&I	$66,430,700	$66,430,700	$66,430,700	$66,430,700
EE	$103,929,056	$103,929,056	$103,929,056	$103,929,056
Electrification	$3,971,944	$3,971,944	$3,971,944	$3,971,944
Sub-Total	$107,901,000	$107,901,000	$107,901,000	$107,901,000
Cross-Cutting	$18,299,000	$18,299,000	$18,299,000	$18,299,000
Total	$126,200,000	$126,200,000	$126,200,000	$126,200,000
STIP				

	2026	2027	2028	2029
Residential	$52,067,504	$52,185,341	$52,288,315	$52,306,571
Income-Eligible	$7,252,796	$7,134,959	$7,031,985	$7,013,729
C&I	$48,580,700	$48,580,700	$48,580,700	$48,580,700
EE	$97,193,139	$97,101,608	$97,017,702	$96,938,738
Electrification	$10,707,861	$10,799,392	$10,883,298	$10,962,262
Sub-Total	$107,901,000	$107,901,000	$107,901,000	$107,901,000
Cross-Cutting	$18,299,000	$18,299,000	$18,299,000	$18,299,000
Total	$126,200,000	$126,200,000	$126,200,000	$126,200,000
STIP+				
Residential	$20,820,300	$20,820,300	$20,820,300	$20,820,300
Income-Eligible	$38,500,000	$38,500,000	$38,500,000	$38,500,000
C&I	$48,580,700	$48,580,700	$48,580,700	$48,580,700
EE	$97,253,356	$97,089,925	$96,930,281	$96,810,578
Electrification	$10,647,644	$10,811,075	$10,970,719	$11,090,423
Sub-Total	$107,901,000	$107,901,000	$107,901,000	$107,901,000
Cross-Cutting	$18,299,000	$18,299,000	$18,299,000	$18,299,000
Total	$126,200,000	$126,200,000	$126,200,000	$126,200,000
STIP Wx				
Residential	$20,820,300	$20,820,300	$20,820,300	$20,820,300
Income-Eligible	$38,500,000	$38,500,000	$38,500,000	$38,500,000
C&I	$48,580,700	$48,580,700	$48,580,700	$48,580,700
EE	$97,555,832	$97,435,857	$97,324,560	$97,219,546
Electrification	$10,345,168	$10,465,143	$10,576,440	$10,681,455
Sub-Total	$107,901,000	$107,901,000	$107,901,000	$107,901,000
Cross-Cutting	$18,299,000	$18,299,000	$18,299,000	$18,299,000
Total	$126,200,000	$126,200,000	$126,200,000	$126,200,000

Table 6-10 provides a breakdown of the savings across energy efficiency and electrification associated with each scenario. The table indicates no savings from gas conversions as Ameren Gas claims savings from these measures. The STIP+ scenario yields the greatest overall savings, due to prioritization of cost-effective program measures. The STIP Wx scenario provides the lowest level of savings due to the prioritization of higher cost weatherization measures.

TABLE 6-10: SCENARIO BREAKDOWN OF SAVINGS ACROSS ENERGY EFFICIENCY, ELECTRIFICATION AND CONVERTED GAS SAVINGS (2026-2029)

	2026	2027	2028	2029
SMAP				
Energy Efficiency (electric)	263,189	248,974	235,941	225,000
Electrification	12,001	12,001	12,001	12,001
Energy Efficiency (converted)	0	0	0	0
Total	275,191	260,975	247,942	237,001
STIP				
Energy Efficiency (electric)	200,001	188,873	178,687	170,152
Electrification	11,084	12,690	14,148	15,544
Energy Efficiency (converted)	0	0	0	0
Total	211,084	201,563	192,836	185,696

	2026	2027	2028	2029
STIP+				
Energy Efficiency (electric)	265,353	251,639	239,877	225,526
Electrification	14,387	16,453	18,417	20,018
Energy Efficiency (converted)	0	0	0	0
Total	**279,740**	**268,092**	**258,294**	**245,544**
STIP Wx				
Energy Efficiency (electric)	197,084	186,014	176,148	167,902
Electrification	10,946	12,527	13,978	15,369
Energy Efficiency (converted)	0	0	0	0
Total	**208,029**	**198,541**	**190,126**	**183,271**

Table 6-11 provides a breakdown of the acquisition costs of the SMAP and STIP scenarios. The STIP+ scenario has comparable acquisition costs as the SMAP scenario due to the prioritization of the most cost-effective program measures. The STIP and STIP Wx scenarios have higher acquisition costs due to the emphasis on income-eligible measures without the same prioritization on cost-effectiveness as the STIP+ scenario.

TABLE 6-11: SCENARIO ACQUISITION COSTS ($/MWH) (2026-2029)

	2026	2027	2028	2029
SMAP	$392	$413	$435	$455
STIP	$511	$535	$560	$581
STIP+	$386	$402	$418	$439
STIP Wx	$519	$543	$568	$589

7 NICOR GAS MARKET POTENTIAL ASSESSMENT

This chapter provides an overview of the Nicor Gas market potential savings and costs. The overall savings in the near and long term are shown, along with sector-level summary data. Sector-level detail is also provided to illustrate where potential exists among end-uses, housing and income types, sub-sectors, and technology types. The chapter concludes with a review of the savings and costs associated with the scenarios described in Chapter 2 above.

7.1 ENERGY SAVINGS POTENTIAL SUMMARY

Figure 7-1 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes. The constrained scenarios, most relevant for comparing practicable potential with policy, funding, or portfolio emphasis constraints, follow. While the achievable potential provides estimates of what could be achieved by utility programs, the technical and economic potential are important to understand as these estimates lay the groundwork for developing subsequent achievable potential estimates and program potential estimates that have budget and policy considerations. The cumulative annual 4-year technical potential is 12% of the forecasted sales, and the economic potential is 11% of forecasted sales. The cumulative annual 4-year MAP is 6% and the RAP is 5%, as a percentage of forecasted sales. Over the duration of the study timeframe the technical potential rises to 39% and the economic potential rises to 36% of forecasted sales. The MAP and RAP rise respectively to 25% and 20% of forecasted sales over the study timeframe. The gap between economic potential and MAP/RAP represents market barriers to prospective program participants.

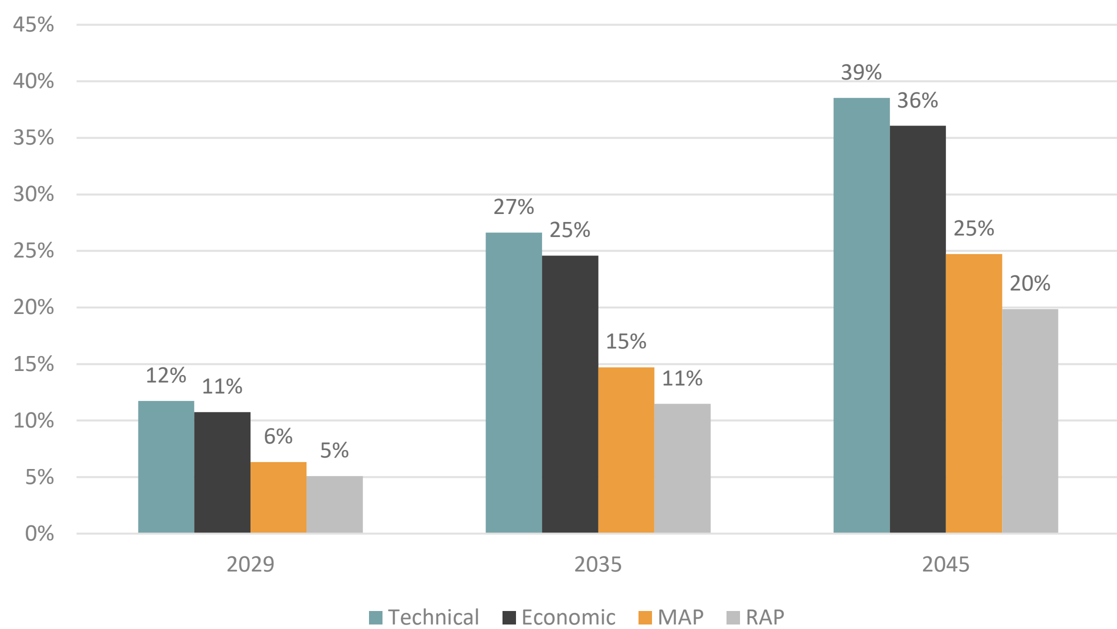


FIGURE 7-1: CUMULATIVE ANNUAL GAS ENERGY SAVINGS POTENTIAL (ALL SECTORS)

Figure 7-2 provides the overall residential and C&I sector's combined annual MAP and RAP savings and costs for the 2026-2029 timeframe.[50] This helps provide a snapshot of the near-term savings potential and associated costs. The RAP savings rise from 54 million therms to 59 million therms of energy efficiency savings, with an estimated cost ranging from $345 million to $400 million.

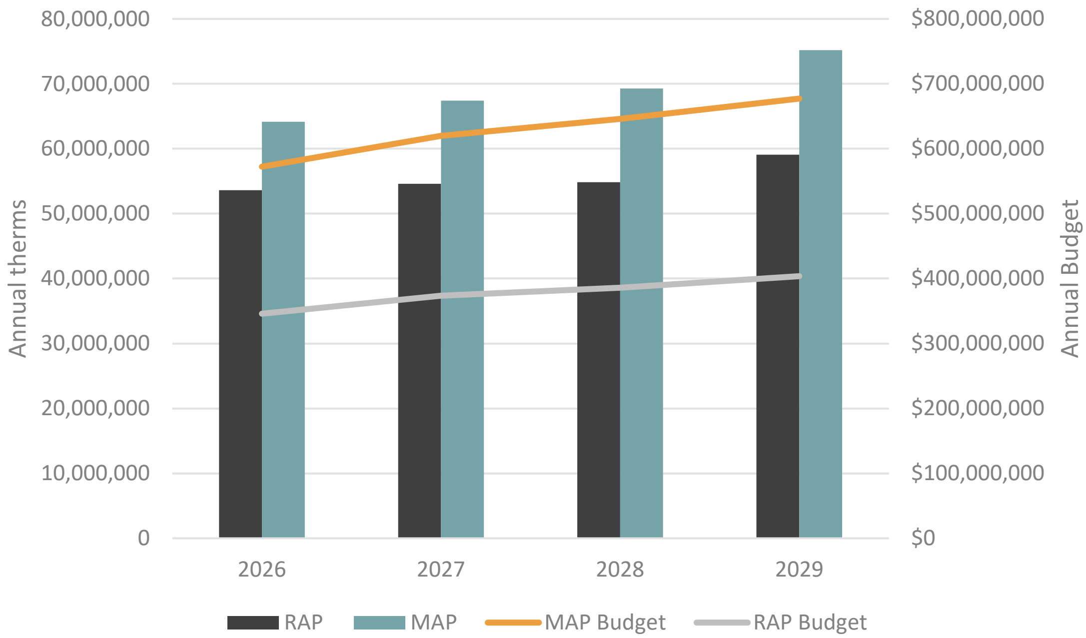


FIGURE 7-2: ANNUAL MAP AND RAP SAVINGS AND COSTS (2026-2029)

Table 7-1 below provides additional sector level detail associated with MAP and RAP savings and budgets over the 2026-2029 timeframe. Residential RAP savings range from 41 million to 42 million therms, at a cost of $330 million to $475 million. C&I savings range from 12 million to 18 million therms at a cost of $19 million up to approximately $29 million. Current spending in 2025 is approximately $45 million, with either the MAP or RAP budget representing an order of magnitude increase.

TABLE 7-1: ANNUAL RAP THERM SAVINGS AND PROGRAM COSTS – BY SECTOR AND TOTAL (2026-2029)

Sector	2026	2027	2028	2029
Total Savings				
MAP	64,145,309	67,382,814	69,265,224	75,185,618
RAP	53,594,634	54,589,355	54,864,512	59,082,972
Residential Savings[51]				
MAP	46,631,177	47,839,039	48,210,272	50,805,452
RAP	42,037,705	41,280,603	40,272,145	40,756,252

[50] MAP reflects costs and savings associated with programs offering incentives of 100% of measure cost, while RAP reflects costs and savings associated with programs offering incentives typical of current practices. Neither are constrained by policy.

[51] Residential sector data includes both income-eligible and market rate customers unless otherwise noted. Income-eligible sector details are included in the residential sector section of the chapter.

Sector	2026	2027	2028	2029
C&I Savings				
MAP	17,514,132	19,543,775	21,054,952	24,380,167
RAP	11,556,929	13,308,752	14,592,367	18,326,720
Total Budget				
MAP	$572,367,897	$619,891,191	$645,894,232	$677,254,480
RAP	$345,908,989	$373,416,702	$385,977,747	$403,707,688
Residential Budget				
MAP	$486,769,493	$522,050,884	$537,801,336	$559,410,762
RAP	$327,067,442	$351,861,373	$362,326,522	$374,776,509
C&I Budget				
MAP	$85,598,404	$97,840,308	$108,092,897	$117,843,717
RAP	$18,841,548	$21,555,330	$23,651,226	$28,931,180

7.2 RESIDENTIAL SECTOR MARKET POTENTIAL

Figure 7-3 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes, for the residential sector. The cumulative annual 4-year technical potential is 14% of the residential forecasted sales, and the economic potential is 12% of forecasted sales. The cumulative annual 4-year MAP is 8% and the RAP is 7%, as a percentage of forecasted residential sales. Over the duration of the study timeframe the technical potential rises to 44% and the economic potential rises to 41% of forecasted sales. The MAP and RAP rise respectively to 29% and 24% of forecasted sales over the study timeframe.

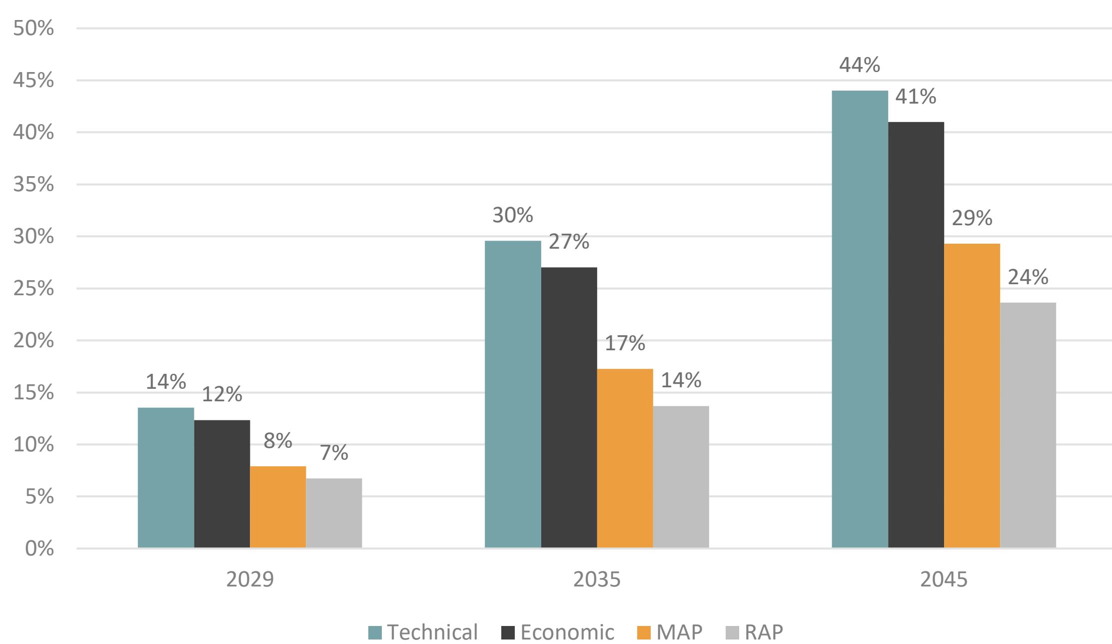


FIGURE 7-3: RESIDENTIAL CUMULATIVE ANNUAL GAS ENERGY SAVINGS POTENTIAL

Figure 7-4 below shows the annual MAP and RAP savings in the residential sector by income type over the 2026-2029 timeframe. The RAP savings are between 80% and 90% of the MAP savings, due to the lower assumed incentive levels in the RAP scenario. The income-eligible savings are about 32% of the total savings in the MAP scenario and about 35% in the RAP scenario over the 2026-2029 timeframe.

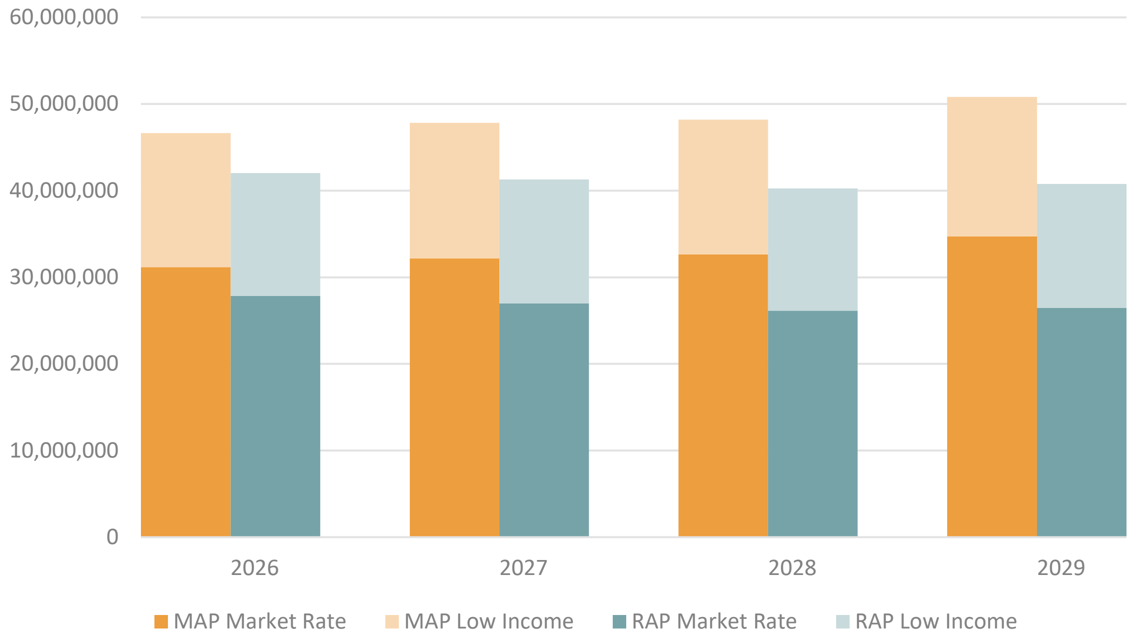


FIGURE 7-4: RESIDENTIAL ANNUAL MAP AND RAP THERM SAVINGS BY INCOME TYPE (2026-2029)

Figure 7-5 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by end use. HVAC and Building Shell measures account for more than 80% of the savings, and the remaining end uses of Hot Water, Appliances, Miscellaneous end uses account for the remaining approximately 20% of the potential.

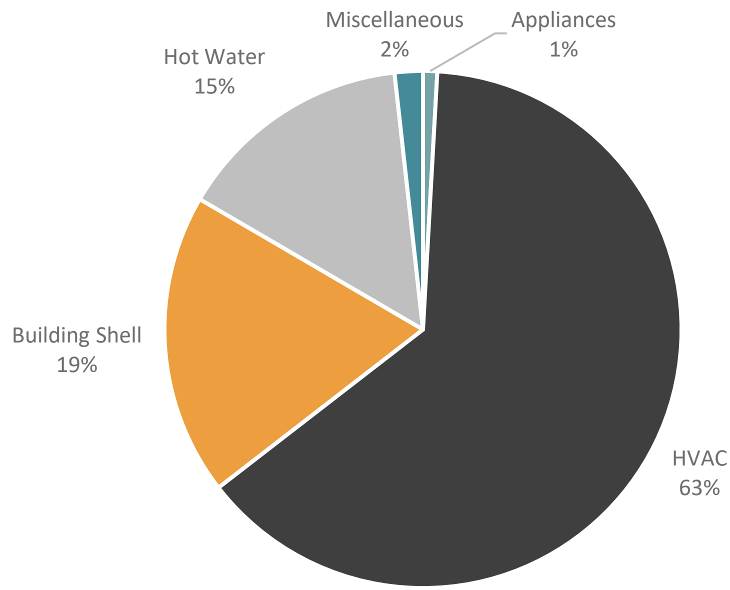


FIGURE 7-5: RESIDENTIAL SAVINGS BY END USE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 7-6 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by housing/income type. Market-rate customers combine for 65% of the potential, and income-eligible customers (including public housing) account for 35% of the potential. The short-term breakdown is similar, though the higher cost measures of the Building Shell end-use take some time to ramp-up towards higher participation levels.

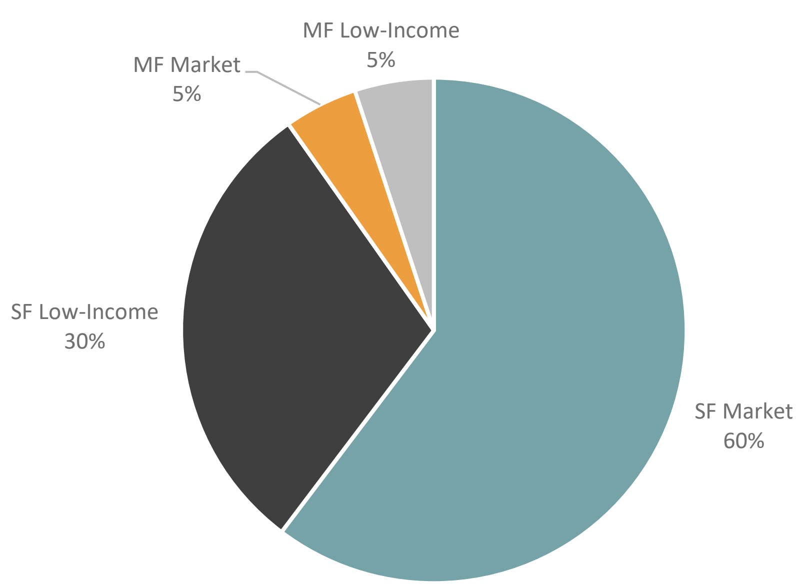


FIGURE 7-6: RESIDENTIAL SAVINGS BY HOUSING AND INCOME TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 7-7 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by technology type. Measures that are currently offered by Nicor Gas or are otherwise available in the marketplace account for 76% of the potential, whereas emerging and innovative technologies account for 24% of the potential.

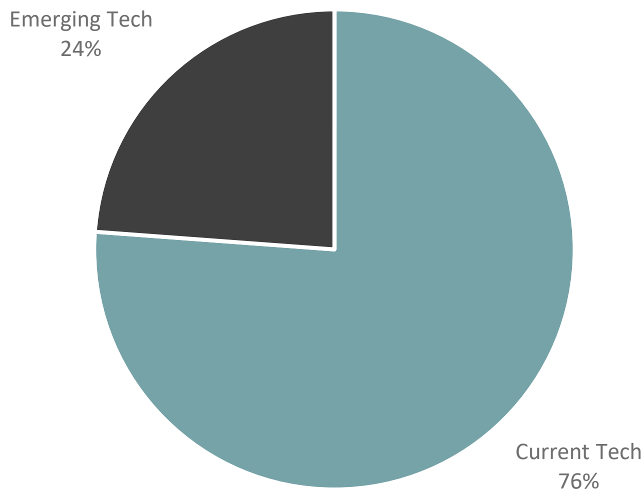


FIGURE 7-7: RESIDENTIAL SAVINGS BY TECHNOLOGY TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

7.3 COMMERCIAL/INDUSTRIAL SECTOR MARKET POTENTIAL

Figure 7-8 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes, for the C&I sector.[52] The cumulative annual 4-year technical potential is 9% of the C&I forecasted sales, and the economic potential is 9% of forecasted sales. The cumulative annual 4-year MAP is 4% and the RAP is 3%, as a percentage of forecasted C&I sales. Over the duration of the study timeframe the technical potential rises to 31% and the economic potential rises to 29% of forecasted sales. The MAP and RAP rise respectively to 19% and 15% of forecasted sales over the study timeframe.

[52] The savings shown here are energy efficiency savings only. Savings from electrification and converted gas savings are provided, where indicated.

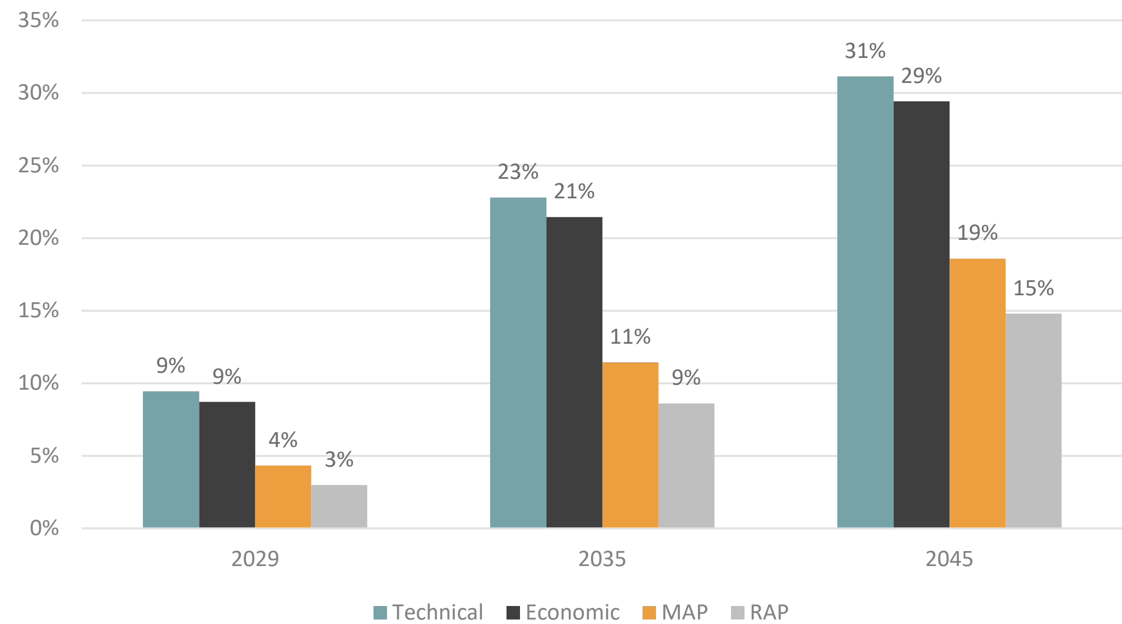


FIGURE 7-8: C&I CUMULATIVE ANNUAL GAS ENERGY SAVINGS POTENTIAL

Figure 7-9 below shows the annual MAP and RAP savings in the C&I sector over the 2026-2029 timeframe. The RAP savings are between 66% and 75% of the MAP savings, due to the lower assumed incentive levels in the RAP scenario.

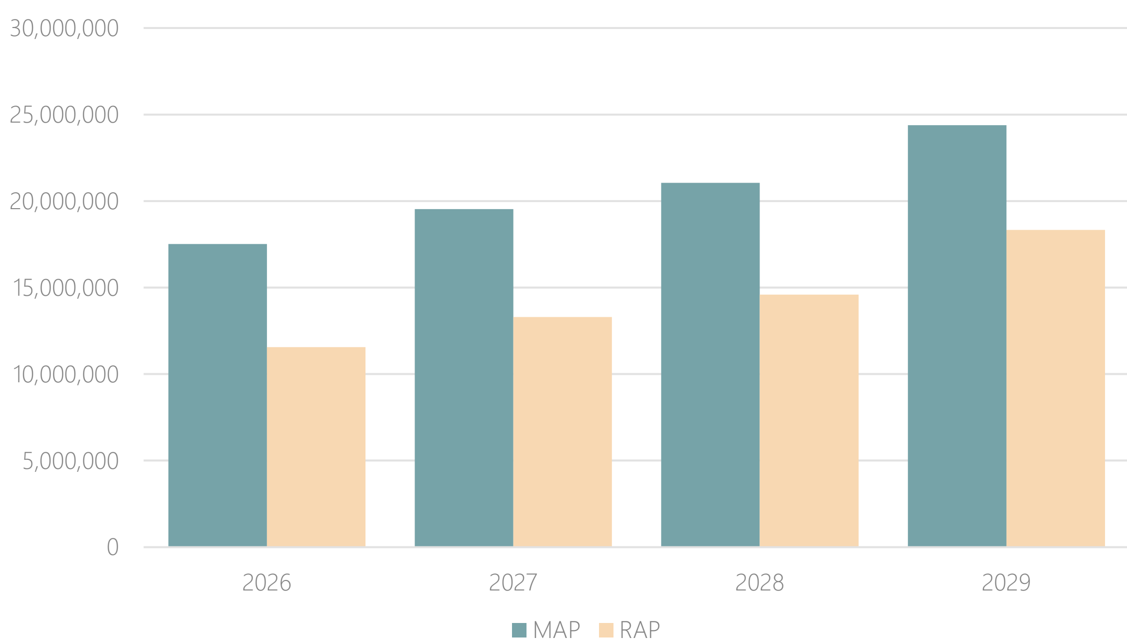


FIGURE 7-9: C&I ANNUAL MAP AND RAP THERM SAVINGS (2026-2029)

Figure 7-10 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by end use. HVAC measures account for approximately 75% of the savings, and the remaining end uses of Cooking, Hot Water, Plug Loads, Process Heat, account for the remaining 25% of the potential.

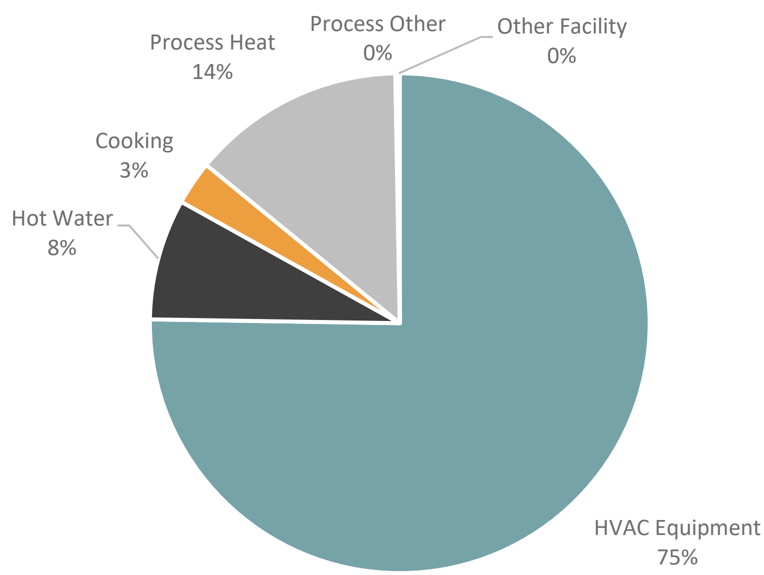


FIGURE 7-10: C&I SAVINGS BY END USE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 7-11 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by C&I sub-sector. Commercial customers combine for 81% of the potential, and Industrial customers account for 19% of the potential.

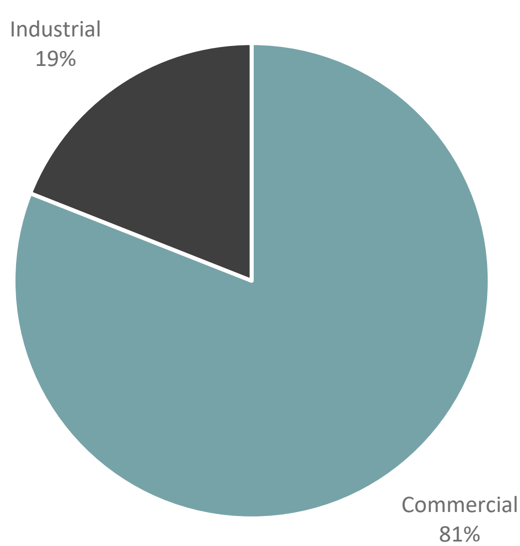


FIGURE 7-11: SAVINGS BY C&I SUB-SECTOR (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 7-12 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by technology type. Measures that are currently offered by Nicor Gas or are otherwise available in the marketplace account for 90% of the potential, whereas emerging and innovative technologies account for 10% of the potential.

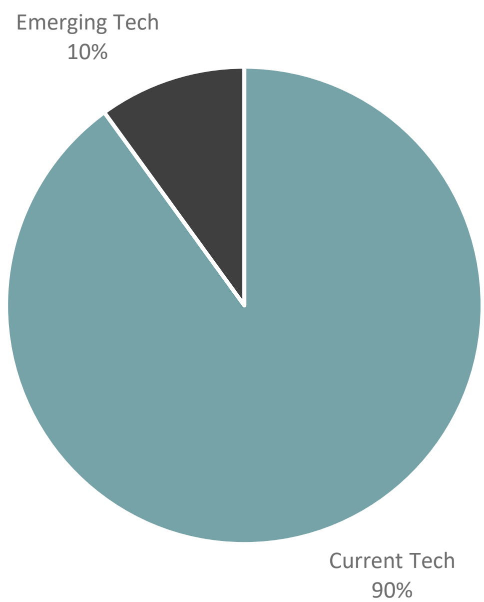


FIGURE 7-12: C&I SAVINGS BY TECHNOLOGY TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 7-13 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by building ownership type (private vs public). Private buildings account for 93% of the potential, and public buildings account for 7% of the potential.

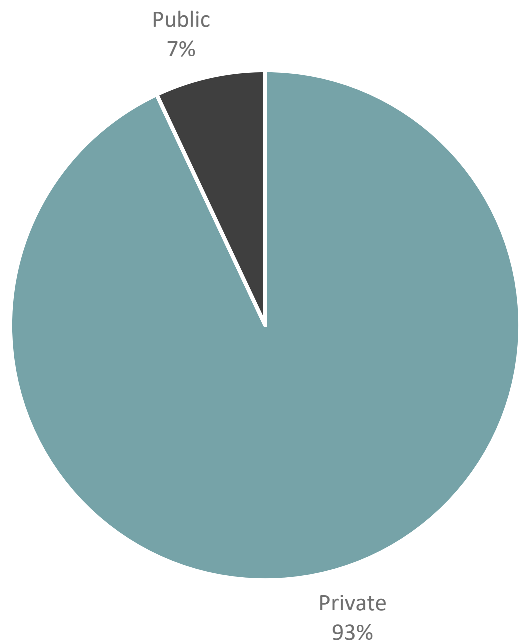


FIGURE 7-13: C&I SAVINGS BY OWNERSHIP TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

7.4 SCENARIO BUDGETS & ACQUISITION COSTS

Figure 7-14 below provides an overview of the annual savings in the Statutory Maximum Achievable Potential ("SMAP") scenario, as well as the three Stipulated Funding Achievable Potential ("STIP") scenarios, all sectors combined, along with the RAP savings. The annual SMAP savings start off at 20.5 million therms in 2026 and drop to 19.7 million therms by 2029.

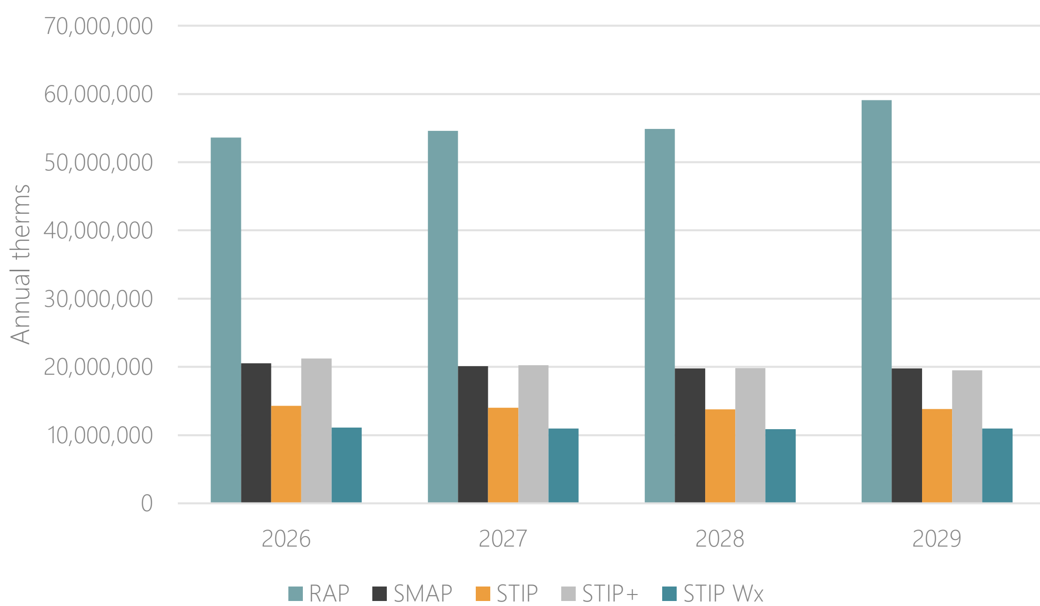


FIGURE 7-14: ANNUAL SAVINGS BY SCENARIO (2026-2029)

Table 7-2 below provides a breakdown of sector-level energy efficiency in the SMAP scenario. The C&I sector accounts for about 55% of the total energy savings over the 2026-2029 timeframe, with the remaining 45% accounted for by the residential and income-eligible sectors.

TABLE 7-2: ANNUAL SMAP THERM SAVINGS –BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential	8,720,430	8,402,277	8,149,685	8,015,108
Income-Eligible	373,233	393,641	419,268	445,320
C&I	11,410,031	11,306,528	11,189,994	11,329,660
Total	**20,503,694**	**20,102,446**	**19,758,948**	**19,790,089**

Table 7-3 below provides a breakdown of sector-level energy efficiency costs in the SMAP scenario. The residential sector accounts for 48% of the budget, the income-eligible sector accounts for 11% of the budget, and the C&I sector accounts for 41% of the budget.

TABLE 7-3: ANNUAL SMAP BUDGETS – BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential	$22,788,000	$22,788,000	$22,788,000	$22,788,000
Income-Eligible	$5,200,000	$5,200,000	$5,200,000	$5,200,000
C&I	$19,412,000	$19,412,000	$19,412,000	$19,412,000
Sub-Total	$47,400,000	$47,400,000	$47,400,000	$47,400,000
Cross-Cutting Costs	$12,600,000	$12,600,000	$12,600,000	$12,600,000
Total – All	**$60,000,000**	**$60,000,000**	**$60,000,000**	**$60,000,000**

Table 7-4 below provides a breakdown of sector-level energy efficiency savings in the Stipulated Funding Achievable Potential ("STIP") scenario. The C&I sector accounts for about 53% of the total energy savings over the 2026-2029 timeframe, with the remaining 47% accounted for by the residential and income-eligible sectors.

TABLE 7-4: ANNUAL STIP THERM SAVINGS – BY SECTOR (2026-2029)

Residential	5,892,174	5,692,817	5,541,345	5,473,885
Income-Eligible	847,787	841,810	856,578	878,440
C&I	7,540,070	7,457,319	7,375,469	7,462,472
Total	**14,280,031**	**13,991,946**	**13,773,392**	**13,814,797**

Table 7-5 below provides a breakdown of sector-level energy efficiency and savings in the STIP+ scenario. The C&I sector accounts for about 40% of the total energy savings over the 2026-2029 timeframe, with the remaining 60% accounted for by the residential and income-eligible sectors.

TABLE 7-5: ANNUAL STIP+ THERM SAVINGS – BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential	12,025,761	10,796,115	10,475,881	10,204,262
Income-Eligible	1,256,327	1,251,262	1,250,120	1,253,719
C&I	7,955,617	8,200,068	8,108,481	8,018,278
Total	**21,237,705**	**20,247,444**	**19,834,481**	**19,476,260**

Table 7-6 below provides a breakdown of sector-level energy efficiency savings in the STIP Wx scenario. The C&I sector accounts for about 68% of the total energy savings over the 2026-2029 timeframe, with the remaining 32% accounted for by the residential and income-eligible sectors.

TABLE 7-6: ANNUAL STIP WX THERM SAVINGS –BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential	2,702,239	2,646,530	2,614,575	2,609,512
Income-Eligible	847,787	841,810	856,578	878,440
C&I	7,540,070	7,457,319	7,375,469	7,462,472
Total	**11,090,096**	**10,945,660**	**10,846,622**	**10,950,424**

Table 7-7 below provides a breakdown of energy efficiency spending by sector in the SMAP scenario as well as the three STIP scenarios. The STIP scenarios have a greater emphasis on income-eligible spending, which varies slightly among the three STIP scenarios. The STIP+ scenario provides the highest savings opportunities, followed by the STIP scenario, with the STIP Wx scenario providing the lowest savings among the three. This is expected, as the STIP+ prioritizes cost-effectiveness, and STIP Wx prioritizes higher cost, but long-lasting, building shell weatherization measures.

Scenario results demonstrate the level of potential savings given consistent total funding, but variances across different sectors as well as competing prioritization of savings. Generally, increased income-eligible sector spending creates a reduction in savings that may be offset by prioritization of current program and/or low acquisition cost measures. However, this prioritization may limit measure and/or end-use diversity within the portfolio, with building shell measures and future emerging technologies being reduced or eliminated. Utility program plans are expected to balance these considerations to develop a diverse set of programs that serve all customers.

TABLE 7-7: ANNUAL SMAP AND STIP SCENARIO BUDGETS –BY SECTOR (2026-2029)

	2026	2027	2028	2029
SMAP				
Residential	$22,788,000	$22,788,000	$22,788,000	$22,788,000
Income-Eligible	$5,200,000	$5,200,000	$5,200,000	$5,200,000
C&I	$19,412,000	$19,412,000	$19,412,000	$19,412,000
Sub-Total	$47,400,000	$47,400,000	$47,400,000	$47,400,000
Cross-Cutting	$12,600,000	$12,600,000	$12,600,000	$12,600,000
Total	**$60,000,000**	**$60,000,000**	**$60,000,000**	**$60,000,000**
STIP				
Residential	$16,236,000	$16,236,000	$16,236,000	$16,236,000

	2026	2027	2028	2029
Income-Eligible	$17,333,333	$17,333,333	$17,333,333	$17,333,333
C&I	$13,830,667	$13,830,667	$13,830,667	$13,830,667
Sub-Total	$47,400,000	$47,400,000	$47,400,000	$47,400,000
Cross-Cutting	$12,600,000	$12,600,000	$12,600,000	$12,600,000
Total	**$60,000,000**	**$60,000,000**	**$60,000,000**	**$60,000,000**
STIP+				
Residential	$16,236,000	$16,236,000	$16,236,000	$16,236,000
Income-Eligible	$17,333,333	$17,333,333	$17,333,333	$17,333,333
C&I	$13,830,667	$13,830,667	$13,830,667	$13,830,667
Sub-Total	$47,400,000	$47,400,000	$47,400,000	$47,400,000
Cross-Cutting	$12,600,000	$12,600,000	$12,600,000	$12,600,000
Total	**$60,000,000**	**$60,000,000**	**$60,000,000**	**$60,000,000**
Residential	$16,236,000	$16,236,000	$16,236,000	$16,236,000
Income-Eligible	$17,333,333	$17,333,333	$17,333,333	$17,333,333
C&I	$13,830,667	$13,830,667	$13,830,667	$13,830,667
Sub-Total	$47,400,000	$47,400,000	$47,400,000	$47,400,000
Cross-Cutting	$12,600,000	$12,600,000	$12,600,000	$12,600,000
Total	**$60,000,000**	**$60,000,000**	**$60,000,000**	**$60,000,000**

Table 7-8 provides a breakdown of the acquisition costs of the SMAP and STIP scenarios. The STIP+ scenario is slightly more cost-effective than the SMAP scenario, but is by far the most cost-effective of the three STIP scenarios. The STIP Wx scenario is the most expensive, as anticipated, due to the emphasis on weatherization measures.

TABLE 7-8: SCENARIO ACQUISITION COSTS ($/THERM) (2026-2029)

	2026	2027	2028	2029
SMAP	$2.31	$2.36	$2.40	$2.40
STIP	$3.32	$3.39	$3.44	$3.43
STIP+	$2.23	$2.34	$2.39	$2.43
STIP Wx	$4.27	$4.33	$4.37	$4.33

8 AMEREN GAS MARKET POTENTIAL ASSESSMENT

This chapter provides an overview of the Ameren Gas market potential savings and costs. The overall savings in the near and long term are shown, along with sector-level summary data. Sector-level detail is also provided to illustrate where potential exists among end-uses, housing and income types, sub-sectors, and technology types. The chapter concludes with a review of the savings and costs associated with the scenarios described in Chapter 2 above.

8.1 ENERGY SAVINGS POTENTIAL SUMMARY

Figure 8-1 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes. The constrained scenarios, most relevant for comparing practicable potential with policy, funding, or portfolio emphasis constraints, follow. While the achievable potential provides estimates of what could be achieved by utility programs, the technical and economic potential are important to understand as these estimates lay the groundwork for developing subsequent achievable potential estimates and program potential estimates that have budget and policy considerations. The cumulative annual 4-year technical potential is 12% of the forecasted sales, and the economic potential is 12% of forecasted sales. The cumulative annual 4-year MAP is 6% and the RAP is 5%, as a percentage of forecasted sales. Over the duration of the study timeframe the technical potential rises to 43% and the economic potential rises to 41% of forecasted sales. The MAP and RAP rise respectively to 29% and 22% of forecasted sales over the study timeframe. The gap between economic potential and MAP/RAP represents market barriers to prospective program participants.

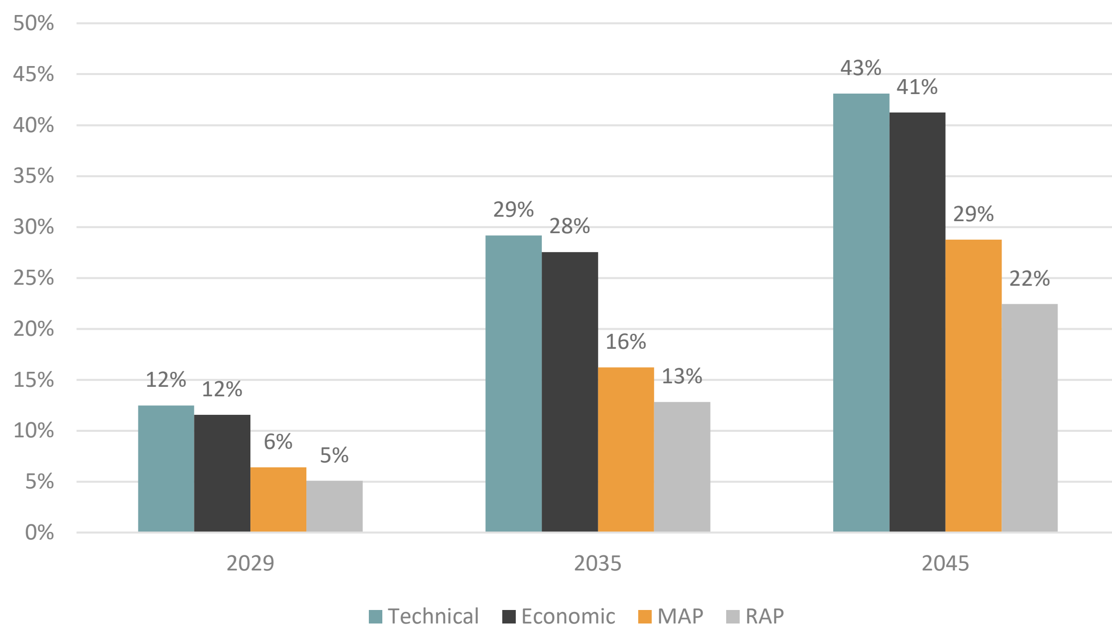


FIGURE 8-1: CUMULATIVE ANNUAL GAS ENERGY SAVINGS POTENTIAL (ALL SECTORS)

Figure 8-2 provides the overall residential and C&I sector's combined annual MAP and RAP savings and costs for the 2026-2029 timeframe.[53] This helps provide a snapshot of the near-term savings potential and associated costs. The RAP savings rise from 17 million therms to 21 million therms of energy efficiency savings, with an estimated cost ranging from $63 million to $72 million.

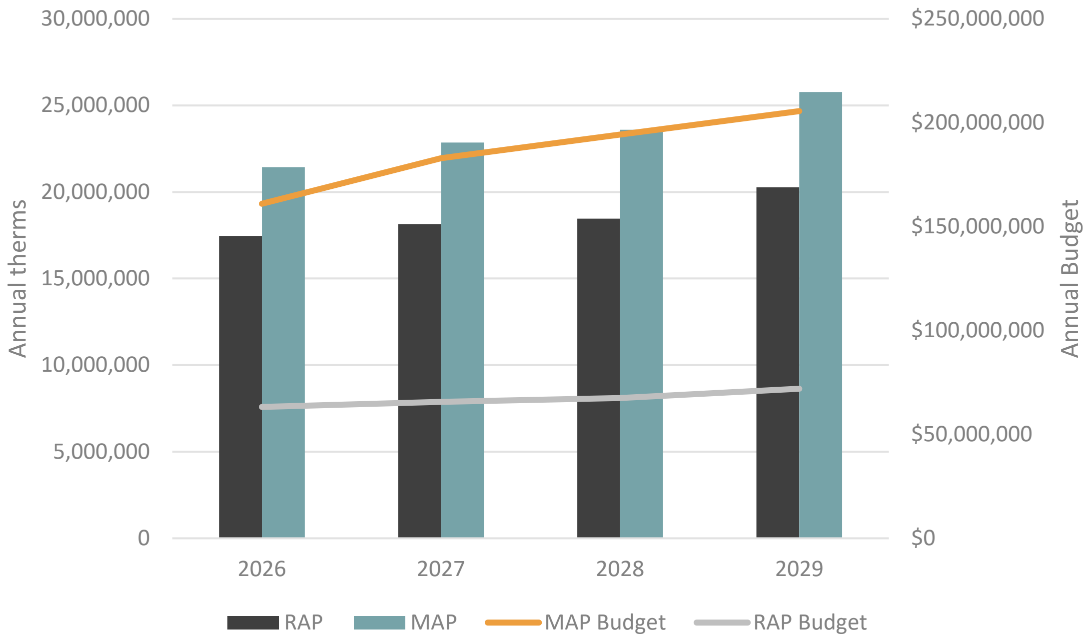


FIGURE 8-2: ANNUAL MAP AND RAP SAVINGS AND COSTS (2026-2029)

Table 8-1 below provides additional sector level detail associated with MAP and RAP savings and budgets over the 2026-2029 timeframe. Residential RAP savings range from 12 million to 13 million therms, at a cost of $52 million to $54 million. C&I savings range from 5 million to 8 million therms at a cost of $10 million up to approximately $18 million.

TABLE 8-1: ANNUAL RAP THERM SAVINGS AND PROGRAM COSTS – BY SECTOR AND TOTAL (2026-2029)

Sector	2026	2027	2028	2029
Total Savings				
MAP	21,435,587	22,865,180	23,589,232	25,775,426
RAP	17,459,234	18,146,375	18,469,446	20,278,138
Residential Savings[54]				
MAP	14,673,495	15,225,517	15,294,903	15,952,364
RAP	12,646,952	12,491,671	12,216,436	12,392,436
C&I Savings				

[53] MAP reflects costs and savings associated with programs offering incentives of 100% of measure cost, while RAP reflects costs and savings associated with programs offering incentives typical of current practices. Neither are constrained by policy.

[54] Residential sector data includes both income-eligible and market rate customers unless otherwise noted. Income-eligible sector details are included in the residential sector section of the chapter.

Sector	2026	2027	2028	2029
MAP	6,762,092	7,639,662	8,294,329	9,823,062
RAP	4,812,282	5,654,704	6,253,009	7,885,703
Total Budget				
MAP	$161,024,507	$182,872,614	$194,305,258	$205,610,510
RAP	$63,223,205	$65,690,794	$67,467,452	$71,990,837
Residential Budget				
MAP	$126,877,344	$143,621,778	$150,803,370	$157,552,132
RAP	$52,401,827	$52,912,648	$53,182,042	$53,761,588
C&I Budget				
MAP	$34,147,163	$39,250,836	$43,501,888	$48,058,378
RAP	$10,821,378	$12,778,146	$14,285,410	$18,229,248

8.2 RESIDENTIAL SECTOR MARKET POTENTIAL

Figure 8-3 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes, for the residential sector. The cumulative annual 4-year technical potential is 16% of the residential forecasted sales, and the economic potential is 15% of forecasted sales. The cumulative annual 4-year MAP is 9% and the RAP is 7%, as a percentage of forecasted residential sales. Over the duration of the study timeframe the technical potential rises to 60% and the economic potential rises to 57% of forecasted sales. The MAP and RAP rise respectively to 42% and 30% of forecasted sales over the study timeframe.

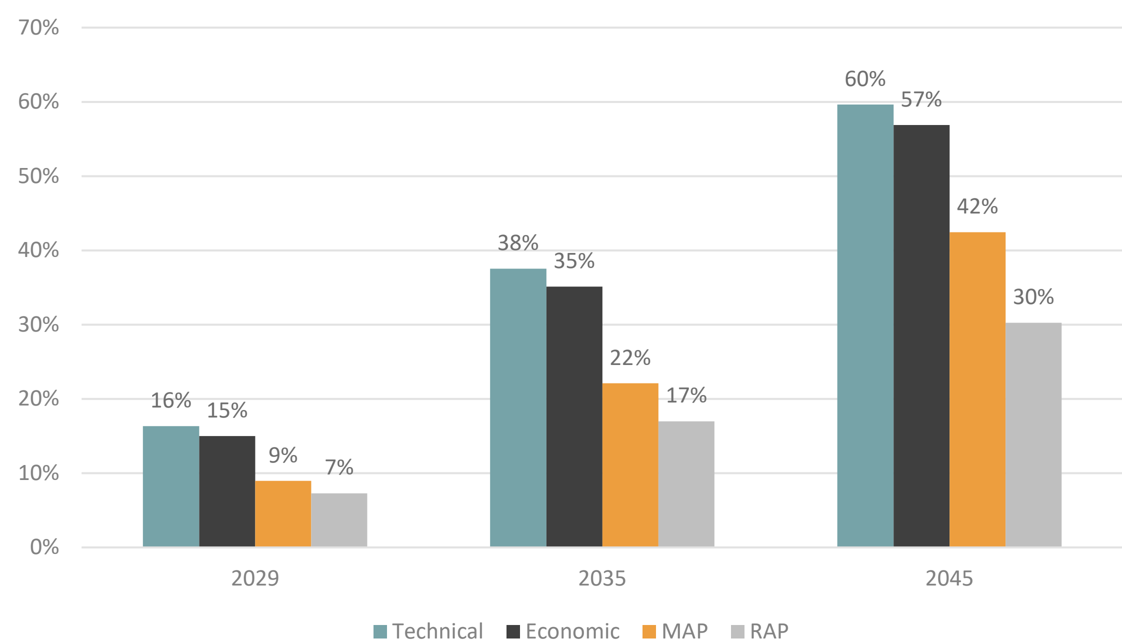


FIGURE 8-3: RESIDENTIAL CUMULATIVE ANNUAL GAS ENERGY SAVINGS POTENTIAL

Figure 8-4 below shows the annual MAP and RAP savings in the residential sector by income type over the 2026-2029 timeframe. The RAP savings are between 78% and 86% of the MAP savings, due to the lower assumed incentive levels in the RAP scenario. The income-eligible savings are about 39% of the total savings in the MAP scenario and about 37% in the RAP scenario over the 2026-2029 timeframe.

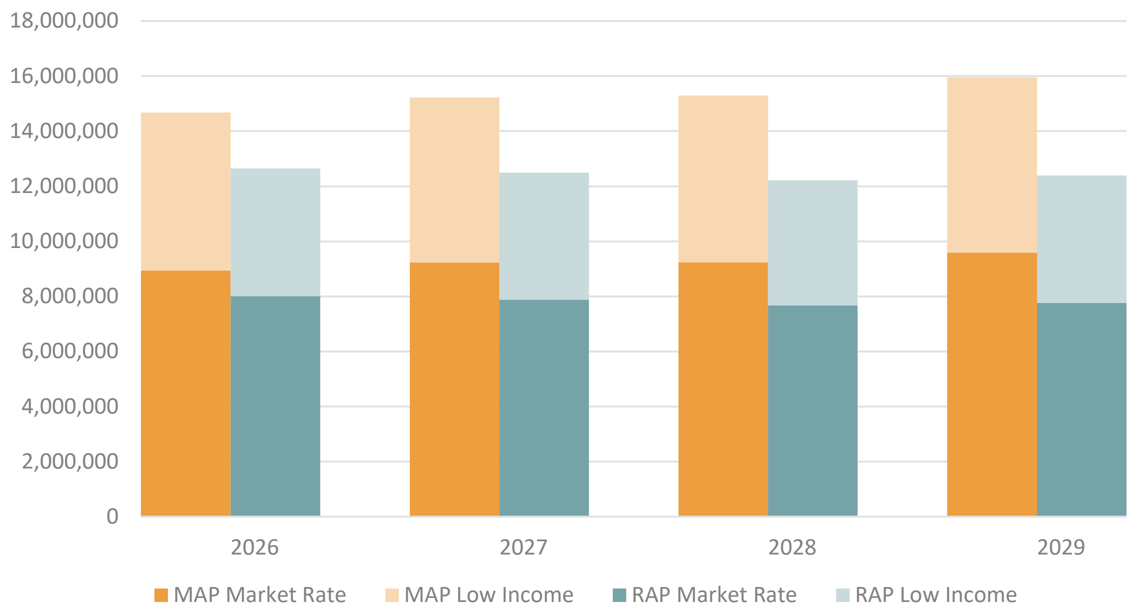


FIGURE 8-4: RESIDENTIAL ANNUAL MAP AND RAP THERM SAVINGS BY INCOME TYPE (2026-2029)

Figure 8-5 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by end use. HVAC and Building Shell measures account for 84% of the savings, and the remaining end uses of Hot Water, Appliances, Miscellaneous end uses account for the remaining 16% of the potential. The short-term breakdown is similar, though the higher cost measures of the Building Shell end-use take some time to ramp-up towards higher participation levels.

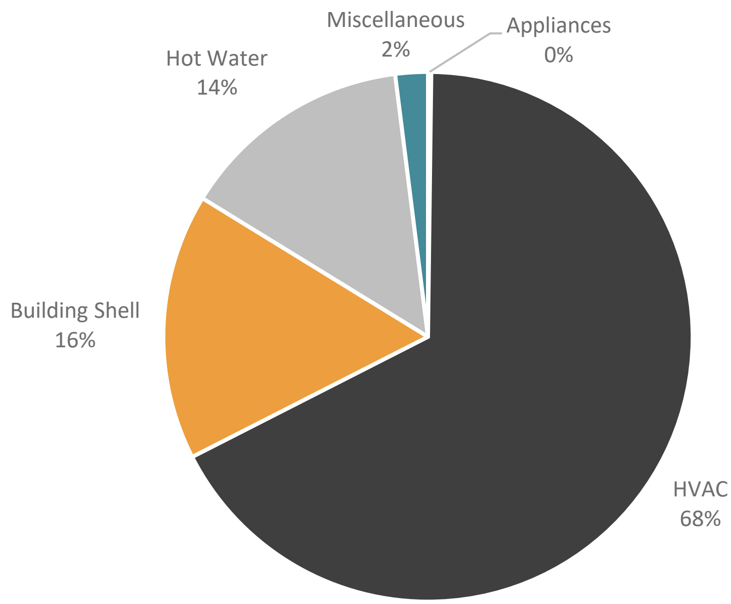


FIGURE 8-5: RESIDENTIAL SAVINGS BY END USE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 8-6 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by housing/income type. Market-rate customers combine for 62% of the potential, and income-eligible customers (including public housing) account for 38% of the potential.

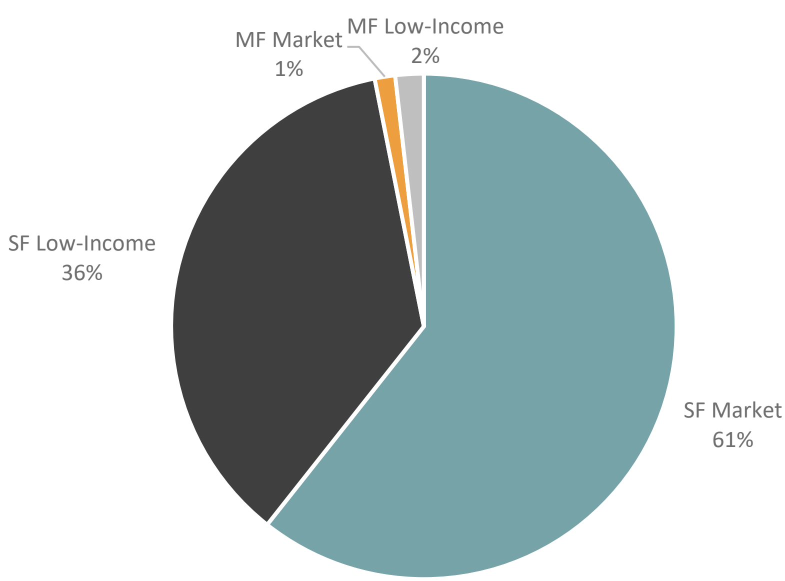


FIGURE 8-6: RESIDENTIAL SAVINGS BY HOUSING AND INCOME TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 8-7 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by technology type. Measures that are currently offered by Ameren Gas or are otherwise available in the marketplace account for 80% of the potential, whereas emerging and innovative technologies account for 20% of the potential.

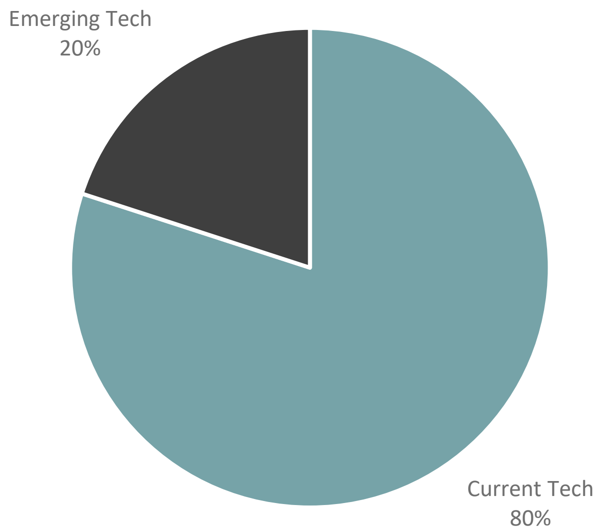


FIGURE 8-7: RESIDENTIAL SAVINGS BY TECHNOLOGY TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

8.3 COMMERCIAL/INDUSTRIAL SECTOR MARKET POTENTIAL

Figure 8-8 provides the technical, economic, MAP and RAP results for the 4-year, 10-year, and 20-year timeframes, for the C&I sector.[55] The cumulative annual 4-year technical potential is 9% of the C&I forecasted sales, and the economic potential is 9% of forecasted sales. The cumulative annual 4-year MAP is 4% and the RAP is 3%, as a percentage of forecasted C&I sales. Over the duration of the study timeframe the technical potential rises to 31% and the economic potential rises to 29% of forecasted sales. The MAP and RAP rise respectively to 18% and 17% of forecasted sales over the study timeframe.

[55] The savings shown here are energy efficiency savings only. Savings from electrification and converted gas savings are provided, where indicated.

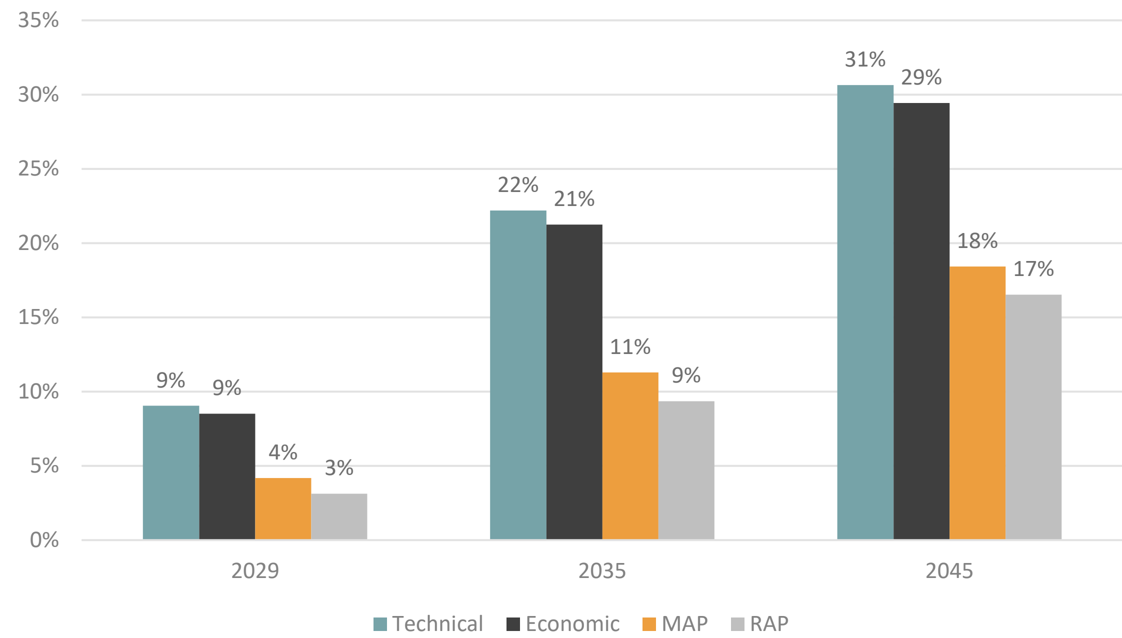


FIGURE 8-8: C&I CUMULATIVE ANNUAL GAS ENERGY SAVINGS POTENTIAL

Figure 8-9 below shows the annual MAP and RAP savings in the C&I sector over the 2026-2029 timeframe. The RAP savings are between 71% and 80% of the MAP savings, due to the lower assumed incentive levels in the RAP scenario.

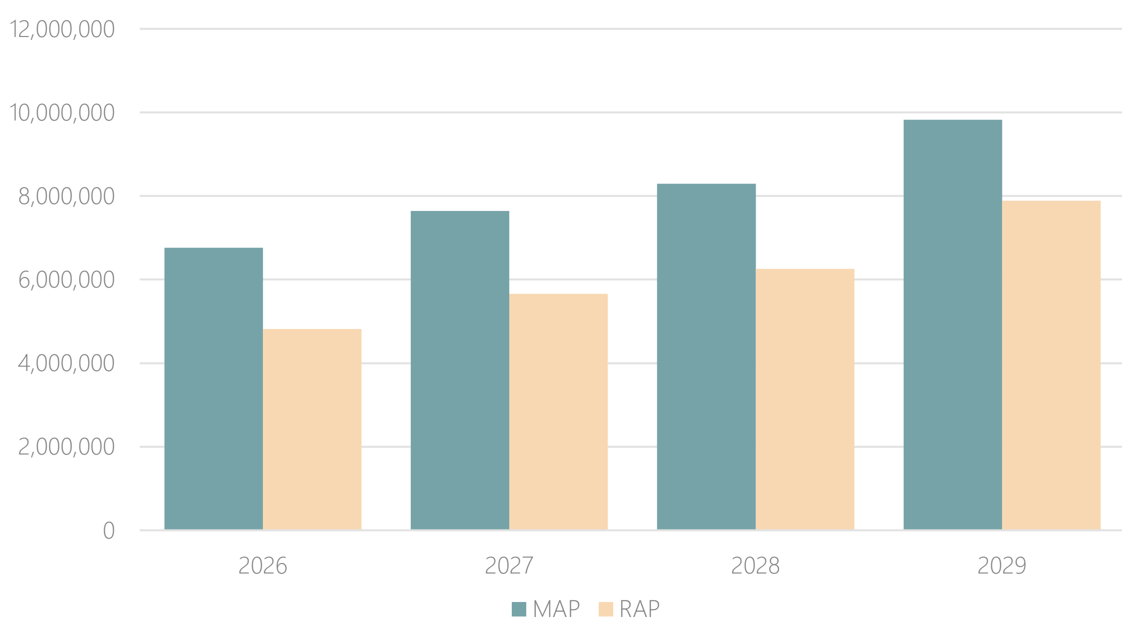


FIGURE 8-9: C&I ANNUAL MAP AND RAP THERM SAVINGS (2026-2029)

Figure 8-10 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by end use. HVAC measures account for approximately 75% of the savings, and the remaining end uses of Cooking, Hot Water, Plug Loads, Process Heat, account for the remaining 25% of the potential.

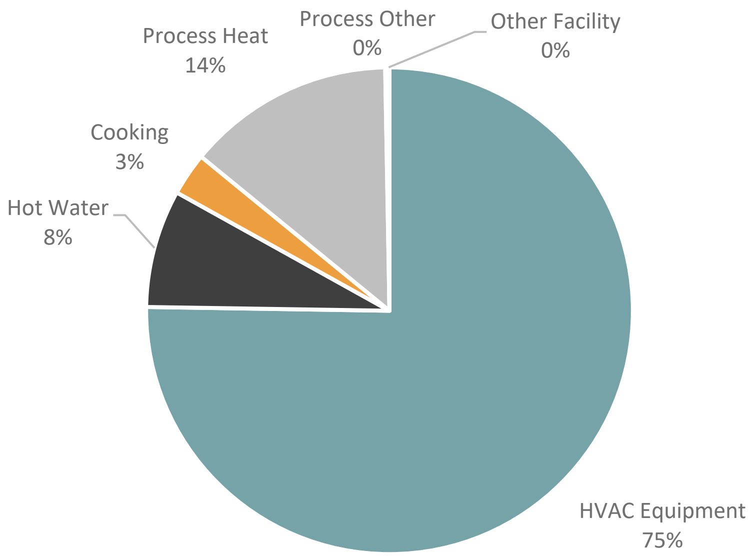


FIGURE 8-10: C&I SAVINGS BY END USE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 8-11 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by C&I sub-sector. Commercial customers combine for 76% of the potential, and Industrial customers account for 24% of the potential.

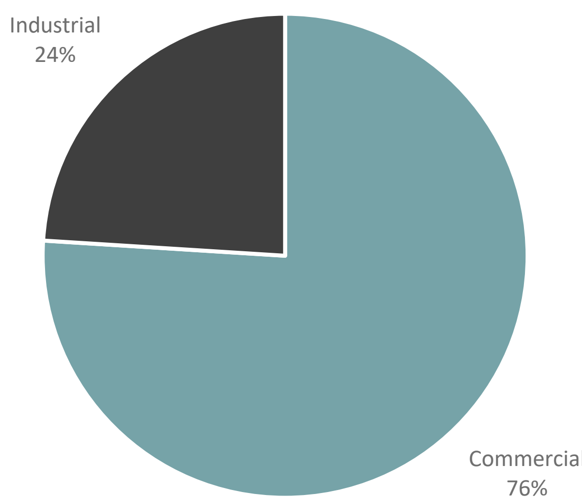


FIGURE 8-11: C&I SAVINGS BY C&I SUB-SECTOR (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 8-12 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by technology type. Measures that are currently offered by Ameren Gas or are otherwise available in the marketplace account for 92% of the potential, whereas emerging and innovative technologies account for 8% of the potential.

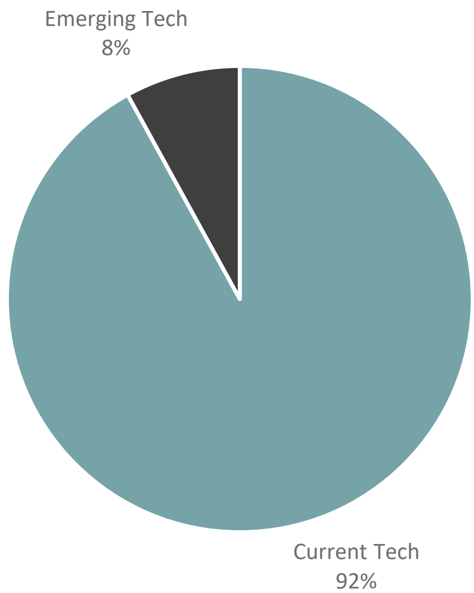


FIGURE 8-12: C&I SAVINGS BY TECHNOLOGY TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

Figure 8-13 below provides a breakdown of the long term cumulative annual RAP savings from energy efficiency by building ownership type (private vs public). Private buildings account for 89% of the potential, and public buildings account for 11% of the potential.

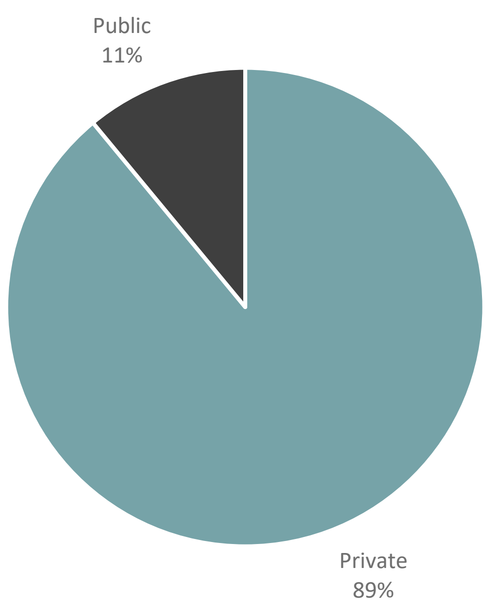


FIGURE 8-13: C&I SAVINGS BY OWNERSHIP TYPE (CUMULATIVE ANNUAL RAP, 2045) – EE ONLY

8.4 SCENARIO BUDGETS & ACQUISITION COSTS

Figure 8-14 below provides an overview of the annual savings in the Statutory Maximum Achievable Potential ("SMAP") scenario, as well as the three Stipulated Funding Achievable Potential ("STIP") scenarios, all sectors combined, along with the RAP savings. The annual SMAP savings start off at 6.7 million therms in 2026 and drop to 6.5 million therms by 2029.

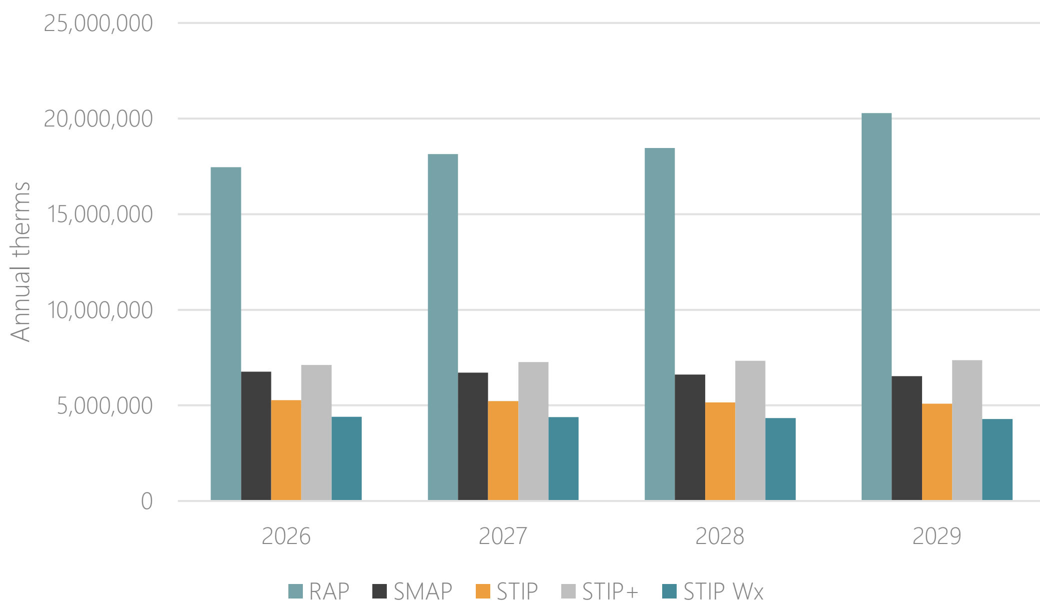


FIGURE 8-14: ANNUAL SAVINGS BY SCENARIO (2026-2029)

Table 8-2 below provides a breakdown of sector-level energy efficiency in the SMAP scenario. The C&I sector accounts for about 68% of the total energy savings over the 2026-2029 timeframe, with the remaining 32% accounted for by the residential and income-eligible sectors.

TABLE 8-2: ANNUAL SMAP THERM SAVINGS –BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential	1,805,307	1,771,812	1,743,279	1,724,714
Income-Eligible	382,395	379,382	371,967	363,185
C&I	4,575,733	4,554,208	4,504,189	4,445,923
Total	**6,763,435**	**6,705,401**	**6,619,435**	**6,533,823**

Table 8-3 below provides a breakdown of sector-level energy efficiency costs in the SMAP scenario. The residential sector accounts for 17% of the budget, the income-eligible sector accounts for 21% of the budget, and the C&I sector accounts for 62% of the budget.

TABLE 8-3: ANNUAL SMAP PROGRAM BUDGETS – BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential	$2,796,215	$2,796,215	$2,796,215	$2,796,215
Income-Eligible	$3,400,000	$3,400,000	$3,400,000	$3,400,000
C&I	$10,330,767	$10,330,767	$10,330,767	$10,330,767
Total	**$16,526,982**	**$16,526,982**	**$16,526,982**	**$16,526,982**

Table 8-4 below provides a breakdown of sector-level energy efficiency savings in the Stipulated Funding Achievable Potential ("STIP") scenario. The C&I sector accounts for about 63% of the total energy savings over the 2026-2029 timeframe, with the remaining 37% accounted for by the residential and income-eligible sectors.

TABLE 8-4: ANNUAL STIP THERM SAVINGS – BY SECTOR (2026-2029)

Residential	1,160,966	1,139,971	1,121,120	1,114,441
Income-Eligible	807,079	799,653	783,548	764,347
C&I	3,304,609	3,289,771	3,253,404	3,207,309
Total	**5,272,654**	**5,229,395**	**5,158,073**	**5,086,098**

Table 8-5 below provides a breakdown of sector-level energy efficiency and savings in the STIP+ scenario. The C&I sector accounts for about 52% of the total energy savings over the 2026-2029 timeframe, with the remaining 48% accounted for by the residential and income-eligible sectors.

TABLE 8-5: ANNUAL STIP+ THERM SAVINGS – BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential	1,644,828	1,621,145	1,600,937	1,590,787
Income-Eligible	1,898,815	1,860,483	1,813,126	1,785,722
C&I	3,576,310	3,787,344	3,924,262	3,992,399
Total	**7,119,953**	**7,268,972**	**7,338,325**	**7,368,908**

Table 8-6 below provides a breakdown of sector-level energy efficiency savings in the STIP Wx scenario. The C&I sector accounts for about 75% of the total energy savings over the 2026-2029 timeframe, with the remaining 25% accounted for by the residential and income-eligible sectors.

TABLE 8-6: ANNUAL STIP WX THERM SAVINGS –BY SECTOR (2026-2029)

	2026	2027	2028	2029
Residential	294,582	303,649	304,827	316,890
Income-Eligible	804,495	797,267	781,271	762,338
C&I	3,304,609	3,289,771	3,253,404	3,207,309
Total	**4,403,686**	**4,390,686**	**4,339,502**	**4,286,537**

Table 8-7 below provides a breakdown of energy efficiency spending by sector in the SMAP scenario as well as the three STIP scenarios. The STIP scenarios have a greater emphasis on income-eligible spending, which varies slightly among the three STIP scenarios. The STIP+ scenario provides the highest savings opportunities, followed by the STIP scenario, with the STIP Wx scenario providing the lowest savings among the three. This is expected, as the STIP+ prioritizes cost-effectiveness, and STIP Wx prioritizes higher cost, but long-lasting, building shell weatherization measures.

Scenario results demonstrate the level of potential savings given consistent total funding, but variances across different sectors as well as competing prioritization of savings. Generally, increased income-eligible sector spending creates a reduction in savings that may be offset by prioritization of current program and/or low acquisition cost measures. However, this prioritization may limit measure and/or end-use diversity within the portfolio, with building shell measures and future emerging technologies being reduced or eliminated. Utility program plans are expected to balance these considerations to develop a diverse set of programs that serve all customers.

TABLE 8-7: ANNUAL SMAP AND STIP SCENARIO BUDGETS –BY SECTOR (2026-2029)

	2026	2027	2028	2029
SMAP				
Residential	$2,796,215	$2,796,215	$2,796,215	$2,796,215
Income-Eligible	$3,400,000	$3,400,000	$3,400,000	$3,400,000
C&I	$10,330,767	$10,330,767	$10,330,767	$10,330,767
Sub-Total	$16,526,982	$16,526,982	$16,526,982	$16,526,982
Cross Cutting	$2,803,018	$2,803,018	$2,803,018	$2,803,018
Total	$19,330,000	$19,330,000	$19,330,000	$19,330,000
STIP				
Residential	$2,029,415	$2,029,415	$2,029,415	$2,029,415
Income-Eligible	$7,000,000	$7,000,000	$7,000,000	$7,000,000
C&I	$7,497,567	$7,497,567	$7,497,567	$7,497,567
Sub-Total	$16,526,982	$16,526,982	$16,526,982	$16,526,982
Cross Cutting	$2,803,018	$2,803,018	$2,803,018	$2,803,018
Total	$19,330,000	$19,330,000	$19,330,000	$19,330,000
STIP+				
Residential	$2,029,415	$2,029,415	$2,029,415	$2,029,415
Income-Eligible	$7,000,000	$7,000,000	$7,000,000	$7,000,000
C&I	$7,497,567	$7,497,567	$7,497,567	$7,497,567
Sub-Total	$16,526,982	$16,526,982	$16,526,982	$16,526,982
Cross Cutting	$2,803,018	$2,803,018	$2,803,018	$2,803,018
Total	$19,330,000	$19,330,000	$19,330,000	$19,330,000
Residential	$2,029,415	$2,029,415	$2,029,415	$2,029,415
Income-Eligible	$7,000,000	$7,000,000	$7,000,000	$7,000,000
C&I	$7,497,567	$7,497,567	$7,497,567	$7,497,567
Sub-Total	$16,526,982	$16,526,982	$16,526,982	$16,526,982
Cross Cutting	$2,803,018	$2,803,018	$2,803,018	$2,803,018
Total	$19,330,000	$19,330,000	$19,330,000	$19,330,000

Table 8-8 provides a breakdown of the acquisition costs of the SMAP and STIP scenarios. The STIP+ scenario is slightly more cost-effective than the SMAP scenario, but is by far the most cost-effective of the three STIP scenarios. The STIP Wx scenario is the most expensive, as anticipated, due to the emphasis on weatherization measures.

TABLE 8-8: SCENARIO ACQUISITION COSTS ($/THERM) (2026-2029)

	2026	2027	2028	2029
SMAP	$2.44	$2.46	$2.50	$2.53
STIP	$3.13	$3.16	$3.20	$3.25
STIP+	$2.32	$2.27	$2.25	$2.24
STIP Wx	$3.75	$3.76	$3.81	$3.86

APPENDIX A. Residential Baseline Study Report

PREPARED BY GDS ASSOCIATES, INC.

2023-2024 ILLINOIS BASELINE STUDY

AMEREN ILLINOIS, COMMONWEALTH EDISON, AND NICOR GAS

Residential Baseline Results

FINAL October 31, 2024

TABLE OF CONTENTS

1 Introduction

ComEd, Ameren Illinois (Ameren), and Nicor Gas (the Utilities) contracted with GDS Associates (GDS) and GDS's team of subcontractors to develop a baseline study for the residential sector. The residential baseline study, a companion nonresidential baseline study, and an energy efficiency potential study combine to provide comprehensive perspectives on the energy use and energy efficiency opportunities within the Utilities' service territories. The residential baseline study provided inputs into the energy efficiency potential study and also provides data and insight for other stakeholders and users of the data.

The residential baseline study was completed with three major elements of primary data collection. These include:

- A large-scale online survey of the Utilities' residential customers to understand the presence of energy consuming equipment. The online survey was also used to recruit for onsite data collection and an additional willingness to participate survey.
- Onsite data collection was conducted by trained technicians to gather technical information difficult to acquire via the online survey. Additionally, site visits were used to verify and inform possible adjustments to the online survey results. A subsample of single-family homes were recruited to participate in blower door tests to understand air infiltration in single-family homes.
- The willingness to participate survey enabled respondents to describe how they may choose or not choose energy efficiency equipment under a variety of utility incentive levels. Additionally, these results were used to inform adoption curves used in the potential study.

Recruitment into the residential baseline study was driven by utility account records with email addresses. These records served as the starting point to understand and confirm respondent energy service providers, housing type, and income level, all of which serve as points of disaggregation in the results. This report is organized to present the study and results in the following major sections:

Section 2: Methodology Summary

Section 3: Online and Onsite Combined Utility Results

Section 4: Willingness to Participate Results

Appendices: Detailed tables of utility, housing, and income type results for the online and willingness to participate survey results.

2 Methods

The residential data collection effort involved multiple steps to collect baseline housing information. The team contacted customers of Ameren Illinois, ComEd, and Nicor Gas first through an online survey to collect basic household information. The survey was then used as a recruitment tool for subsequent on-site data collection and a second survey focused on willingness to pay.

2.1 SAMPLE COMPOSITION

The data collection team received customer contact and usage information from Ameren Illinois, ComEd, and Nicor Gas for their entire residential customer populations, totaling almost 7 million records. There was substantial overlap between ComEd electric customers and Nicor Gas customers. After removing contacts duplicated across and within utilities, commercial accounts, and records with incomplete contract information, the residential population to be surveyed included about 3.8 million households in Illinois.

The data collection team selected a sample frame of about 312,000 records from the population file, proportional to the targeted survey groups in the overall population (utility, housing type, and energy usage level), with customers randomly selected for the sample frame within the targeted groups. Housing types (single family or multifamily) were identified by utility records, while energy usage levels were defined by the data collection team. The team established targets for survey groups to meet a criterion of ±5% precision with 95% confidence for survey results from the targeted groups.

Energy usage levels were defined as a simple “high” or “low” designation, determined by the household’s average daily use compared to other households of the same housing type within the same energy utility. Households that were above the median usage were categorized “high” and those under the median were “low”, thus dividing customers into two almost exactly equal groups. Customers with both gas and electric usage data were categorized according to their electric usage. About 5% of contactable customers were excluded from the sample frame due to incomplete or irregular usage data (i.e., extremely low usage homes that were presumably unoccupied), so that all customers in the sample frame could be accurately categorized as high or low usage.

The data collection team attempted to contact a randomly selected 201,700 of the 312,000 households in the sample frame to complete the survey. Emails were deployed in weekly waves for nine weeks, with up to 40,000 emails per wave. As responses were received, the data collection team tracked response rates by targeted groups and adjusted the proportions by group for each survey wave. This was done to reach all the defined survey targets (housing type and energy usage level) and to keep the survey responses proportional to the contactable population. Representation by utility did not have defined survey targets, but due to the sampling techniques employed the survey respondents closely matched the proportions by utility in the overall population.

Once the initial survey targets were met, the survey continued for several weeks in order to generate additional prospects for on-site inspection recruitment. The data collection team continued to follow the same proportional approaches for surveys collected beyond the original targets. In total, 3,819 Illinois households responded to the residential survey, exceeding the initial target of 1,360.

TABLE 2-1. SURVEY GROUP SIZES, BY USAGE

Survey Group	Survey Target	Achieved Surveys
Single family, high usage	340	1,110
Single family, low usage	340	1,064
Multifamily, high usage	340	1,037
Multifamily, low usage	340	1,205
Total surveys	**1,360**	**4,416**

The data collection team also tracked respondent income levels, though income levels could not be targeted by the email campaign because income level was determined by answers to survey questions. Households were categorized as limited income if they responded to household size and income questions that indicated their household income was less than 80% of the Area Median Income (AMI) for their county[1], or if they were flagged as limited income in utility data and did not give survey answers that contradicted that designation. Some customers did not answer the survey questions about household income. Using these criteria, the data collection team identified 1,472 limited income households among the 3,819 respondents who did answer questions about household income.

TABLE 2-2. SURVEY GROUP SIZES, BY INCOME

Survey Group	Survey Target	Achieved Surveys
Single family, limited income	280	640
Single family, standard income	400	1,329
Multifamily, limited income	280	832
Multifamily, standard income	400	1,018
Single family, unknown income	N/A	221
Multifamily, unknown income	N/A	311
Total surveys	**1,360**	**4,416**

Survey respondents were asked to identify their household energy suppliers. This includes electric and gas utilities and non-utility providers. The analysis team reviewed the responses and categorized respondents by combinations of electric utility provider and other energy sources. In some cases, the analysis updated responses to correct for misunderstandings – for example, respondents may have provided a retail energy provider but not the host distribution electric utility. Table 2-3 summarizes the combination of responses by household energy supplier.

TABLE 2-3. BASELINE SURVEY RESPONDENTS BY HOUSEHOLD ENERGY SUPPLIER

Gas (down) / Electric (across)	Ameren	Comed	Muni/Coop/Other	TOTAL
Ameren	564	3	44	**611**
Nicor Gas	125	1,957	69	**2,151**

[1] The limited income definition of 80% of AMI is used by the U.S. Department of Housing and Urban Development (HUD) to define "low income" households. For this study, we used the most recently published HUD 80% AMI income guidelines for Illinois, which were effective June 1, 2023.

Gas (down) / Electric (across)	Ameren	Comed	Muni/Coop/Other	TOTAL
North Shore	0	154	0	**154**
Peoples Gas	0	1,301	0	**1,301**
Other Gas	18	4	0	**22**
Non-Utility Fuel	21	21	0	**42**
Electric-Only	40	95	0	**135**
TOTAL	**768**	**3,535**	**113**	**4,416**

As shown in Table 2-3, a large proportion of the respondents are served by ComEd, with substantial ComEd responders being served by Peoples Gas and Nicor Gas. Most respondents with Ameren electric service also receive Ameren gas service, though overlaps with Nicor Gas were also common. Separate responses by these combinations, related to the sponsoring utilities, are included in the detailed results in the appendices.

2.2 RECRUITMENT

The data collection team used the Qualtrics survey platform to email potential respondents and collect their survey responses. Customers selected for the survey received two emails: an initial invitation and a follow-up reminder approximately 7 days after the initial contact. As an incentive to take the survey, respondents were offered a chance to enter a sweepstakes drawing to win one of twenty $100 gift cards upon completion of the survey. During the initial baseline survey, respondents were asked if they would be willing to take the Willingness To Pay survey and/or participate in an on-site inspection of their home. An additional sweepstakes of twenty $100 gift cards was offered to respondents who also took the Willingness To Participate survey.

The recruitment for the Willingness to Participate Survey resulted in the following outcomes (see Table 2-4). All utilities were represented, however subdividing the sample responses by utility often resulted in small counts for any given survey response or response category. As such, the GDS team recommends utilizing the overall responses to understand residential willingness to participate patterns, and did so for the potential study adoption curves, utilizing the housing and income types for the level of disaggregation.

TABLE 2-4. WILLINGNESS TO PARTICIPATE RESPONSE COUNTS (TOTAL)

Survey Group	Overall	SF	MF
Low-income	263	125	138
Not-Low-Income	481	268	213
Total	**744**	**393**	**351**

On-site inspection participants were all initially recruited through the baseline residential survey, which outlined the process and informed them about the $100 incentive for participating. The field data collection team were tasked with reaching out to, scheduling, and performing site visit inspections with survey respondents who expressed interest. They focused on a three-step approach when contacting potential homeowners and tenants, outlined below. Site visit recruitment always began with a telephone call, though some follow-up communications were done by email when respondents preferred that approach.

1. **Initial Interest**: Start with a list of prospects who have already indicated interest through survey responses. This ensures that the leads are fresh and respondents more likely to be receptive.
2. **Phone Call Cadence**: Implement a structured phone call cadence. Begin with an introductory call to confirm their interest and provide a brief overview of the benefits of an onsite inspection. Leave voicemails if they don't answer, as this can increase the chances of success on subsequent calls. Try calling at different times of the day on later attempts to better accommodate their schedules.
3. **Territory Approach**: Organize the prospects by territory to streamline the scheduling of on-site inspections. This approach helps efficiently manage time and resources, allowing for multiple inspections in the same area on the same day.

The site visits resulted in the following mix of respondents across housing and income types (see Table 2-5, below). Overall, the responses indicated a diverse mix. The GDS team does not recommend further subdividing the results into utility-specific categories due to the small number of resulting counts. Furthermore, not all data in the site visits were collected on an equal basis due to availability of data from each home. Results reported in Section 3 of this report take this into account, with aggregation often only being reported at the level of housing type.

TABLE 2-5. SITE VISIT COMPLETION BY HOUSING AND INCOME

Survey Group	Overall	SF	MF
Low-income	122	60	62
Not-Low-Income	215	117	98
Total	**337**	**177**	**160**

As a subset of the site visits, 67 single-family homes had blower door tests completed to understand air infiltration. Of this sample, low-income homes represented 18 of the 67 cases, with not-low-income homes representing 49 of the 67 cases.

2.3 SURVEY INSTRUMENTS

The data points collected in the residential baseline survey are summarized in the list below.

- Building type (single family, apartment, attached, etc.)
- Home characteristics (home age, duration of residence, conditioned areas, basement, etc.)
- Heating equipment and fuel source
- Cooling equipment
- Thermostat type
- Water heating equipment and fuel source
- Appliances and fuel source (as needed)
- Electronics (dehumidifiers, air purifiers)

- Lighting
- Insulation
- EVs and EV chargers
- Solar panels and home batteries
- Smart home devices (other than thermostats)
- Respondent demographics (including income and household size)
- Electric and gas utilities
- Consent and preferred contact for site visit recruitment
- Consent to receive Willingness To Pay survey invitation

The data points collected in the residential Willingness To Pay survey are summarized in the list below.

- HVAC system purchase barriers, benefits, and incentives
- Water heater purchase barriers, benefits, and incentives
- Insulation and air sealing purchase barriers, benefits, and incentives
- Major appliance (refrigerators, dishwashers, laundry) purchase barriers, benefits, and incentives

2.4 DATA COLLECTION

2.4.1 Data Collection Protocols

Cadmus created data collection protocols for major data collection categories, such as heating and cooling equipment, building envelope details, and appliances. Training with field technicians helped ensure that Cadmus and subcontractors were aligned regarding how data should be collected, which in turn informed communication with field staff and updates to the data collection tool. The data collection protocols will also be a valuable resource for those who use the data and need a better understanding of how specific data points were captured, as well as for project staff working on future iterations of the project.

The field collection team used the Arkenstone data collection tool to record data about specific home components. There were 265 different data points addressed by the inspection, which are summarized in the table below.

TABLE 2-6. DATA POINTS ADDRESSED BY INSPECTION

Home Type (15 data points)
· Type of home
· Stories
· Sq Feet
· Electrical features
Water Flow (7 data points)
· Types of showerheads, faucets and their gallon per minute flow
Appliances (19 data points)
· Refrigerators, freezers, washers, dryer, dishwashers, and stovetop/ovens, were documented
· Energy Star logo is or is not present
· Age of appliance
HVAC (198 data points)

· Type of domestic hot water heater
· Heating type, efficiency, and distribution system
· Air conditioning type, efficiency, and distribution system
· Pictures of appliances, labels, and any other useful information
Envelope (26 data points)
· Insulation R values
· Type of foundation
· Attic, ceiling, wall, and floor details

2.4.2 Quality Control and Data Cleaning

Project staff ensured a high level of data quality through a multilayered, two-phase approach to QC. The initial phase consisted of a thorough site-level review performed by Cadmus and its subcontractors. That included the following verifications:

- Built-in validation that all required fields had been completed in the data collection tool.
- An automated data QC web portal, available to all field staff, with predefined data quality checks. Field staff were required to review and resolve all data quality alerts in the QC portal before data for a site was considered complete. Automated tests checked for consistency between related values, ensured that calculated values derived from raw inputs were in a reasonable range, and flagged unusual configurations for expert review by senior team members. When the flagged items could not be rectified field staff reached out to Cadmus for guidance.
- A brief manual examination of key fields by the Cadmus QC leads for technical inconsistencies and identification of apparent discrepancies for deeper, technical review.
- Resolution of any identified technical discrepancies through discussions between Cadmus QC staff and field staff.

2.4.3 Further QC after completion of site assessments

As Cadmus received batches of draft data that had completed the first pass of site-level review, the team performed additional, in-depth data cleaning and QC. This process comprised of multiple layers of tasks and included a combination of automated and manual checks, comparing across sites to identify outliers and patterns in the collected data:

Cadmus checked records for completion, verified that values fell within expected ranges, and checked for internal consistency. Project staff verified internal consistency through a QC checklist with specific checks for each record type like the following example:

- If a furnace record was missing a key field—such as heating capacity—the record was flagged for deeper review, which may have included research to look up the value based on the model number or other information.
- If a furnace record's heating capacity was entered as "12" and the heating capacity units were entered as "Btuh," the record was flagged for deeper review, because 12 Btuh is not within the expected range for furnace heating capacities. The value would be verified against the recorded nameplate photos, and if necessary additional research would be done to determine the correct value.

- If a furnace record's fuel type was entered as "Electricity" and the heating capacity units were entered as "Btuh," the record was flagged for deeper review, because capacity for electric HVAC equipment typically is not reported in Btuh.
- Every HVAC unit was checked individually to ensure the brand, name, size, and type of heating and cooling was accurate.

2.5 ON-SITE INSPECTIONS

Cadmus performed the training for inspectors and ongoing evaluation of sites during the project. In addition to initial training there was always a line of open communication from Cadmus to the field staff and managers to answer questions, help onboard new staff, speak to recuring errors and how to eliminate them, and answers questions pertaining to specific sites.

2.5.1 Training

Cadmus performed the initial project training virtually for anyone involved in the project including field staff, field staff managers, and QC personnel. The presenters recorded each session to allow trainees to review the content later and to support training of technicians who could not attend the training session. When new staff joined the project after the initial rollout, they were provided with training and encouraged to reach out to Cadmus QC staff and schedule a one-on-one meeting to discuss any questions.

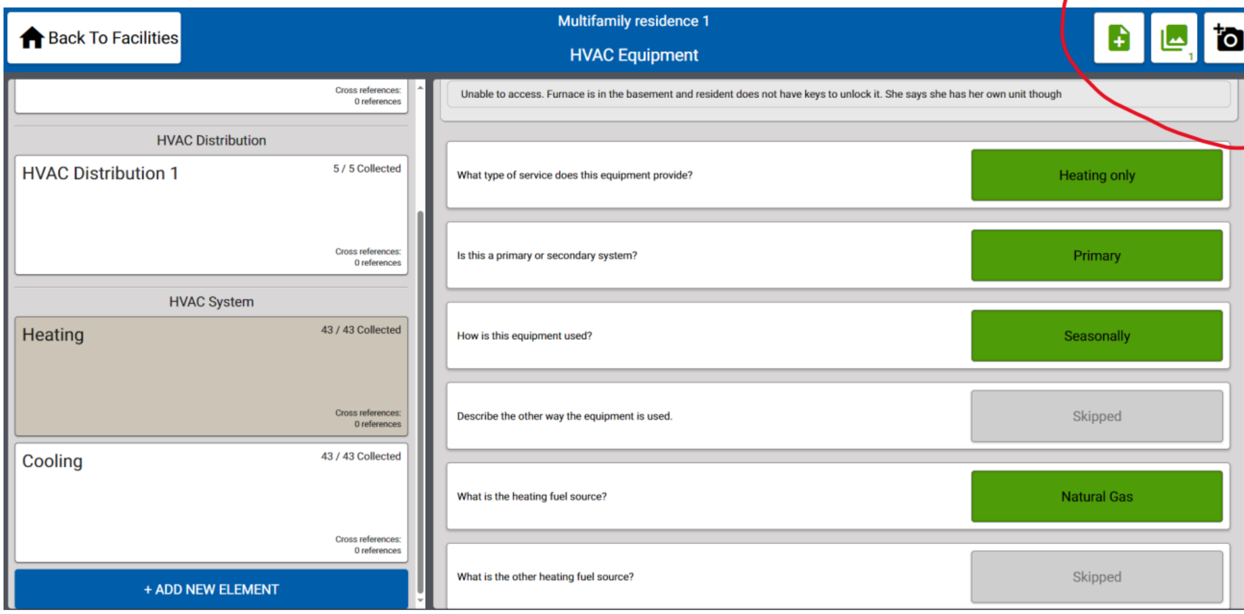
2.5.2 Arkenstone Tool

Field staff captured and submitted site visit data using Arkenstone, a tablet-based Cadmus data collection tool. This tool provided a standard set of questions and response options for each site visit and adapted dynamically to responses to skip questions that were not applicable based on previous responses. Where applicable, the tool provided pre-configured response options for the user to select from to ensure consistent data entry, with the option to enter a custom "other" value where necessary. Numeric fields were also configured with an acceptable input range where relevant, flagging invalid values. When free-form text or numeric entry was required, the study team double-checked the figures through the QC process and evaluated for correctness and spelling errors. To avoid data loss, the tool was configured to work offline without a network connection, and to sync data to a secure cloud server over WiFi or cellular data connection when available.

Pictures of pertinent information were taken during the site visit and uploaded immediately. Direction was given to take pictures of:

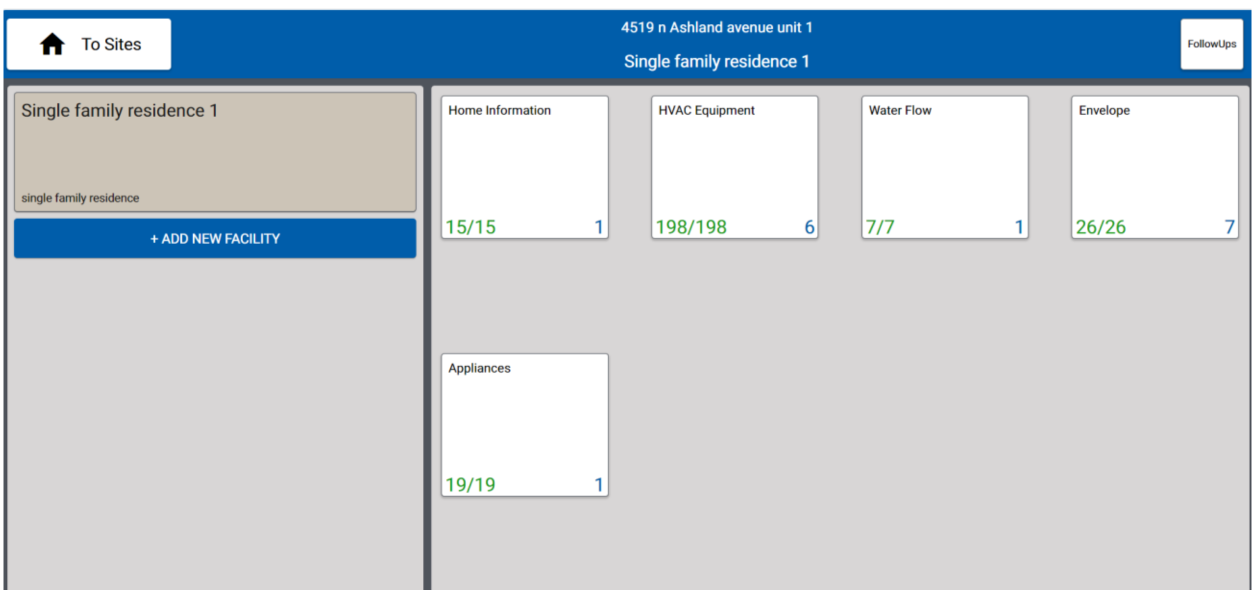
- A wide shot of the appliance
- A close shot of the appliance label. More than one of these was recommended.
- Any notable features of the appliance.
- Any wear and tear or other defects of the appliance or components.
- Insulation levels when available.
- All electrical components.
- Plans of the home when made available.

FIGURE 2-1. IMAGE OF ARKENSTONE TOOL



The example below is for a single-family residence, but the multifamily residence is very similar with some small differences.

FIGURE 2-2. SINGLE-FAMILY RESIDENCE EXAMPLE

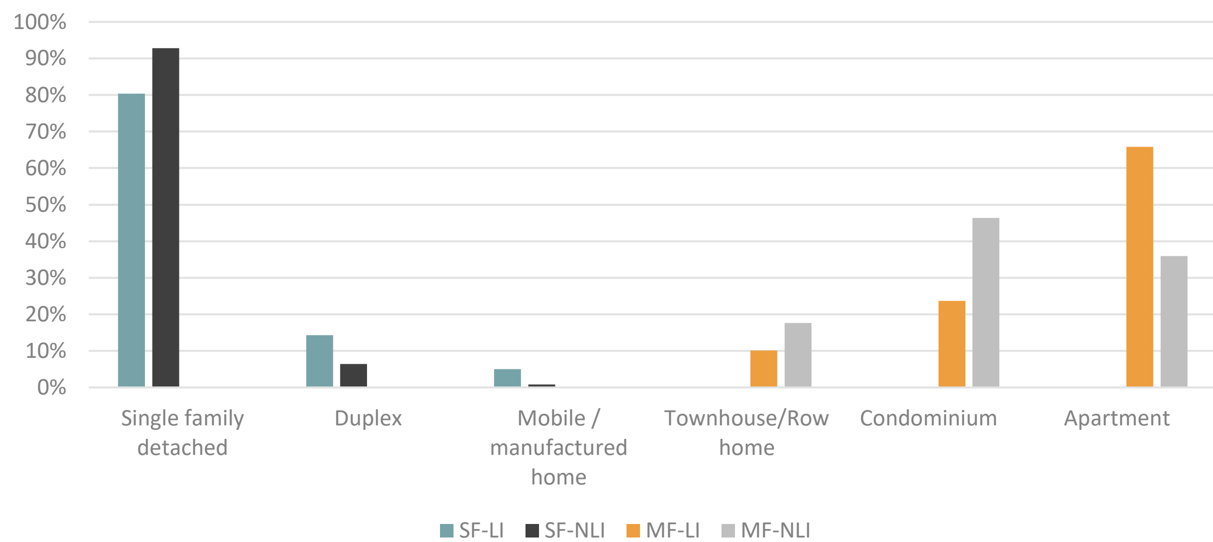


3 Key Baseline Study Combined Utility Results

3.1 BUILDING CHARACTERISTICS

Survey participants were asked what their home type. The majority of single-family respondents live in single family homes, with the remainder living in duplexes or mobile / manufactured homes. The most common type of dwelling for multifamily participants is apartments for low-income households and condominiums for non-low-income households. See Figure 3-1 for the dwelling types of survey participants. These dwelling types are shown as a percentage of the total homes in the housing/income category.

FIGURE 3-1 DWELLING TYPES



Multifamily survey respondents were asked how many dwelling units were in their buildings. Table 3-1 shows the results. The most common response for low-income households was 3 to 4 units, and the most common response for non-low-income households was 5 to 9 units. 28 percent of multifamily low-income households own their home, where 59 percent of multifamily non-low-income households own their home.

TABLE 3-1 NUMBER OF DWELLING UNITS IN MULTIFAMILY BUILDINGS

	MF-LI	MF-NLI
3 to 4 units	30%	23%
5 to 9 units	25%	26%
10 to 19 units	14%	11%
20 to 49 units	13%	15%
More than 50 units	18%	24%
I don’t know (n)	65	34
Respondents (n)	**801**	**970**

3.2 SPACE HEATING

Space heating is a substantial portion of energy consumption in homes. Baseline data for space heating investigated the presence of equipment types and energy sources being used across homes in the Utilities' service territories. The residential online survey provided responses to understand differences between utilities, home types, and income types for in-home/in-unit heating systems. Residential site visits were used to verify the online response and inform adjustments to the shares of heating fuels and equipment types. Additionally, site visits were used to gather information to confirm heating system capacities and efficiencies.

Site visits revealed that online survey respondents appeared to have one common source of error – the online survey's initial responses to primary heating equipment type and fuel indicated an unexpectedly large share of electric furnaces. Site inspections did identify cases of electric furnaces but found that half of the online respondents indicating electric furnaces actually utilized natural gas furnaces. As a result, the online survey responses were adjusted to reflect this pattern, reducing reports of electric furnaces by 50 percent, reallocating those responses to natural gas furnaces. The analysis team believes that some of the respondents indicating the presence of electric furnaces may have misunderstood their air-handling system as being the source of heat. In fact, air handlers used for both natural gas and electric furnaces can have a heating coil, though site inspections helped to reconcile the specific use-case of the air handlers.

The other substantive change during the data review process was to recode combinations of indicated heating systems and fuels or remove the data from the online survey dataset analysis. For example, a household (not part of the onsite sample) indicating a geothermal heat pump fueled by propane was removed due to irreconcilable conflict between the heating technology and fuel. In other cases, the analysis team inspected responses and made adjustments based on open-ended responses. For example, a respondent indicating "natural gas" and "in-floor heat" would be recoded as having a boiler. Table 3-2 summarizes the volume of adjustments made to the online responses to arrive at the final results.

TABLE 3-2 SPACE HEATING ONLINE SURVEY ADJUSTMENTS

Adjustment Action	Number of Cases	Percent of Case Responses
No change	2,990	74%
Electric Furnace Adjustment	141	3%
Case-level recoding	429	11%
Data removed	487	12%
Total	**4,047**	**100%**

The primary adjustment was the removal of 487 (12 percent) cases due to illogical or irreconcilable responses. Three-quarters of the survey responses were not adjusted, with case-level recoding occurring in 11 percent of cases and broadly distributed across energy sources and equipment types. The result is the analysis team's best estimate of the share of each type of heating fuel and equipment from the combination of online survey inspection and correction driven by onsite verification.

For the combined utilities, the results of the analysis point to natural gas furnaces as the dominant form of primary space heating across single-family and multifamily households, regardless of income type. Natural gas boilers are the next most common for single-family homes, with electric heating being the second most common heating fuel for multifamily homes (boilers were a close third for multifamily homes). Ameren multifamily homes are one exception – in both Ameren's gas and electric service territories, the analysis indicated approximately 50 percent of Ameren's multifamily homes used electric heat. Ameren confirmed that this outcome aligned with their historical understanding. Utility-level breakouts of space heating equipment and fuel are included in the Appendices.

Table 3-3 summarizes the combined utilities' results for primary space heating equipment and fuel. Overall, low-income households were somewhat more likely to have electric forms of heating. Propane, fuel oil, and wood heat are relatively uncommon. Heat pumps, as a form of electric heat, represent 3.5 percent of single-family homes' primary heating systems, and 6.2 percent of multifamily homes' primary heating system. Ducted air-source heat pumps were identified as the most common form of heat pump for both housing types.

The analysis created a category of heating equipment called "supplementary" heating. While respondents indicated that these were primary heating systems, the types of equipment within this category include radiant heating in ceiling panels or lamps. Site visits could not validate this category of heating, and these types of heating equipment are rare in the results (<0.5% in all cases). The analysis team allows that this category is somewhat uncertain in its disposition but retained the data for transparency and comprehensiveness.

The results point to the importance of natural gas as a source of space heating, with electricity also being important for the multifamily marketplace.

TABLE 3-3 PRIMARY SPACE HEATING EQUIPMENT AND FUEL, COMBINED UTILITIES

Heating Fuel	Equipment	SF Overall (n=1,949)	SF LI (n=593)	SF NLI (n=1,248)	MF Overall (n=1,529)	MF LI (n=642)	MF NLI (n=828)
Electricity	Furnace	2.8%	3.5%	2.2%	5.7%	7.6%	3.6%
	Air source heat pump (with ductwork)	2.1%	2.2%	1.9%	5.0%	2.8%	6.8%
	Baseboards for space heating	0.5%	1.3%	0.1%	6.0%	8.6%	4.0%
	Wall/room heater	0.2%	0.3%	0.2%	5.2%	6.7%	4.1%
	Geothermal heat pump	0.8%	0.3%	0.9%	0.1%	0.2%	0.1%
	Water source heat pump	0.5%	0.3%	0.2%	0.8%	0.2%	0.6%
	Supplementary Heating	0.2%	0.2%	0.2%	0.2%	0.0%	0.4%
	Ductless heat pump	0.1%	0.0%	0.2%	0.3%	0.0%	0.5%
	Subtotal - Electric	**6.8%**	**8.3%**	**5.9%**	**23.0%**	**26.0%**	**20.0%**
Natural Gas	Furnace	83.2%	78.9%	85.6%	59.7%	52.0%	66.3%
	Boiler	7.6%	9.8%	6.3%	15.6%	19.2%	12.7%
	Stove or fireplace	0.2%	0.3%	0.1%	0.1%	0.2%	0.0%
	Supplementary Heating	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
	Wall/room heater	0.4%	1.0%	0.1%	1.2%	1.9%	0.7%
	Subtotal - Natural Gas	**91.3%**	**90.1%**	**92.1%**	**76.7%**	**73.2%**	**79.8%**
Propane	Furnace	1.5%	1.2%	1.7%	0.0%	0.0%	0.0%
	Boiler	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%
	Subtotal - Propane	**1.7%**	**1.3%**	**1.8%**	**0.0%**	**0.0%**	**0.0%**

Heating Fuel	Equipment	SF Overall (n=1,949)	SF LI (n=593)	SF NLI (n=1,248)	MF Overall (n=1,529)	MF LI (n=642)	MF NLI (n=828)
Fuel Oil	Boiler	0.0%	0.0%	0.0%	0.4%	0.8%	0.1%
	Subtotal - Fuel Oil	**0.0%**	**0.0%**	**0.0%**	**0.4%**	**0.8%**	**0.1%**
Wood	Stove/fireplace	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%
	Furnace	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%
	Boiler	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%
	Subtotal - Wood	**0.2%**	**0.3%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**

Site visits were able to identify and confirm details about heating systems. Due to the large share of natural gas furnaces (and natural gas in general), most site visits encountered home heating with natural gas furnaces. Below, we summarize the results of the site inspections as related to space heating equipment efficiency and capacity.

3.2.1 Furnaces

Across the onsite sample, site inspectors were able to capture adequate data to confirm 192 furnaces' capacity and 186 furnaces' efficiency. Table 3-4 summarizes the average output capacity in tons (12,000 BTU/hour). In general, low-income households tend to have lower capacity furnaces than that not-low-income homes. Additionally single-family homes have furnaces with approximately 20 percent higher capacities than multifamily homes.

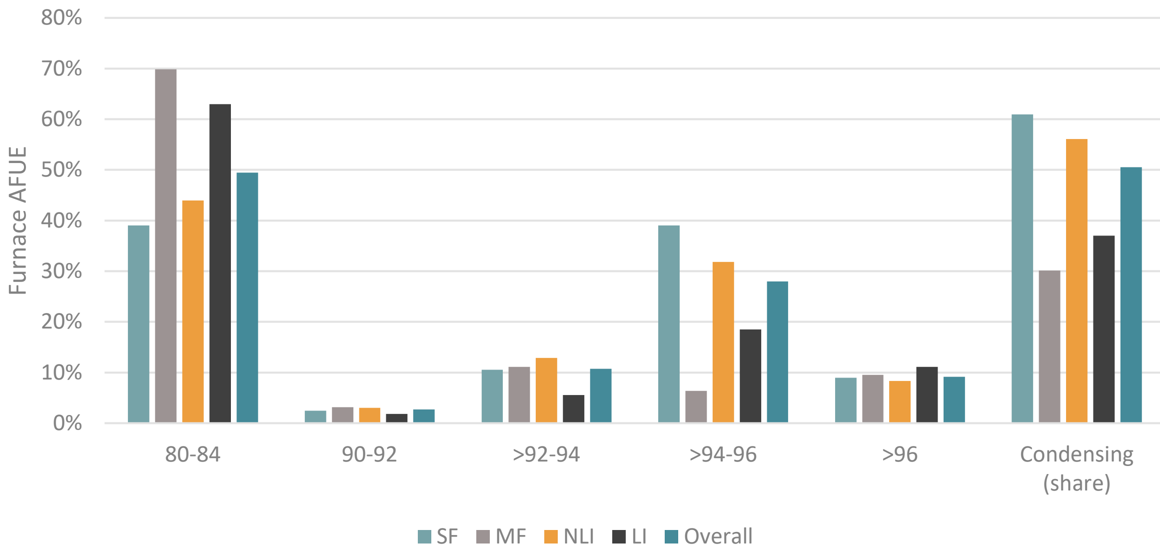
TABLE 3-4 FURNACE AVERAGE OUTPUT CAPACITY

Housing Type	Count	Average Tons
All Residential	192	5.8
SF Overall	127	6.4
SF NLI	88	6.7
SF LI	39	5.6
MF Overall	65	4.8
MF NLI	46	5.1
MF LI	19	4.1

Furnace efficiencies ranged from 80 percent to over 96 percent. At 90 percent and above, a furnace is considered a condensing unit and requires specific exhaust piping. Figure 3.2.1 summarizes the range furnace AFUEs, including the share that is condensing (the total of 90 percent or higher AFUE). Breakouts for home type and income-type indicate that multifamily homes are more likely to have a non-condensing furnace than single-family homes. Low-income homes are also more likely to have non-condensing systems. Very high efficiency furnaces (above 96 percent) are rare but show consistency between housing and income types. Of condensing furnaces, single-family and non-low-income homes were found to be the most common in the range >94 to 96% AFUE, including nearly 40 percent of single-family homes and over 30 percent of non-low-income homes.

Details of AFUE were not developed to identify the combination of housing type and income type due to the relatively small number of homes that would be represented in each efficiency bin.

FIGURE 3-2 FURNACE AFUE CATEGORIES BY HOUSING/INCOME TYPES



3.2.2 Boilers

Boilers were not commonly encountered during residential site visits. Only 14 could be analyzed for AFUE levels, with only one of those being an in-unit multifamily boiler. Table 3-5 summarizes the AFUEs for condensing and non-condensing boilers. Output capacities ranged from 4.8 tons (the multifamily boiler) to 15.4 tons, with the average single-family boiler output capacity being 9.7 tons. For single-family homes, these output capacities are substantially larger than average furnace capacities. Condensing boilers were all found in not-low-income homes, though the small count warrants against making a statistical conclusion.

TABLE 3-5 BOILER AFUE

AFUE	Count	Average AFUE
Overall	14	86.3%
Non-condensing	10	82.9%
Condensing	4	95.0%

3.2.3 Heat Pumps

The site visits identified nine homes with heat pumps. These included five ducted air-source heat pumps, two ductless heat pumps, and two ground-source heat pumps. Due to the small count of homes verified for heat pumps, caution is warranted against making statistical extrapolations. Only one multifamily unit was visited with a heat pump, with that home being served by a ground-source heat pump system, an. All others were single-family homes.

TABLE 3-6 HEAT PUMP EFFICIENCIES AND CAPACITIES

Heat Pump Type	Count	SEER2 (Average)	HSPF2 (Average)	COP (Average)	Cooling Tons (Average)	Heating Tons (Average)
ASHP Ducted	5	15.4	8.0	N/A	2.8	2.7
ASHP Ductless	2	17.0	8.9	N/A	2.7	2.7

Heat Pump Type	Count	SEER2 (Average)	HSPF2 (Average)	COP (Average)	Cooling Tons (Average)	Heating Tons (Average)
GSHP	2	N/A	N/A	4.2	3.8	3.3

3.2.4 Other Heating

Site visits also captured other forms of heating. Other than electric furnaces, none would likely be viewed as primary heating systems. Table 3-7 summarizes the types and counts of these other heating systems.

TABLE 3-7 OTHER TYPES OF HEATING IDENTIFIED DURING SITE VISITS

Equipment Type	Energy Source	Count
Portable	Electric	7
Wall Furnace	Gas	1
Unit Heater	Gas	1
Furnace	Electric	8
Fireplace	Gas	4
Fireplace	Electric	2
Fireplace	Unknown	1

Only in the case of electric furnaces and fireplaces were these results used to validate the online survey results. Site inspectors did not attempt to verify the presence or absence of small space heaters – these units could be overlooked during the inspection or easily forgotten by online respondents. The resulting confirmation of electric furnace was used to create the adjustment factor, with only eight of sixteen online respondents in the site sample having confirmed electric furnaces.

3.3 SPACE COOLING

Space cooling is a significant user of electricity in the residential sector. Baseline data collection for space cooling investigated the presence of space cooling and the range of technologies that are present in homes. Site visits confirmed the presence of cooling and obtained equipment information to inform the efficiency ratings of cooling equipment. In reviewing the site visit results and comparing equipment types to those reported in the online survey, the analysis team did not identify systematic mischaracterizations by online survey respondents. As such, no adjustments were made to the online survey results, in terms of equipment types.

In the case of multifamily homes, the survey first confirmed whether the cooling equipment served only the individual unit or may serve multiple units. Across the multifamily category, the combined utility results showed that 89 percent of multifamily space cooling equipment only served the respondents unit, with 11 percent serving multiple units. For ComEd's service territory, the result mirrors that split. However, for multifamily units in Peoples Gas territory and served by ComEd, 16 percent of multifamily online respondents indicated cooling systems serving more than one unit. For the portion of ComEd's service territory also served by Nicor Gas, only six percent of the online respondents indicated a cooling system serving more than one unit. For Ameren Electric, the results of this question aligned with the combined utility results and are similar to ComEd's overall results regarding cooling systems serving multiple units.

Table 3-8 summarizes the presence and type of space cooling equipment as identified by the online survey, representing the combined results across the utilities. Central air conditioning is the most common form of space cooling for all home types, with window or wall air conditioning also being common. Multifamily respondents show a higher share of window/wall cooling than single-family respondents. Other forms of cooling are relatively rare, with few homes having no cooling. Of homes with no cooling, low-income homes were more likely to report having no cooling than not-low-income homes, though the lack of space cooling was relatively rare regardless of income type.

TABLE 3-8 TYPES OF SPACE COOLING EQUIPMENT, COMBINED UTILITY RESULTS

Type of Cooling Equipment	SF Overall (n=2,037)	SF LI (n=636)	SF NLI (n=1,296)	MF Overall (n=1,628)	MF LI (n=697)	MF NLI (n=868)
Central air conditioning (whole house, excluding heat pumps)	86.3%	77.0%	91.0%	62.7%	51.1%	71.8%
Wall/window air conditioning	13.2%	22.2%	8.9%	31.4%	42.9%	22.1%
Air source heat pump (with ducts)	1.9%	1.7%	1.9%	2.7%	2.6%	3.0%
Ductless heat pump	0.7%	0.3%	0.8%	0.7%	0.6%	0.8%
Ductless air conditioner	0.7%	0.5%	0.8%	0.6%	0.3%	0.9%
Portable / floor-based air conditioning unit	1.6%	2.5%	1.2%	3.0%	4.0%	2.4%
Other	1.2%	0.3%	1.6%	1.8%	1.3%	2.3%
No cooling system	2.1%	3.8%	1.2%	0.7%	1.3%	0.2%
Total	107.7%	108.3%	107.4%	103.7%	104.0%	103.6%
Ducted Systems	88.2%	78.7%	92.9%	65.4%	53.7%	74.8%
Ductless Systems	16.2%	25.5%	11.7%	35.7%	47.8%	26.2%

Online respondents were able to select or identify multiple cooling technologies, with the “Other” response enabling responses not included in the survey’s specific technology response categories. As such, the total percentages reflected in Table 3-8 are over 100 percent. The analysis team inspected the “Other” responses. While rare, these responses covered a range of technologies, including references to the use of fans. From an equipment penetration perspective, the percentages for specific technologies in Table 3-8 are reasonable to assume as representing the combined utilities’ market, with “Other” responses do not conflict with the technology saturations.

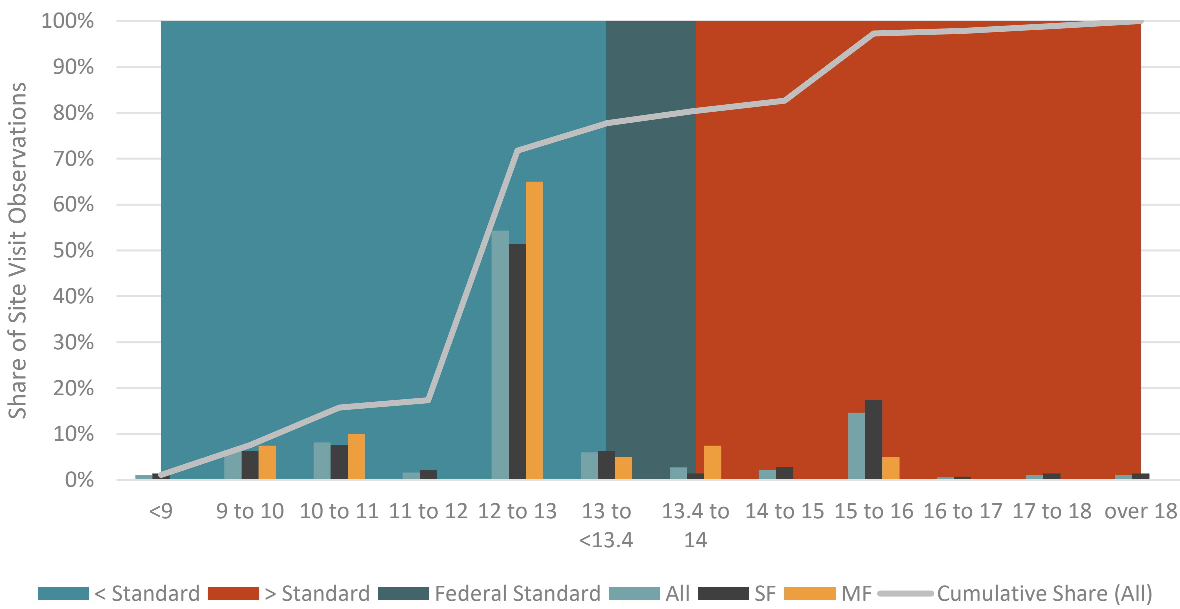
The analysis team has some concern about possible confusion of respondents identifying heat pumps as distinct from air conditioners. As the site visits did not reveal systematic mischaracterizations, the analysis team suggests combining forms of central air conditioning and ductless air conditioning, regardless of the specified technology type.

Site visits were able to confirm the types of air conditioning in the onsite sample, along with equipment capacities and efficiencies for a portion of the onsite sample. In alignment with the online survey results, the most frequently encountered type of cooling system was central air conditioning with ducts. We summarize the results of central air conditioning systems and window/room air conditioners below.

3.3.1 Central Air Conditioners

Site visits were able to capture model numbers to inform the capacity and efficiency of 194 central air conditioning systems. To allow for direct comparisons and to align with current federal and Illinois TRM approaches, the analysis team converted equipment with SEER ratings to SEER2 using the Illinois TRM method.[2] The current federal standard requires a SEER2 rating of 13.4, with the majority of central air conditioners in the site sample falling below that standard (most were in the 12 to 13 SEER2 range). Figure 3-3 summarizes the SEER2 ratings (or their converted equivalence) of central air conditioners by housing type and overall. The dark green column is included to illustrate the breakpoint of those above or below the current federal efficiency standard.

FIGURE 3-3 SHARE OF CENTRAL AIR CONDITIONER SEER2 LEVELS



Approximately 20 percent of central air conditioners in the site sample were above the current minimum federal standard. Very few (about 2.5 percent) were above a SEER2 of 16. Multifamily homes generally exhibited lower SEER2 levels than single-family homes, though the total number of observations (n=40) limits statistical confidence in the distribution across SEER2 ratings. For single-family homes, with 145 cases to confirm SEER2, is more robust. For All homes, the results are weighted to single-family homes by virtue of the sample count, through for many SEER2 levels, are similar between housing types.

Table 3-9 summarizes the average SEER2 rating and capacity (in tons) for central air conditioners by housing and income type. Single-family homes have somewhat higher capacities and efficiencies than multifamily homes, with minor differences by income category within a housing type.

[2] 2024 IL TRM v12.0_September 22, 2023_FINAL, page 103 of 508.

TABLE 3-9 AVERAGE CENTRAL AIR CONDITIONER CAPACITY AND SEER2 LEVELS

Home and Income Type		Observations (n)		Results	
Home Type	Income Type	SEER2	Capacity	SEER2	Capacity (tons)
Overall	All	185	188	12.7	2.8
SF	Overall	145	146	12.8	2.9
SF	NLI	104	105	13.0	3.1
SF	LI	41	42	12.3	2.6
MF	Overall	40	42	12.2	2.4
MF	NLI	24	27	12.2	2.4
MF	LI	16	15	12.3	2.5

3.3.2 Window Air Conditioners

Window and room air conditioners were encountered far less in the site visits than central air conditioners. Only 19 homes were visited with observed window air conditioners, with each of these homes having a single window air conditioning unit. Of those, only 10 were able to provide adequate information to determine efficiency and capacity. Of those with adequate information, most were older EER-rated units (8 of 10), with two cases of newer CEER-ratings. Capacities ranged from 0.4 tons to 1.3 tons. Due to the small number of results and diversity of ratings and sizes, the site visit data window air conditioner sizing and efficiencies is much more limited than for central air conditioners. Thirteen of the nineteen window air conditioners were located in multifamily units. Both low-income (n=10) and not-low-income homes (n=8) were represented in the observations and technical with no observable patterns

Table 3-10 summarizes the observations captured from site visit data for window air conditioners. Due to the low number of observations, no breakout in terms of housing type or income type is useful.

TABLE 3-10 WINDOW AIR CONDITIONER EFFICIENCY AND CAPACITY OBSERVATIONS

		Efficiency			Capacity (tons)		
Rating	Count	Average	Min	Max	Average	Min	Max
EER	8	10.6	9.7	12.2	0.8	0.4	1.2
CEER	2	11.9	11.8	12.0	1.0	0.7	1.3
Overall	10	N/A	N/A	N/A	0.8	0.4	1.3

Further research may be warranted to explore the efficiency and capacity of installed window air conditioners. A study focused on the subject may be warranted to better understand the mix of efficiency, capacity, housing type differences, and income type differences.

3.4 WATER HEATING

Water heating is a critical end-use and consumes a substantial share of energy in the residential sector. Baseline data collection regarding water heating technologies focused on three major elements:

1. Water heater energy source,
2. Water heater type, and
3. Water heater efficiency

The online survey asked respondents to describe their water heater energy source and fuel. Site inspections were used to validate the online responses and gather additional information about water heater efficiencies, as available. The site inspections revealed that a portion of online respondents mischaracterized their water heater types or fuel. For those mischaracterizations that were found to repeat, these were treated as systematic, with the analysis team developing adjustment factors to correct for the systematic mischaracterizations. In general, these adjustments resulted in fewer heat pump water heaters and electric resistance water heaters, and more natural gas tank-based water heaters.

The analysis team developed adjustment factors to reconcile online responses with site visits. Table 3-11 shows the type of water heater and fuel adjustment factors. The adjustment factor is a multiplier to the original percentage of the online survey results. For example, the online survey responses indicated that 7.7 percent of single-family homes have heat pump water heaters. In reviewing the site visit data, the analysis team found that only 11 percent of water heaters were correctly characterized as heat pump water heaters. Across the multiple *possible* errors in online reporting of water heater type and fuel, the adjustment factor represents the net adjustment across all combinations of water heater types and fuels. These adjustment factors are applied to all housing and income types across all utilities as the volume of site visits and observed online survey errors did not allow for a more granular breakout. The onsite sample did not include all types of water heaters identified in the online survey. For these cases, no adjustments were made – adjustments were only made to those with onsite observations.

TABLE 3-11 WATER HEATER TYPE AND FUEL ADJUSTMENT FACTORS

Water Heater Type and Fuel	Adjustment Factor
Heat pump water heater with a tank	0.11
Electric water heater with a tank	0.63
Electric tankless / on-demand[3]	1.00
Natural gas water heater with a tank	1.24
Natural gas tankless / on-demand	0.89
Propane water heater with a tank	0.96
Solar water heater	1.00
No water heater	1.00

Table 3-12 summarizes the water heater types and fuels, reconciling the share identified by online respondents with those observed onsite. Natural gas fired tank-style water heaters dominate the combined utilities' marketplace for both single-family and multifamily homes. Electric resistance water heaters with a tank also have a substantial share. Other types of water heaters are relatively rare. Low-income homes are somewhat more likely to have electric resistance water heaters than not-low-income homes.

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[3] In the case of electric tankless water heaters, site surveys included two cases of respondents characterizing their water heater as electric tankless. Both were found to be natural gas tankless. The analysis team recommended to not make an adjustment factor for electric tankless water heaters as doing so would result in no electric tankless water heaters from the online survey results. As such, it is possible that the online survey results overstate electric tankless water heater presence, but to an unknown degree.

TABLE 3-12 WATER HEATER FUEL AND TYPE BY HOUSING AND INCOME

Water Heater Type and Fuel	SF Overall (n=2,078)	SF LI (n=606)	SF NLI (n=1,362)	MF Overall (n=799)	MF LI (n=301)	MF NLI (n=455)
Heat pump water heater with a tank (electric)	0.9%	1.2%	0.7%	1.3%	1.5%	1.2%
Electric water heater with a tank	10.3%	14.4%	8.4%	19.7%	25.6%	16.0%
Electric tankless / on-demand	2.0%	1.7%	2.1%	1.7%	1.7%	1.3%
Natural gas water heater with a tank	81.8%	77.9%	83.3%	74.4%	68.4%	78.7%
Natural gas tankless / on-demand	3.3%	2.8%	3.7%	1.6%	0.9%	1.9%
Propane water heater with a tank	1.3%	1.0%	1.5%	0.1%	0.3%	0.0%
Solar water heater	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
No water heater	0.4%	1.0%	0.1%	1.3%	1.7%	0.9%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

**Rounding to the decimal point results in 0.0% for some technologies with very few reported cases.*

The site visits were able capture adequate detail from 240 of the 337 homes to identify efficiency ratings. Multifamily with central hot water systems were not included in the efficiency comparison – only in-unit water heaters were included in the manufacturer and efficiency rating analysis. Additionally 15 homes with water heaters could not have their efficiency rating determined, resulting in a final sample of 240 water heaters.

These water heaters were found to have efficiency ratings that included a mix of energy factor (EF) and uniform energy factor (UEF), resulting in efficiencies that could not be directly compared due to the changes in the rating system. To enable a comparison, the analysis team utilized a RESNET[4] UEF to EF calculator to develop an EF to UEF conversion factor. Taking this approach allows older EF-rated water heaters to be compared to the current UEF rating system. Table 3-13 describes the conversion from EF to UEF used in the comparison of water heater efficiency ratings.

TABLE 3-13 EF TO UEF CONVERSIONS BASED ON RESNET CALCULATOR

Water Heater Type	EF to UEF Conversion
Consumer Gas-Fired Water Heater	UEF = (EF-0.0711)/0.9066
Consumer Electric Water Heater (Electric Resistance)	UEF = (EF+1.2844)/2.4027
Consumer Electric Water Heater (Heat-Pump)	UEF = (EF+0.6052)/1.2101
Instantaneous Gas-Fired Water Heater	UEF = EF

[4] https://www.resnet.us/wp-content/uploads/RESNET-EF-Calculator-2017.xlsx Note that this calculator converts UEF to EF. GDS adapted the calculation to convert EF to UEF.

Water Heater Type	EF to UEF Conversion
Instantaneous Electric Water Heater	UEF = EF
Residential-Duty Commercial Gas-Fired Water Heater	UEF = (EF-0.0019)/1.0005
Residential-Duty Commercial Electric Instantaneous Water Heater	UEF = (EF+0.0025)/1.0219

In the analysis of water heater efficiencies across income and housing types, the analyst team found only minor differences in UEF values between income categories - approximately zero to 0.01 UEF difference between income and housing types within a water heater category. The site visits include no electric resistance tankless units or residential-duty commercial water heaters. Three boiler systems were used to heat tanks of water (indirect water heating) and were not analyzed. Table 3-14 summarizes the results. Fossil fuel water heaters combine natural gas and propane water heaters.

TABLE 3-14 AVERAGE WATER HEATER UEF RESULTS

Water Heater Type	UEF (actual or calculated)
Fossil Fuel Tank (n=196)	0.62
Fossil Fuel Tankless (n=9)	0.94
Electric Resistance Tank (n=30)	0.92
Heat Pump Water Heater (n=2)	3.67

The average AFUE of indirect water heaters using boilers (n=3) was found to be 0.91, though this was driven by two single-family boilers with AFUEs of 0.95 and an in-unit multifamily boiler with an AFUE of 0.82. Due to boilers, heat pump water heaters, and fossil fuel tankless water heaters having relatively small number of observations, some caution is warranted at assuming a representative sample. However, for the dominant type of water heaters – fossil fuel tank and electric resistance tank – the counts of water heaters may be sufficient to utilize the resulting UEF averages to reflect the market as a whole.

3.5 APPLIANCES

This section summarizes the results of online and onsite data collection for household appliances. Data collection focused on kitchen and laundry equipment. The results found that virtually all homes have at least one refrigerator with a freezer, while multifamily homes were much less likely to have a stand-alone freezer or second refrigerator. Natural gas cooking was widely prevalent. Single family homes were more likely to have laundry equipment than multifamily homes. The following tables and figures present a summary of the combined utilities results for each major appliance or appliance end-use.

3.5.1 Refrigerators and Freezers

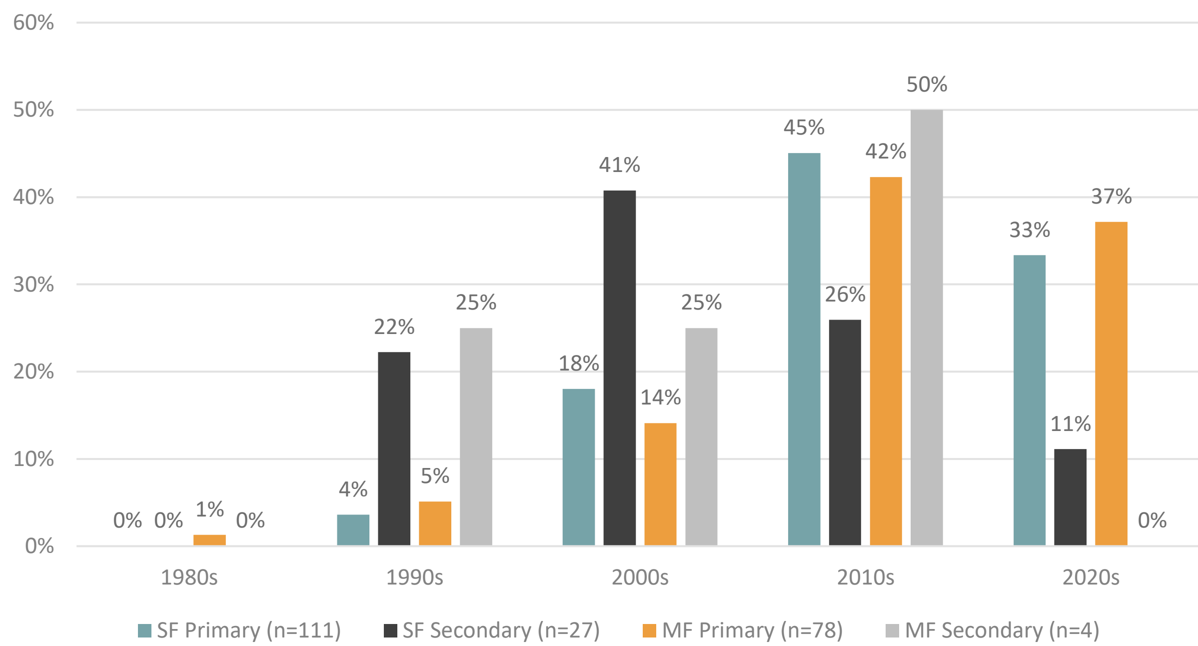
Over 99 percent of single family and multifamily homes reported having at least one refrigerator. Table 3-15 summarizes the responses to the online survey.

TABLE 3-15 THE PRESENCE OF REFRIGERATORS AND FREE-STANDING FREEZERS

Equipment Type	SF Overall (n=2,005)	SF LI (n=636)	SF NLI (n=1,298)	MF Overall (n=1,934)	MF LI (n=870)	MF NLI (n=1,018)
Refrigerator	99.1%	98.4%	99.6%	99.5%	99.3%	99.7%
Free-standing freezer	39.0%	35.7%	41.2%	9.8%	11.0%	8.6%
Mini fridge	23.1%	18.2%	26.0%	9.5%	6.4%	12.3%
Other	27.5%	14.9%	33.8%	3.8%	3.8%	3.8%

Site visits were able to confirm the presence of primary refrigerators, secondary refrigerators, and stand-alone freezers. Additionally, site visit results allowed for a determination of the age of many of these appliances. The results are summarized below.

FIGURE 3-4 DECADE OF REFRIGERATOR MANUFACTURE



As shown in Figure 3-4, primary refrigerators were found to be generally newer than secondary refrigerators. Both single and multifamily refrigerators were of similar vintages. While site visits did identify some multifamily units with secondary refrigerators, their presence was uncommon in the site sample, aligning with the responses to the online survey.

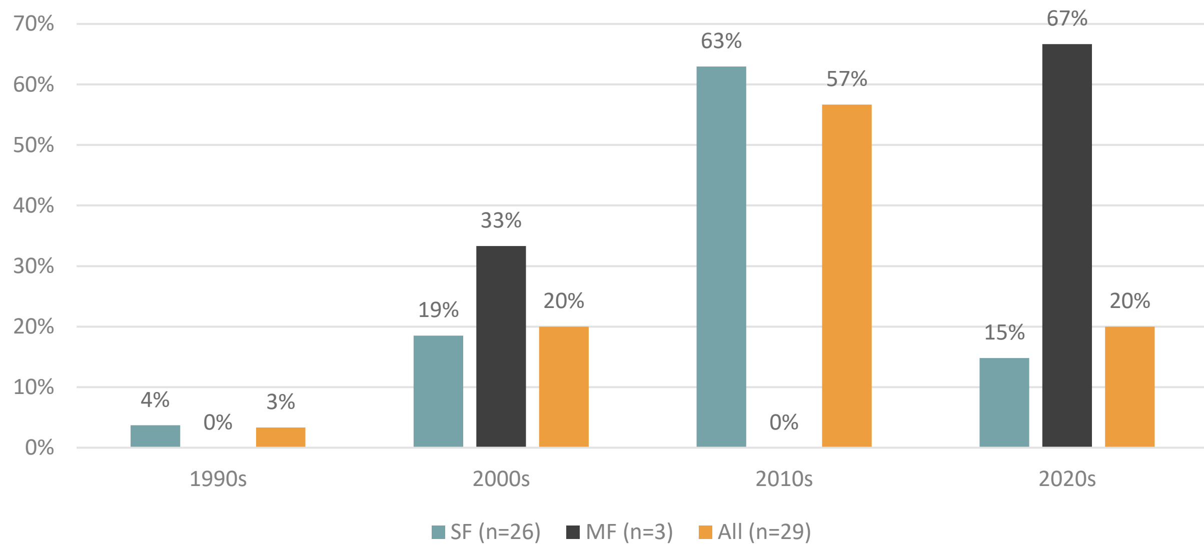
The site visits found that the average age of all refrigerators was 10.4 years, though with substantially older refrigerators being used as secondary units. Table 3-16 summarizes the average age of refrigerators by housing type.

TABLE 3-16 AVERAGE AGE OF REFRIGERATORS BY HOUSING TYPE

	Overall	SF Primary	SF Secondary	MF Primary	MF Secondary
Average Age (weighted)	10.4	9.5	17.0	8.9	17.8

Site visits confirmed the presence of stand-alone freezers, though the presence is substantially less than for primary refrigerators. Figure 3-5 summarizes the age of these freezers. Note that the very limited presence of multifamily stand-alone freezers limits the value of multifamily information. Most single family stand-alone freezers were manufactured in the 2010s or 2020s.

FIGURE 3-5 DECADE OF FREEZER MANUFACTURE



The site sample revealed that stand-alone freezers were 10.9 years old, slightly older than primary refrigerators.

3.5.2 Dishwashers

Dishwashers are a common appliance found in approximately 60 percent of single family and multi-family homes. However, low-income homes are substantially less likely have a dishwasher than not-low-income homes. As shown in Table 3-17, dishwashers were between 70 and 80 percent more likely to be reported as present in not-low-income homes than low-income homes. Across the utilities, Ameren Electric and Ameren Gas customers were less likely to report the presence of a dishwasher. That detail is available in the appendices, with substantially fewer dishwashers being reported by multifamily households of all income types than for Nicor Gas or ComEd.

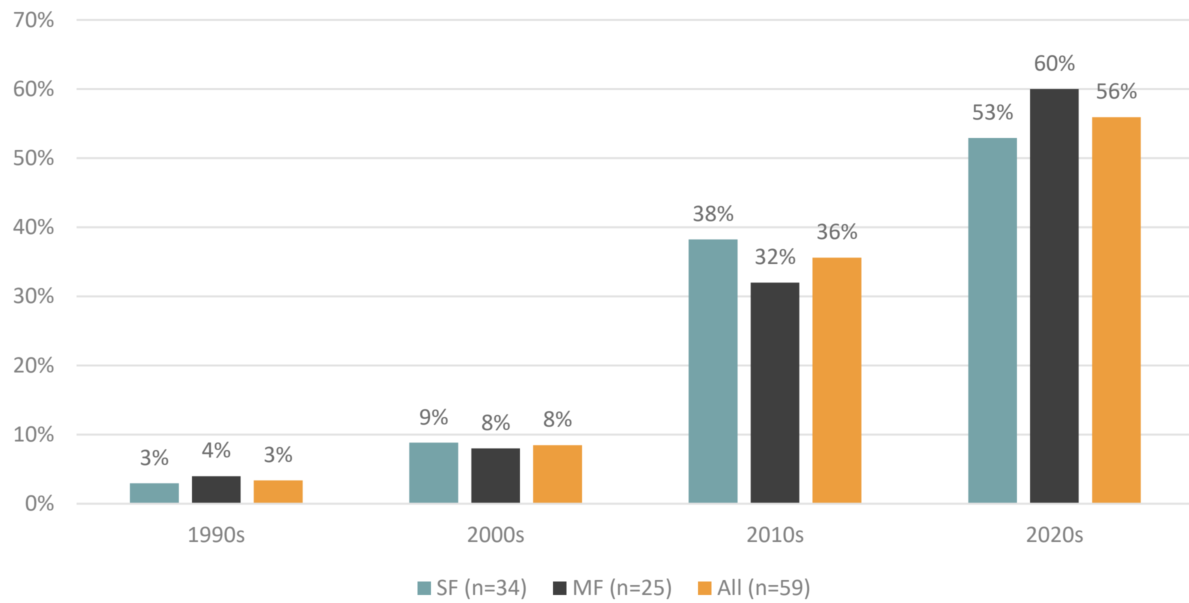
TABLE 3-17 THE PRESENCE OF DISHWASHERS

Equipment Type	SF Overall (n=2,005)	SF LI (n=636)	SF NLI (n=1,298)	MF Overall (n=1,934)	MF LI (n=870)	MF NLI (n=1,018)
Dishwasher	59.2%	38.8%	69.4%	59.2%	44.0%	72.0%

SITE VISITS WERE ABLE TO CAPTURE DATA TO INFORM THE MANUFACTURING YEAR OF DISHWASHERS FOR 59 HOMES, MOSTLY SINGLE FAMILY.

Figure 3-6 summarizes the decade of manufacture. The majority of dishwashers were manufactured in the 2020s, with very few indicating manufacturing in the 1990s or 2000s.

FIGURE 3-6 DECADE OF DISHWASHER MANUFACTURE



The available site visit data showed little difference between single family and multifamily households, in terms of the average age, as shown in Table 3-18.

TABLE 3-18 AVERAGE AGE OF DISHWASHER BY HOUSING TYPE

	Overall	SF	MF
Average Age (weighted)	6.6	6.5	6.7

3.5.3 Residential Laundry Equipment

The online survey asked about the presence and types of residential laundry equipment that were in a home. For multifamily homes, this only counted equipment located within the dwelling unit. Single-family homes were substantially more likely to report the presence of laundry equipment (96.4%) than multifamily homes (59.3%). The presence of clothes washers is very similar to the presence of clothes dryers. These results are shown in Table 3-19.

TABLE 3-19 THE PRESENCE AND TYPES OF RESIDENTIAL LAUNDRY EQUIPMENT

Equipment Type	SF Overall (n=1,997)	SF LI (n=630)	SF NLI (n=1,297)	MF Overall (n=1,915)	MF LI (n=860)	MF NLI (n=1,011)
Washer: top-loading	64.8%	69.0%	62.3%	37.8%	34.4%	40.7%
Washer: front-loading	31.8%	22.9%	36.7%	21.7%	10.7%	31.0%
Total washers	**96.6%**	**91.9%**	**99.0%**	**59.5%**	**45.1%**	**71.6%**
Dryer: natural gas	53.9%	47.9%	56.7%	27.2%	18.5%	34.5%
Dryer: electric	41.2%	43.2%	40.2%	29.3%	24.5%	33.5%

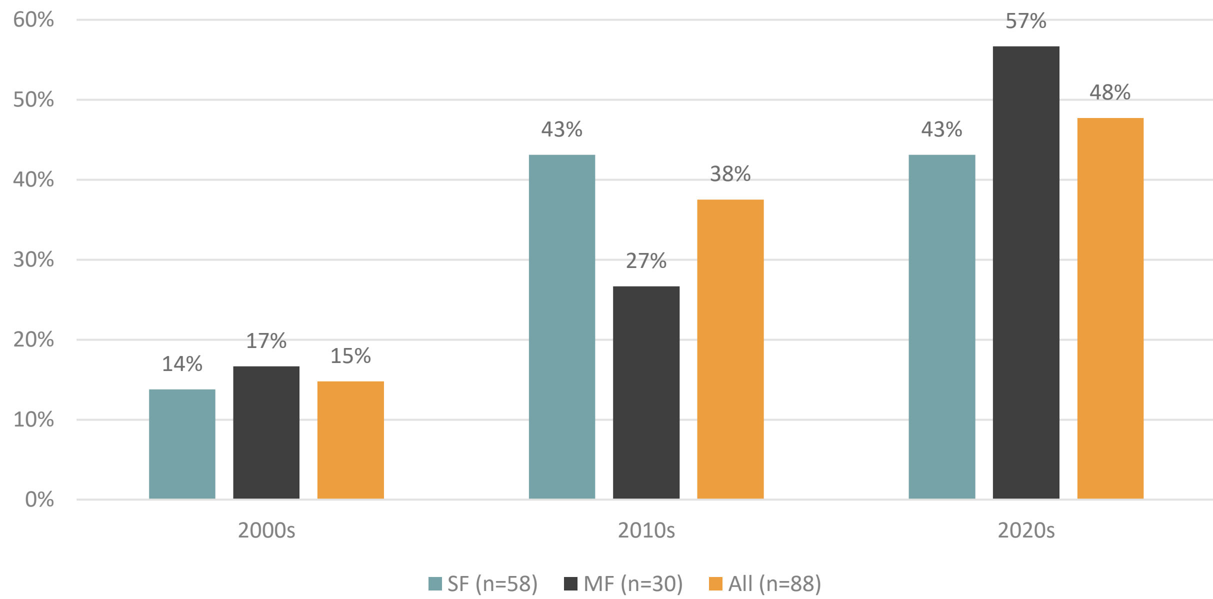
Equipment Type	SF Overall (n=1,997)	SF LI (n=630)	SF NLI (n=1,297)	MF Overall (n=1,915)	MF LI (n=860)	MF NLI (n=1,011)
Dryer: heat pump	0.6%	0.8%	0.5%	1.0%	0.8%	1.1%
Total dryers	**95.7%**	**91.9%**	**9750.0%**	**57.5%**	**43.8%**	**69.1%**
None of the above	3.6%	7.5%	1.7%	40.7%	55.5%	28.4%

Online survey reports of heat pump clothes dryers indicate a small percentage of homes with these types of equipment. The accuracy of these reports could not be verified via the onsite surveys, though as an emerging technology, a small share in the market is likely correct. The online survey did not receive reports of propane-fueled clothes dryers, with natural gas and electric dryers being the two dominant types. Single family homes show a higher likelihood to have a gas dryer than electric, with multifamily homes being nearly evenly split. Site visit data did not reveal an error in reporting the dryer fuel type.

Site visits were able to capture the manufacturing year of a portion of washers and dryers (88 for each type). Figure 3-7 summarizes the manufacturing decade of washers with

Figure 3-8 summarizing the manufacturing decade of dryers. No clothes washers were identified as being manufactured prior to the 2000s.

FIGURE 3-7 CLOTHES WASHER MANUFACTURE DECADE



Clothes dryers were found to have somewhat older manufacturing vintages, with a small portion extending into the 1990s. Compared to clothes washers, there is a greater share of dryers with manufacturing occurring in the 2000s and 2010s.

FIGURE 3-8 CLOTHES DRYER MANUFACTURE DECADE

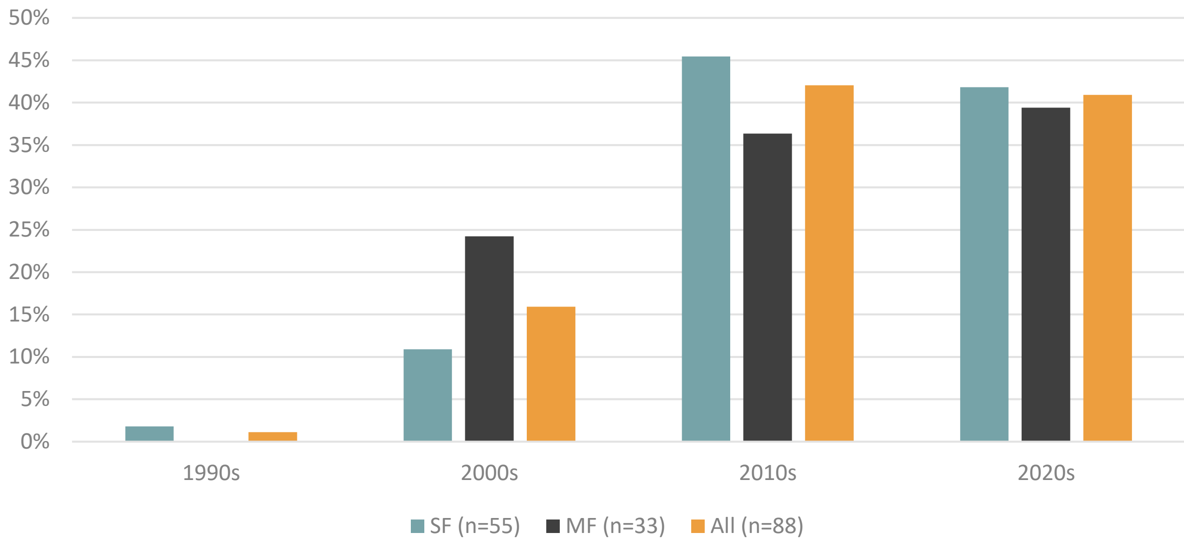


Table 3-20 presents the average age of laundry equipment found during site visits. Distinctions between housing types are minor. Single family homes had very similar ages for both types of equipment (on average), whole multifamily homes exhibited somewhat older clothes dryers than washers. However, in alignment with the manufacturing data, above, dryers are somewhat older than washers, overall.

TABLE 3-20 AVERAGE AGE OF RESIDENTIAL LAUNDRY EQUIPMENT

	Overall	SF	MF
Washers	7.2	7.5	6.7
Dryers	8.0	7.8	8.4

3.6 LIGHTING

The online survey included a question to understand the share of lighting in a household that is LED-based. Lighting was not a topic explored in the onsite survey. Table 3-21 summarizes the results across the utilities. While a majority of respondents indicated LEDs made up 75 percent or more of their lamps, a substantial share identified that 50 percent or less of their lamps were LED-based. A low share of respondents indicated no LED lighting in their home.

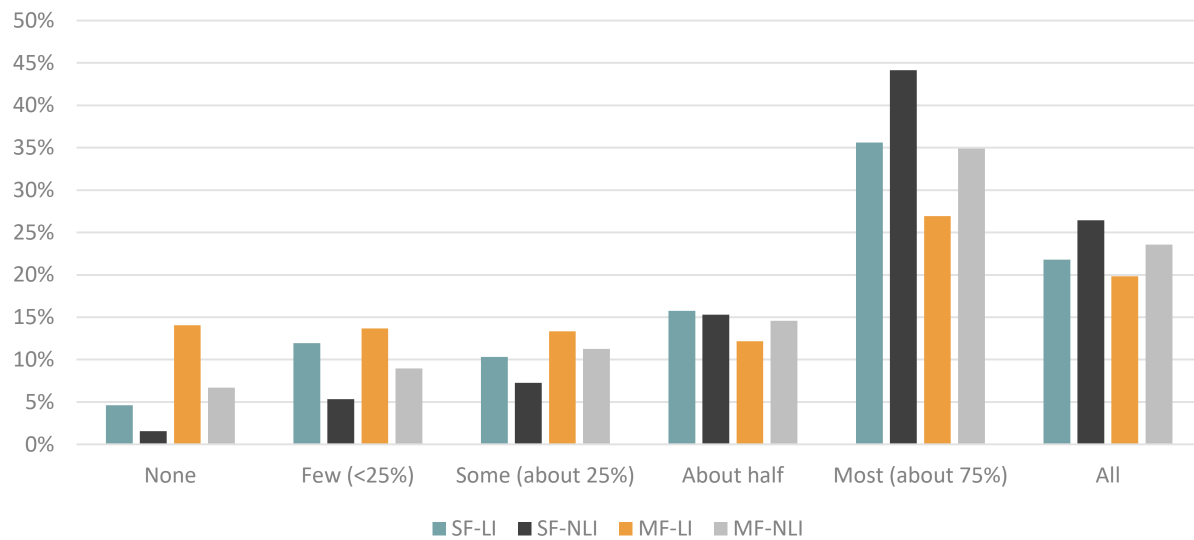
TABLE 3-21 LED SHARE OF RESIDENTIAL LIGHTING

LED Share of Lamps and Fixtures	SF Overall (n=1,981)	SF LI (n=629)	SF NLI (n=1,294)	MF Overall (n=1,907)	MF LI (n=862)	MF NLI (n=862)
None	2.6%	4.6%	1.5%	10.2%	14.0%	6.7%
Few (<25%)	7.6%	11.9%	5.3%	11.1%	13.7%	9.0%
Some (about 25%)	8.4%	10.3%	7.3%	12.3%	13.3%	11.2%
About half	15.4%	15.7%	15.3%	13.5%	12.2%	14.6%
Most (about 75%)	41.2%	35.6%	44.1%	31.1%	26.9%	34.9%

LED Share of Lamps and Fixtures	SF Overall (n=1,981)	SF LI (n=629)	SF NLI (n=1,294)	MF Overall (n=1,907)	MF LI (n=862)	MF NLI (n=862)
All lighting is LED	24.7%	21.8%	26.4%	21.9%	19.8%	23.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 3-9 summarizes the income type and housing type shares of residential lighting. For homes reporting 75 percent or greater shares of LEDs, not-low-income households have a higher share LED than low-income households. Multifamily respondents were also less likely to indicate 75 percent or more of lights as being LEDs than single-family households.

FIGURE 3-9 INCOME AND HOUSEHOLD TYPES, REPORTED SHARE OF LED LIGHTING



3.7 SOLAR, BATTERIES, EVS, AND ELECTRICITY PANEL CAPACITY

The online survey asked respondents to indicate whether they had forms of solar energy, had a battery storage system to store electricity from photovoltaic solar panels, whether they had an electric vehicle, and the type of charger that supported that electric vehicle. Additionally, the onsite survey investigated the capacity of each home's electric panel, capturing the amp rate of the panel when available. Broadly speaking, these technologies provide clean energy solutions that extend beyond energy efficiency and that may have an impact on utility energy sales (primarily electricity) or load shapes.

Table 3-22 summarizes the results of the online survey responses regarding the presence of solar panels, electric vehicles, and batteries. Note that the total of the percentages sums to greater than 100 percent as respondents could select more than one technology if multiple technologies were present.

TABLE 3-22 PRESENCE OF VARIOUS DISTRIBUTED ENERGY RESOURCES

Technology	SF Overall (n=1,912)	SF LI (n=614)	SF NLI (n=1,242)	MF Overall (n=1,870)	MF LI (n=852)	MF NLI (n=986)
Solar panels for home electricity	9.3%	5.7%	11.3%	0.3%	0.2%	0.2%
Battery to store electricity from solar panels	0.8%	0.8%	0.9%	0.2%	0.1%	0.3%
Electric Vehicle (EV)	6.1%	1.1%	8.6%	2.5%	1.2%	3.7%
EV charger	5.1%	1.3%	7.0%	1.8%	0.7%	2.7%
Solar water heating	0.2%	0.3%	0.1%	0.1%	0.1%	0.1%
None of the above	85.9%	92.8%	82.3%	96.7%	98.4%	95.2%
Total	107.4%	102.1%	110.1%	101.5%	100.7%	102.2%

As shown in Table 3-22, the results indicate that solar panels generating electricity (photovoltaics) is indicated as having a 9.3 percent presence in single-family respondent homes. This is far higher than multi-family homes. Further, non-low-income single family homes are approximately twice as likely to have solar photovoltaic panels than low-income single-family homes. For electric vehicles and at-home charging, a similar pattern emerges, though with greater distinction between income types than housing types. Solar water heating (the sole source of possible gas impacts) exhibits a very low market share across all respondent categories. Notably, approximately 14 percent of single-family homes have at least one of these technologies, whole only about three percent of multifamily home have one of these technologies.

For homes indicating the presence of EV chargers, respondents were asked to categorize the level of charger present. The accuracy of these reports was not validated with site visits, an area of possible future research. The results in Table 3-23 indicate the types and capacities of chargers identified by respondents.

TABLE 3-23 EV CHARGER TYPES IDENTIFIED BY RESPONDENTS

EV Charger Type	SF Overall (n=84)	SF LI (n=4)	SF NLI (n=78)	MF Overall (n=29)	MF LI (n=6)	MF NLI (n=23)
Level 1	14.3%	25.0%	12.8%	17.2%	33.3%	13.0%
Level 2	85.7%	75.0%	87.2%	75.9%	50.0%	82.6%
Level 3	0.0%	0.0%	0.0%	6.9%	16.7%	4.3%
Total	100%	100%	100%	100%	100%	100%

Level 2 chargers dominated the share of EV chargers. Readers should note that modern electric vehicles do not necessarily require a separate charger but have on-board chargers. Some multifamily respondents indicated the presence of Level 3 chargers, suggesting high-capacity chargers may be available at these buildings. The presence of these high-capacity chargers was not validated but points to the possibility that some multifamily buildings may host such systems. Site visits were only able to validate the presence of residential Level 1 and Level 2 chargers (19 chargers in total in the onsite sample).

The electric service capacity amp rating was collected by field technicians during site visits. A total of 244 of the 337 homes had this data available. While multifamily units tended to have a lower amp rating in their electric service panel most homes had service panel ratings at 100 amps or greater. The results are summarized in Table 3-24, below.

TABLE 3-24 ELECTRIC SERVICE PANEL CAPACITIES

Amp Rating	20	50	60	100	125	150	200	400
Multifamily (n=79)	2.5%	1.3%	12.7%	70.9%	3.8%	3.8%	5.1%	0.0%
Single Family (n=165)	0.0%	0.0%	0.0%	49.1%	0.6%	2.4%	47.3%	0.6%

As shown in Table 3-24, the large majority of single-family homes either had a 100 or 200 amp rating (96.4 percent), split roughly evenly. No single-family home was found with less than a 100 amp capacity rating. For multifamily units, the majority were found to have a rating of 100 amps. However, approximately 16 percent had an amp rating less than 100 amps, with most of those having a 60-amp service panel.

3.8 AIR INFILTRATION

As part of the site visits, single-family respondents were given an option to participate in a blower-door test. A blower door test depressurizes a house to understand the "leakiness" of a home relative to uncontrolled ventilation. A total of 69 homes provided usable results and allowed for comparing the blower door test outcomes to other factors, such as the age of the home, the square feet of conditioned space in each home, and the qualitative perception of blower door technicians to the general state of a home's air infiltration or opportunity for improvement.

Blower door tests provide a result known as ACH50. This metric refers to the number of air changes per hour (ACH) at the tested pressure (50 pascals). The results show several general trends:

- The older the home, the greater the air infiltration. The results show a separation in ACH50 results for homes less than or greater than 40 years old.
- The larger the home, the lower the ACH50 results. All else held equal, there is less surface area per volume of home as a home gets larger, resulting in less air infiltration per square foot. This does not mean that larger homes necessarily leak less air than smaller homes.
- The perception that blower door technicians had regarding the quality of air sealing in a home generally followed the same pattern, though the perceptions were not hard breakpoints. The perception reflects an expectation of potential improvement opportunities and is reflective of expectations. A home with a "poor" rating may have a lower ACH50 score (lower infiltration) than home with a "good" rating, indicating that the "poor" home has opportunities for improvement that a "good" home may not, despite the blower door test results.

Figure 3-10 illustrates the relationship between a home's square footage and ACH50 score. A lower ACH50 score indicates a home with less air filtration than one with a higher ACH50 score. The general pattern suggests larger homes have less air infiltration per square foot. As noted above, this is partly driven by larger homes having a greater interior volume per surface area – to achieve an air-change in the home, more air will need to move through the building shell. This pattern does not reflect the absolute volume of air moving through a home's building shell and total energy savings opportunity. It does reflect that the percentage of energy savings that could be derived by improving air sealing would likely be less for a larger home than a smaller home. One case with a very high ACH50 score has been removed (ACH50=42.9) from the data supporting the figure.

FIGURE 3-10 HOME SQUARE FOOTAGE AND ACH50 RESULTS

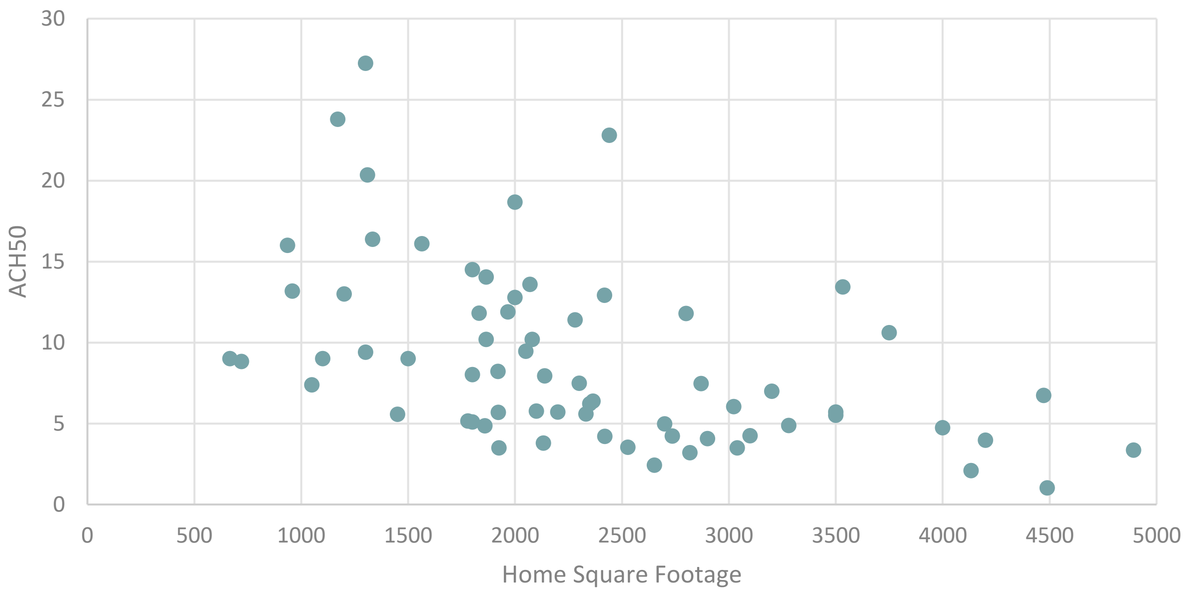
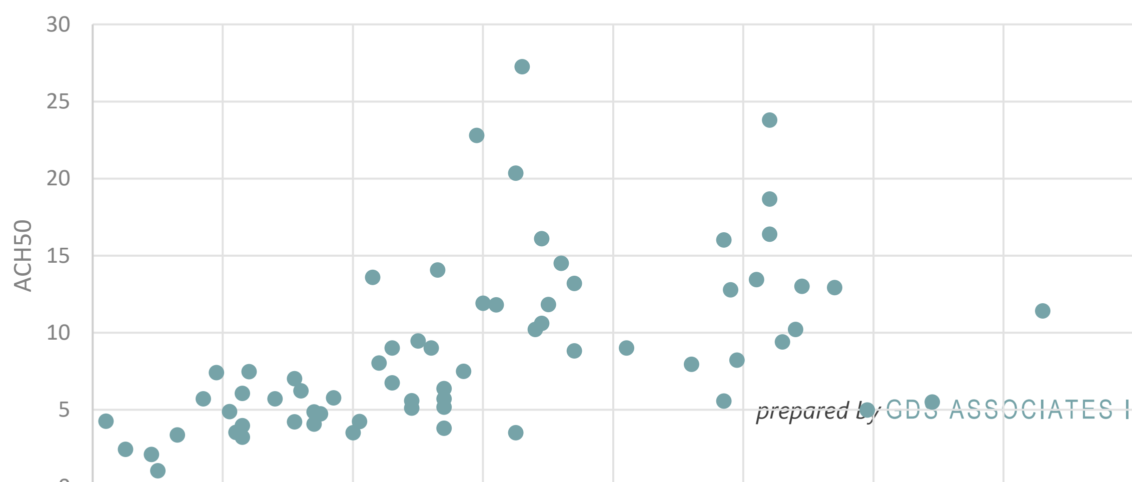


Figure 3-11 illustrates the pattern of ACH50 results relative to the age of the tested homes. In general, older homes results in a higher ACH50 score than newer homes, indicating that older homes tend to experience greater air infiltration. That said, some homes of all ages had relatively low ACH50 results, suggesting that these homes had either taken action to reduce air infiltration or may have been built differently than other homes of a similar age. A notable breakpoint of results occurs at the 40 year-old mark. While speculative, the results may reflect the impact of modern building codes on home construction. Nevertheless, blower door technicians felt that many of the newer homes (<40 years old) had opportunities for improvement. However, the technicians also indicated that absolute energy savings would be expected to be higher for older homes. One case with a very high ACH50 score has been removed (ACH50=42.9) from the data supporting the figure.

FIGURE 3-11 AGE OF HOME AND ACH50 RESULTS



The blower door technicians were asked to provide a qualitative judgement on the condition of air-sealing of each home. Rated as "good, normal, poor," this rating captured the general perception of the technician of a home's air sealing relative to expectations or opportunities for improvement. While not a rigorous measure, the results indicate that homes of all types, regardless of the ACH50 score, have opportunities for improvement. Similarly, there are homes with even high ACH50 scores that were perceived as "good," suggesting limited opportunities for improvement based on the current status and home construction. Table 3-25 summarizes the mix of technician ratings and statistics.

TABLE 3-25 TECHNICIAN AIR-SEALING QUALITATIVE RATING AND SUMMARY INFORMATION

Rating	Count	Avg ACH50	Avg Sq Ft	Avg Age (years)	Min ACH50	Max ACH50
Good	15	5.2	2,919	40	1.0	13.0
Normal	38	9.4	2,130	58	3.2	39.0
Poor	16	15.1	2,033	79	5.2	42.9
Overall	69	9.8	2,279	59	1.0	42.9

The analysis utilized information about each home to explore regression models that may predict the likelihood of ACH50 results. Across multiple combinations of variables, the analysis team was able to draw out key factors that impacted the ACH50 score. The sample size and possible combinations of factors limits clear statistical outcomes. While no one model painted a complete picture, the exploration revealed the following considerations for a home's ACH50 score, with t-test scores greater than 1.4:

- Square footage – ACH50 decreases with increasing square footage,
- Age of home – ACH50 increases with increasing age,
- Presence of a finished basement – ACH50 is higher for homes with finished basements,
- kWh per day – higher kWh per day results in higher ACH50 (note: higher gas consumption per day may also show the same result, but the sample of homes had more complete kWh records than gas records).

The above factors are generally observable without conducting a blower door test and provide an expectation of whether a home may have opportunity to reduce air infiltration and save energy.

4 Willingness to Participate Combined Results

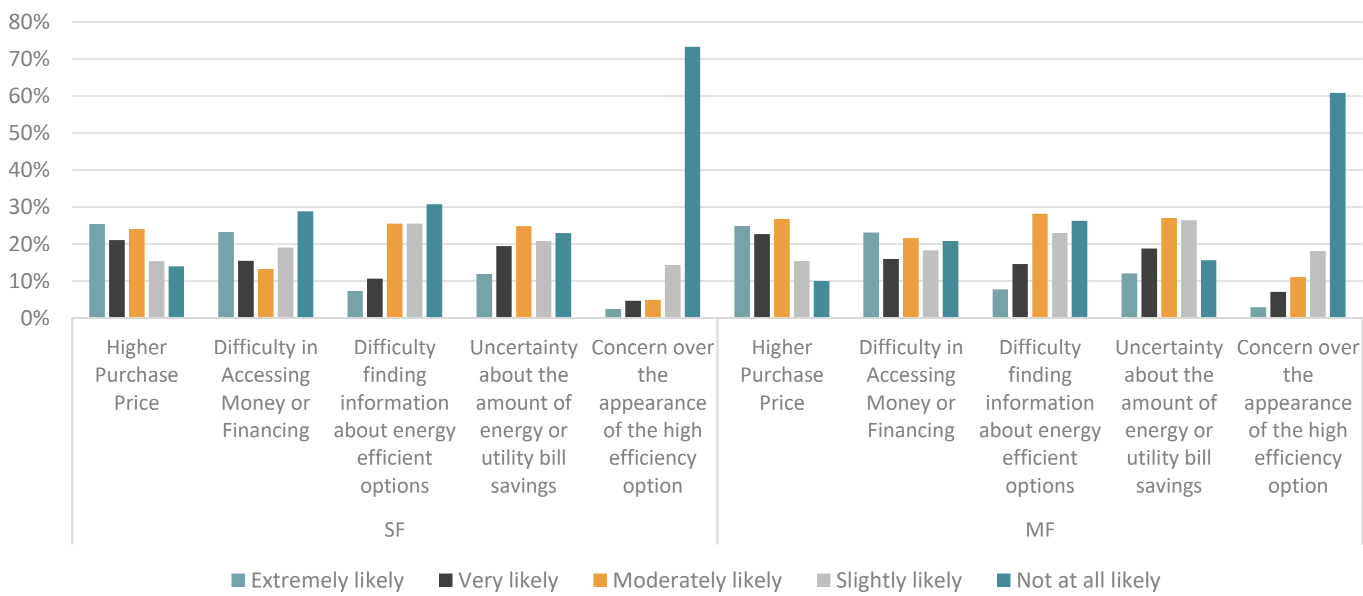
Online survey participants were asked a variety of questions to determine their willingness to participate in energy efficiency. These willingness-to-participate questions helped to determine common barriers to prevent participation, incentive levels that would encourage participation, and awareness of certain energy efficiency measures.

4.1 HEATING AND COOLING

Survey participants were asked the likelihood of several factors preventing them from replacing their broken central heating system with a high-efficiency model. These factors included a higher purchase price, difficulty in accessing money or financing, difficulty finding information about energy efficient options, uncertainty about the amount of energy or utility bill savings, and concern over the appearance of the high efficiency option.

Results are shown in Figure 4-1. Concern over the appearance of the high efficiency option did not appear to be a big concern, with the majority of participants (73 percent of single family and 61 percent of multifamily) responding “not at all likely” as a barrier. The greatest overall barrier was the higher purchase price, with 71 percent of single family participants and 74 percent of multifamily participants responding “moderately likely” or higher.

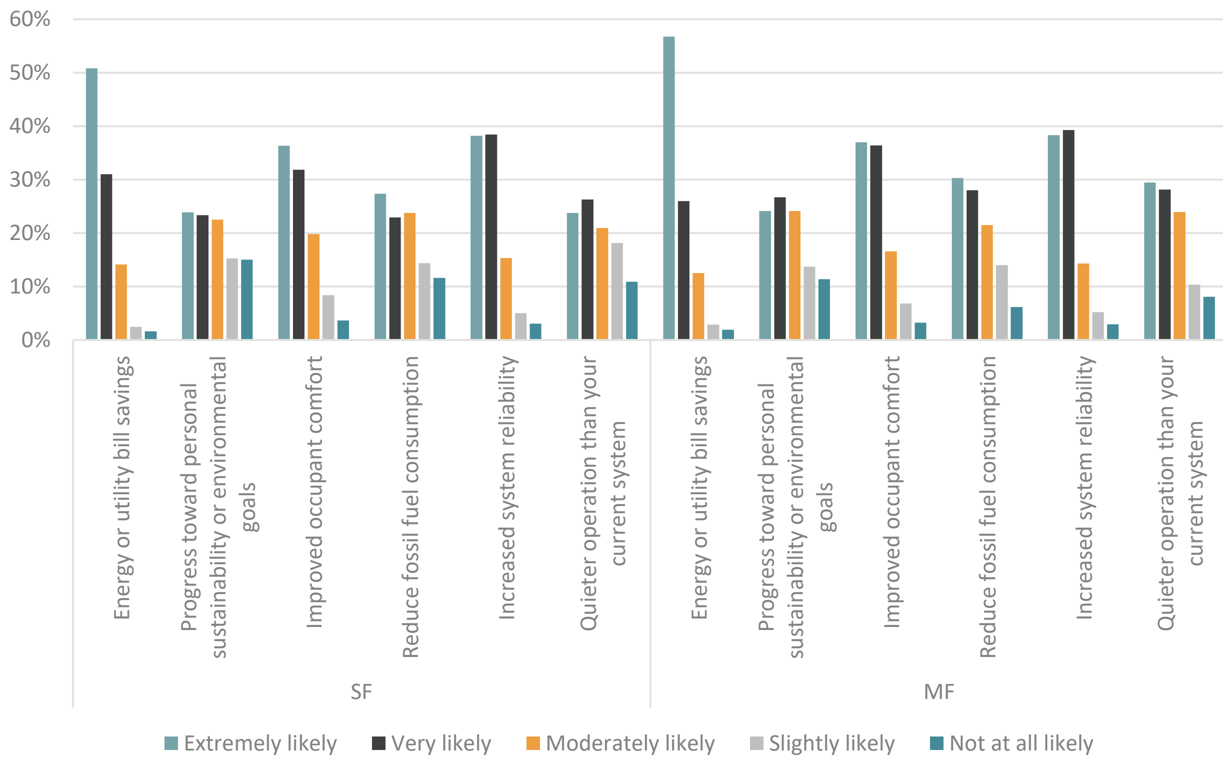
FIGURE 4-1 LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN CENTRAL HEATING SYSTEM WITH A HIGH-EFFICIENCY MODEL



Participants were also asked the likelihood of several factors motivating them to replace their broken central heating system with a high-efficiency model. These factors included energy or utility bill savings, progress towards personal sustainability or environmental goals, improved occupant comfort, reducing fossil fuel consumption, increased system reliability, and quieter operation than their current system.

Energy or utility bill savings was the most likely factor for survey participants to be motivated to replace equipment with a high-efficiency model. 51 percent of single-family participants and 57 percent of multifamily participants responded that this factor was “extremely likely” to motivate them. Figure 4-2 shows the results of these questions.

FIGURE 4-2 LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN CENTRAL HEATING SYSTEM WITH A HIGH-EFFICIENCY MODEL



Survey participants were asked how likely they would be to purchase a high-efficiency HVAC system at different incentive levels: no incentive, 25 percent of the additional cost of a high-efficiency model ($250), 50 percent ($500), 75 percent ($750), and 100 percent ($1,000). As shown in

Figure 4-3 , the likelihood of participating increases as the incentive amount increases. 77 percent of single-family participants and 78 percent of multifamily participants responded that they would be extremely likely to purchase a high efficiency model if 100 percent of the additional cost would be covered by an incentive.

FIGURE 4-3 LIKELIHOOD OF PURCHASING A HIGH EFFICIENCY HVAC MODEL AT DIFFERENT INCENTIVE LEVELS

Survey participants were asked if they currently have a heat pump installed in their homes. Only six percent of single family and multifamily respondents already have a heat pump. Those responding that they already had a heat pump were asked how satisfied they were with it. Figure 4-4 shows the heat pump satisfaction for single family respondents and

Figure 4-5 shows the heat pump satisfaction for multifamily respondents. Generally, heat pump owners are satisfied, with only four percent of single-family participants and six percent of multifamily participants responding that they are “not at all satisfied”.

FIGURE 4-4 SATISFACTION LEVEL OF SINGLE FAMILY SURVEY PARTICIPANTS THAT HAVE A HEAT PUMP

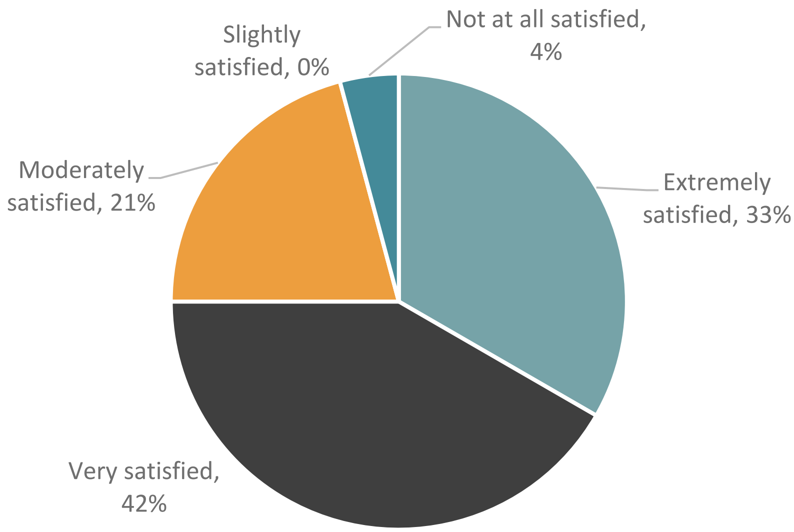
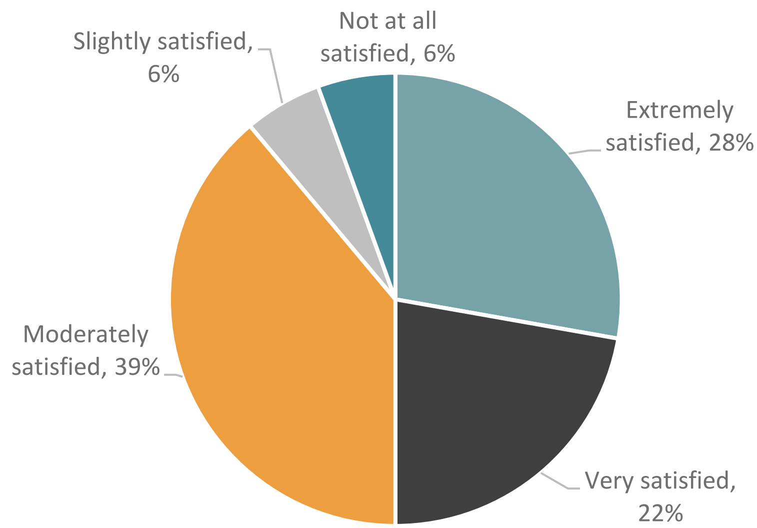


FIGURE 4-5 SATISFACTION LEVEL OF MULTIFAMILY SURVEY PARTICIPANTS THAT HAVE A HEAT PUMP



Survey participants that did not already own a heat pump were asked if they were aware of heat pumps being an alternative option to heat and cool homes. Results of this question are included in Table 4-1.

TABLE 4-1 HEAT PUMP AWARENESS OF SURVEY PARTICIPANTS WHO DO NOT OWN A HEAT PUMP

	SF	MF
Very aware	31%	29%
Somewhat aware	32%	26%
Unaware	37%	45%

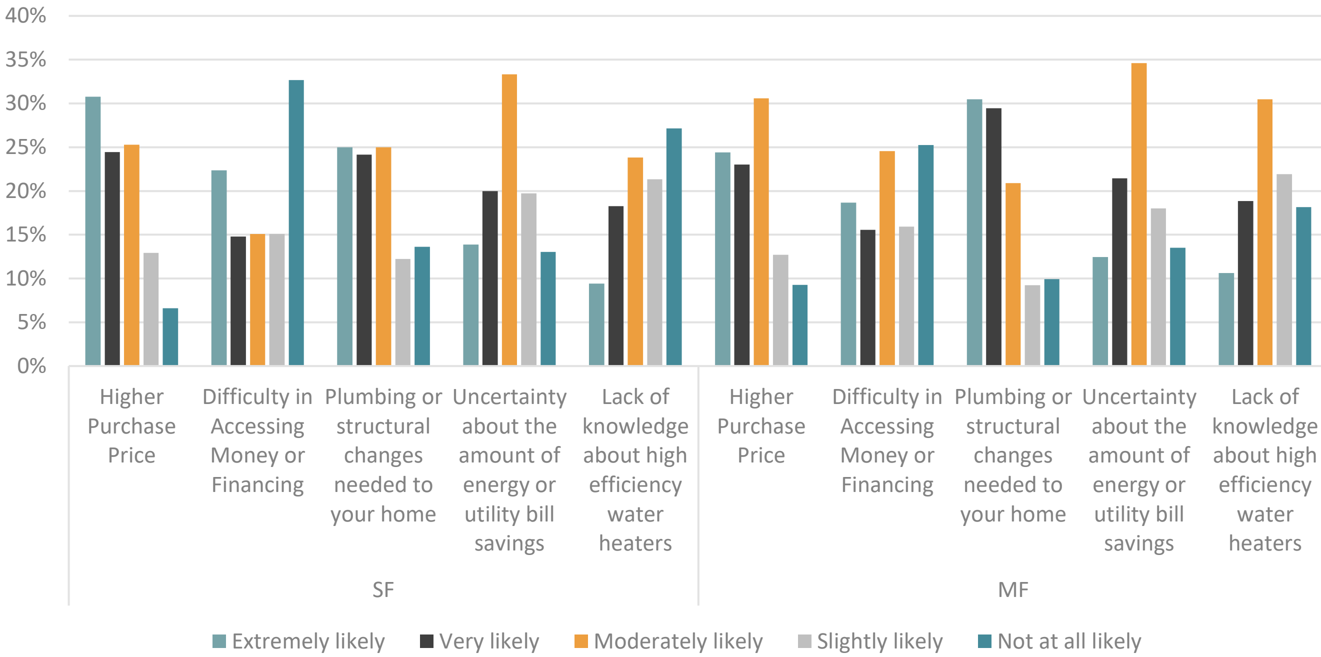
4.2 WATER HEATING

Survey participants were asked the likelihood of several factors preventing them from replacing their broken water heater with a high-efficiency water heater instead of a standard-efficiency water heater. These factors included a higher purchase price, difficulty in accessing money or financing, plumbing or structural changes needed to the home, uncertainty about the amount of energy or utility bill savings, and lack of knowledge about high efficiency water heaters.

DIFFICULTY IN ACCESSING MONEY OR FINANCING HAD THE HIGHEST PERCENTAGE OF PARTICIPANTS RESPONDING "NOT AT ALL LIKELY" AS A BARRIER FOR BOTH SINGLE FAMILY (33 PERCENT) AND MULTIFAMILY (25 PERCENT) PARTICIPANTS. THE GREATEST OVERALL BARRIER FOR SINGLE FAMILY PARTICIPANTS WAS THE HIGHER PURCHASE PRICE, WITH 80 PERCENT OF PARTICIPANTS RESPONDING "MODERATELY LIKELY" OR HIGHER. THE GREATEST BARRIER FOR MULTIFAMILY PARTICIPANTS WAS PLUMBING OR STRUCTURAL CHANGES NEEDED TO THE HOME, WITH 81 PERCENT OF PARTICIPANTS RESPONDING "MODERATELY LIKELY" OR HIGHER. RESULTS ARE SHOWN IN

Figure 4-6.

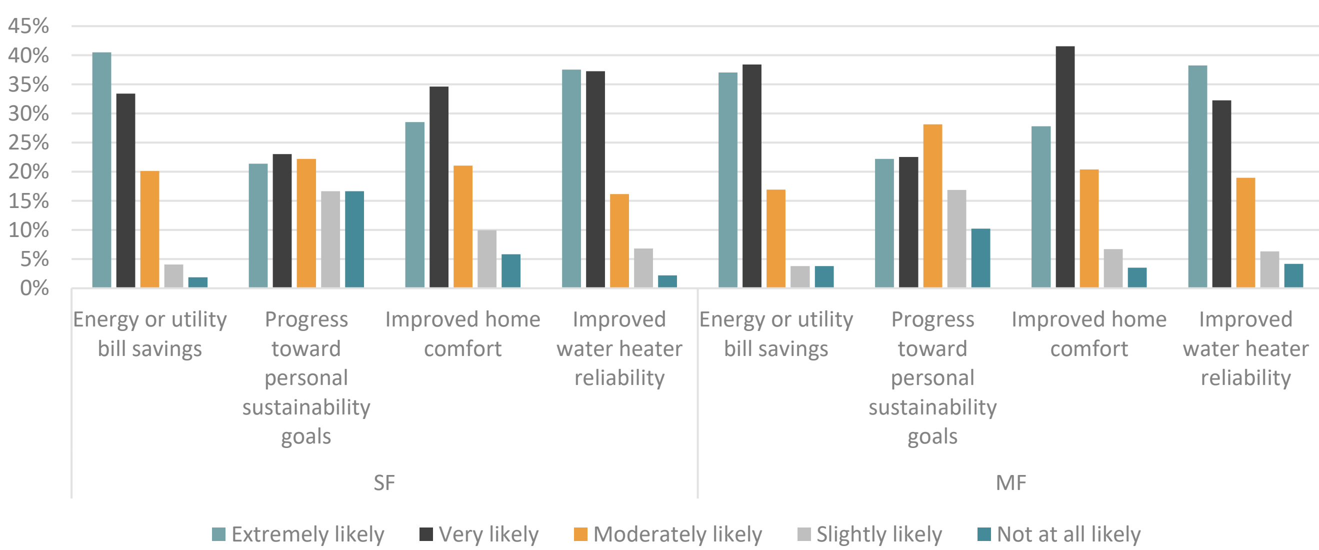
FIGURE 4-6 LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN WATER HEATER WITH A HIGH-EFFICIENCY WATER HEATER



Participants were also asked the likelihood of several factors motivating them to replace their broken water heater with a high-efficiency model. These factors included energy or utility bill savings, progress toward personal sustainability goals, improved home comfort, and improved water heater reliability.

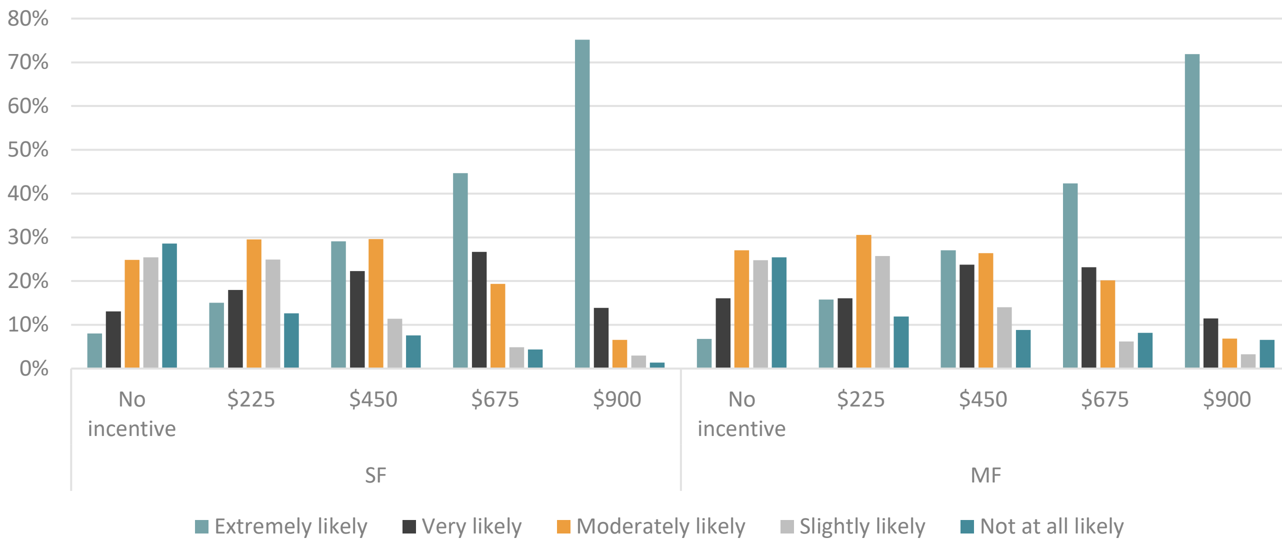
Energy or utility bill savings was the most likely factor for survey participants to be motivated to replace water heating equipment with a high-efficiency model. 94 percent of single-family participants and 92 percent of multifamily participants responded "moderately likely" or higher as a factor that energy or utility bill savings would motivate them to purchase a high-efficiency model. Figure 4-7 shows the results of these questions.

FIGURE 4-7 LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN WATER HEATER WITH A HIGH-EFFICIENCY MODEL



Survey participants were asked how likely they would be to purchase a high-efficiency water heater at different incentive levels: no incentive, 25 percent of the additional cost of a high-efficiency model ($225), 50 percent ($450), 75 percent ($675), and 100 percent ($900). As shown in Figure 4-8, the likelihood of participating increases as the incentive amount increases. 75 percent of single family participants and 72 percent of multifamily participants responded that they would be extremely likely to purchase a high efficiency model if 100 percent of the additional cost would be covered by an incentive.

FIGURE 4-8 LIKELIHOOD OF PURCHASING A HIGH EFFICIENCY WATER HEATER AT DIFFERENT INCENTIVE LEVELS



Survey participants were asked if they currently have a heat pump water heater installed in their homes. Only four percent of single family and three percent of multifamily respondents already have a heat pump water heater. Those responding that they already had a heat pump water heater were asked how satisfied they were with it. Figure 4-9 shows the heat pump water heater satisfaction for single family respondents and

Figure 4-10 shows the heat pump water heater satisfaction for multifamily respondents. Generally, heat pump owners are satisfied, with only seven percent of single family participants and zero percent of multifamily participants responding that they are "not at all satisfied".

FIGURE 4-9 SATISFACTION LEVEL OF SINGLE FAMILY SURVEY PARTICIPANTS THAT HAVE A HEAT PUMP WATER HEATER

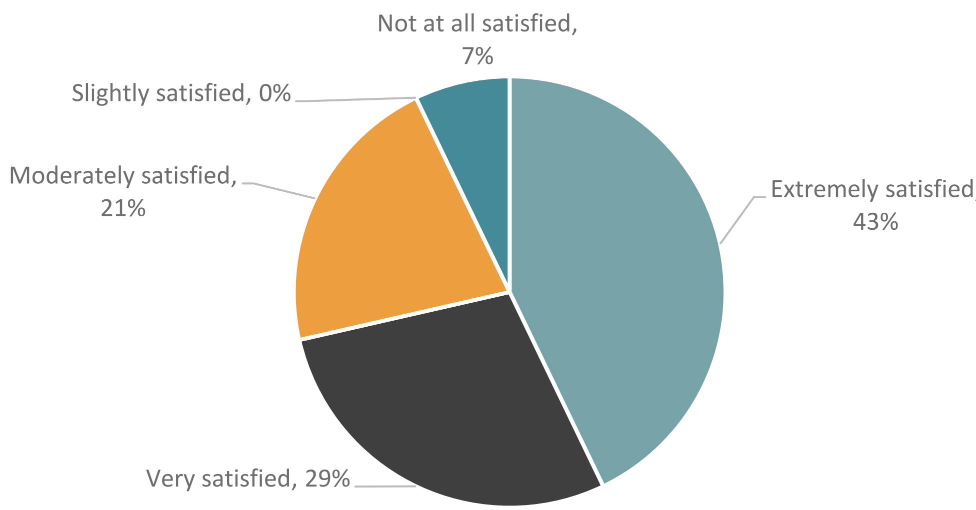
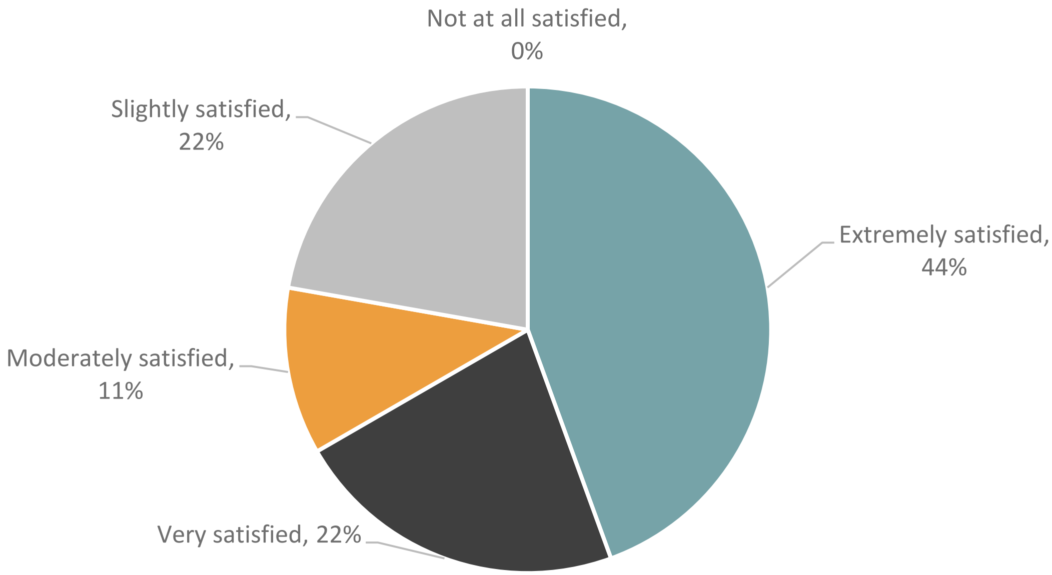


FIGURE 4-10 SATISFACTION LEVEL OF MULTIFAMILY SURVEY PARTICIPANTS THAT HAVE A HEAT PUMP WATER HEATER



Survey participants that did not already own a heat pump water heater were asked if they were aware of heat pump water heaters being an alternative option to provide hot water for homes. Results of this question are included in Table 4-2. Over 60% of participants were unaware of heat pump water heaters.

TABLE 4-2 HEAT PUMP WATER HEATER AWARENESS OF SURVEY PARTICIPANTS WHO DO NOT OWN A HEAT PUMP

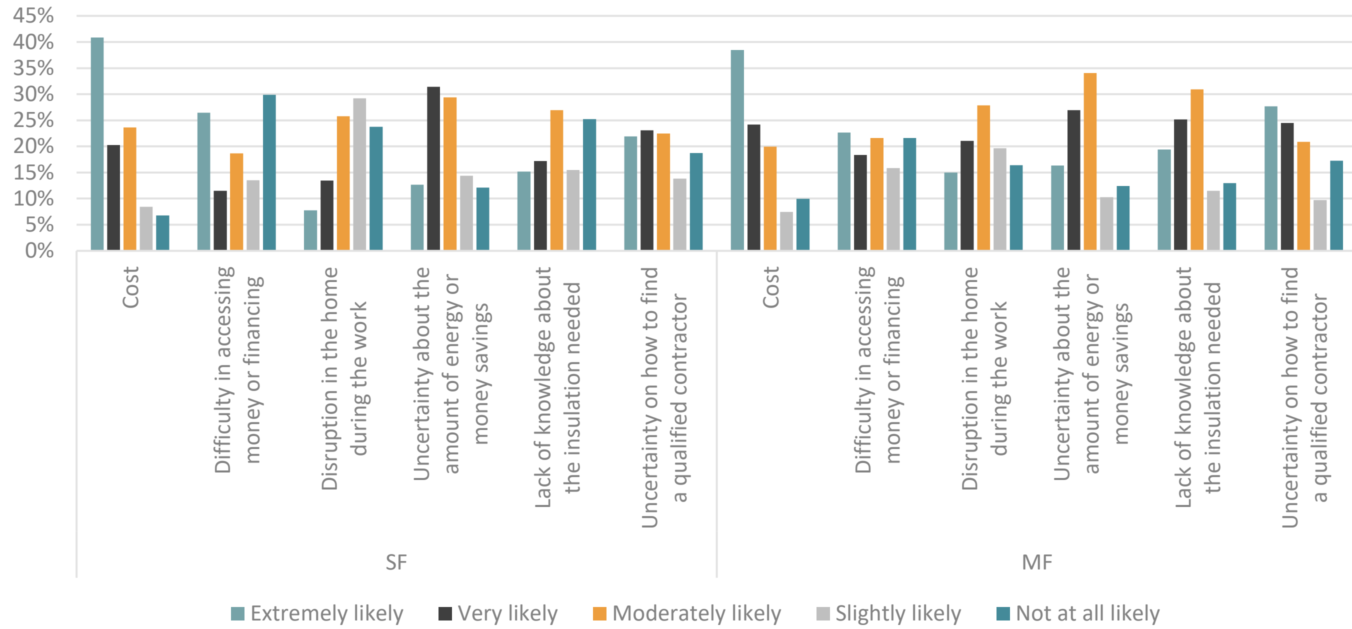
	SF	MF
Yes	19%	14%
Somewhat aware	18%	26%
Unaware	63%	60%

4.3 BUILDING SHELL

Survey participants were asked the likelihood of several factors preventing them from making improvements to their home's ceiling insulation or air sealing. These factors included cost, difficulty in accessing money or financing, disruption in the home during the work, uncertainty about the amount of energy or money savings, lack of knowledge about the insulation needed, and uncertainty on how to find a qualified contractor.

Cost was the biggest barrier for survey participants, with 41 percent of single family participants and 38% of single family participants responding that cost was "extremely likely" as a barrier. Difficulty in accessing money or financing had the highest percentage of participants responding "not at all likely" as a barrier for both single family (30 percent) and multifamily (22 percent) participants. Results are shown in Figure 4-11.

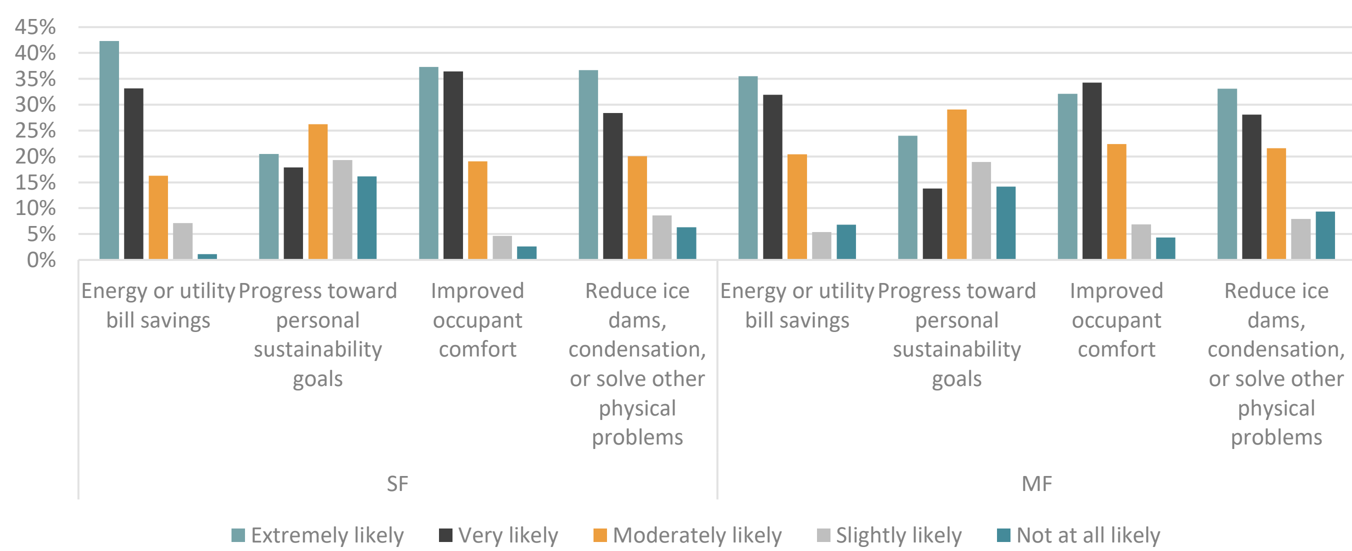
FIGURE 4-11 LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM MAKING IMPROVEMENTS TO THEIR HOME'S CEILING INSULATION OR AIR SEALING



Participants were also asked the likelihood of several factors motivating them to replace their broken water heater with a high-efficiency model. These factors included energy or utility bill savings, progress toward personal sustainability goals, improved occupant comfort, and reducing dams, condensation, or solving other physical problems.

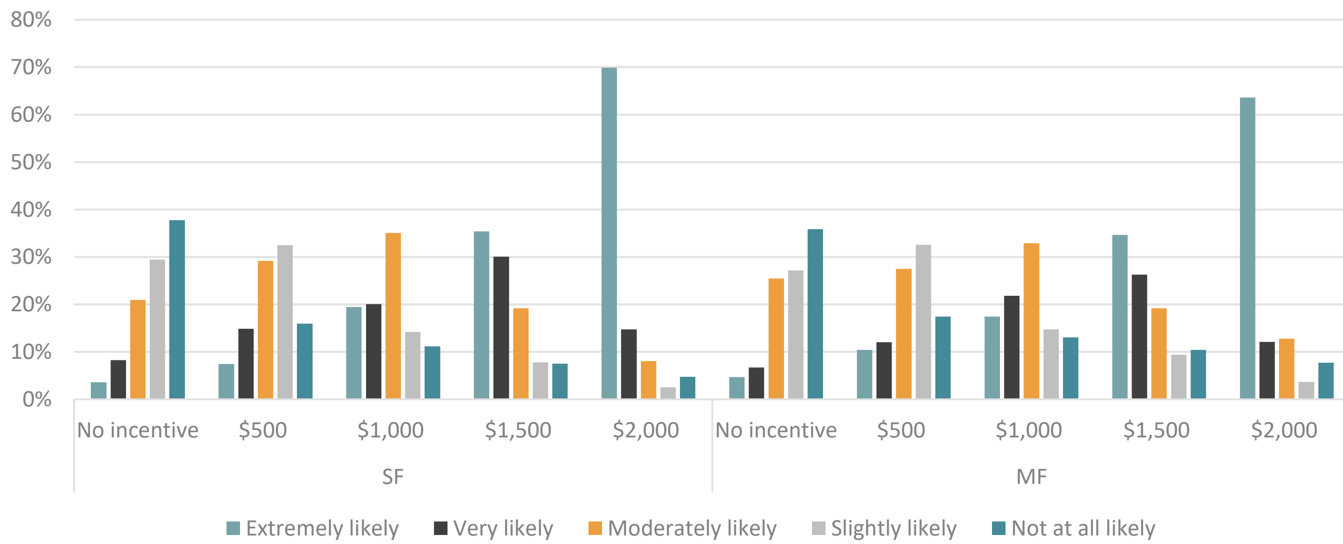
Improved occupant comfort was the most likely factor for survey participants to be motivated to improve ceiling insulation or air sealing. 93 percent of single family participants and 89 percent of multifamily participants responded "moderately likely" or higher as a factor that improved comfort would encourage them to improve their ceiling insulation or air sealing. Figure 4-12 shows the results of these questions.

FIGURE 4-12 LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO IMPROVE CEILING INSULATION OR AIR SEALING



Survey participants were asked how likely they would be to upgrade their home's ceiling insulation or air sealing at different incentive levels: no incentive, 25 percent of the project cost ($500), 50 percent ($1,000), 75 percent ($1,500), and 100 percent ($2,000). As shown in Figure 4-13, the likelihood of participating increases as the incentive amount increases. 70 percent of single family participants and 64 percent of multifamily participants responded that they would be extremely likely to upgrade their home's ceiling insulation or air sealing if 100 percent of the additional cost would be covered by an incentive.

FIGURE 4-13 LIKELIHOOD OF IMPROVING CEILING INSULATION OR AIR SEALING AT DIFFERENT INCENTIVE LEVELS



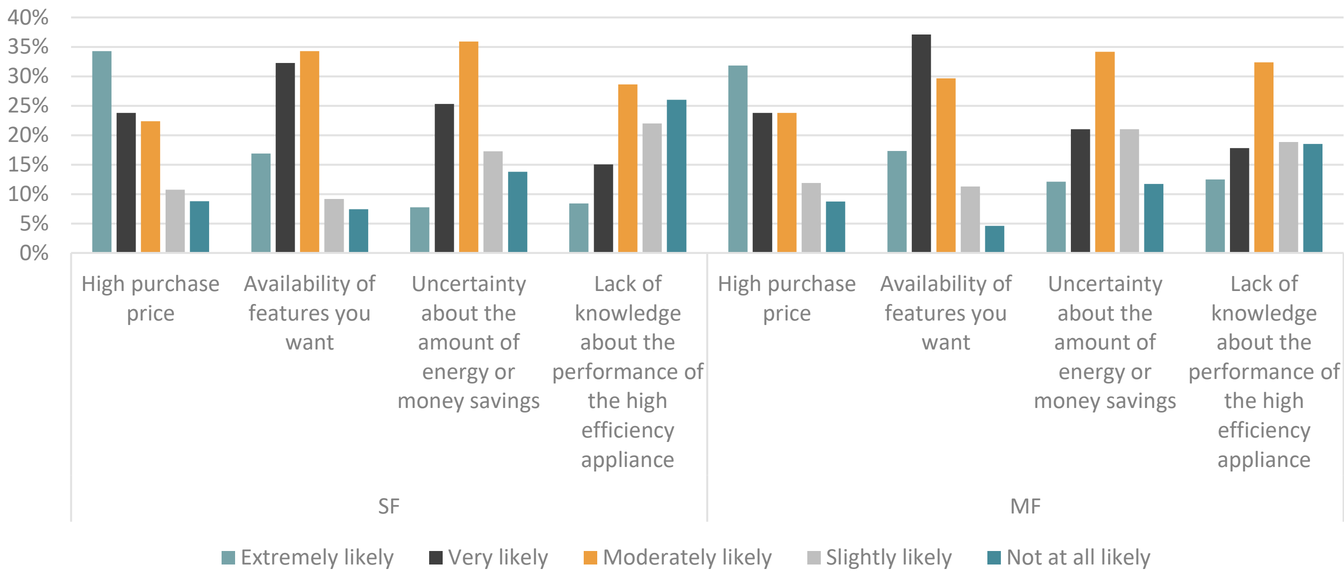
4.4 APPLIANCES

Survey participants were asked the likelihood of several factors preventing them from replacing a major household appliance with a high-efficiency model instead of a standard-efficiency model. These factors included a higher purchase price, availability of features wanted, uncertainty about the amount of energy or money savings, and lack of knowledge about the performance of the high efficiency appliance.

Lack of knowledge about the performance of the high efficiency appliance had the highest percentage of participants responding "not at all likely" as a barrier for both single family (26 percent) and multifamily (19 percent) participants. The greatest overall barrier was the availability of features wanted, with 83 percent of single family participants and 84 percent of multifamily participants responding "moderately likely" or higher. Results are shown in

Figure 4-14.

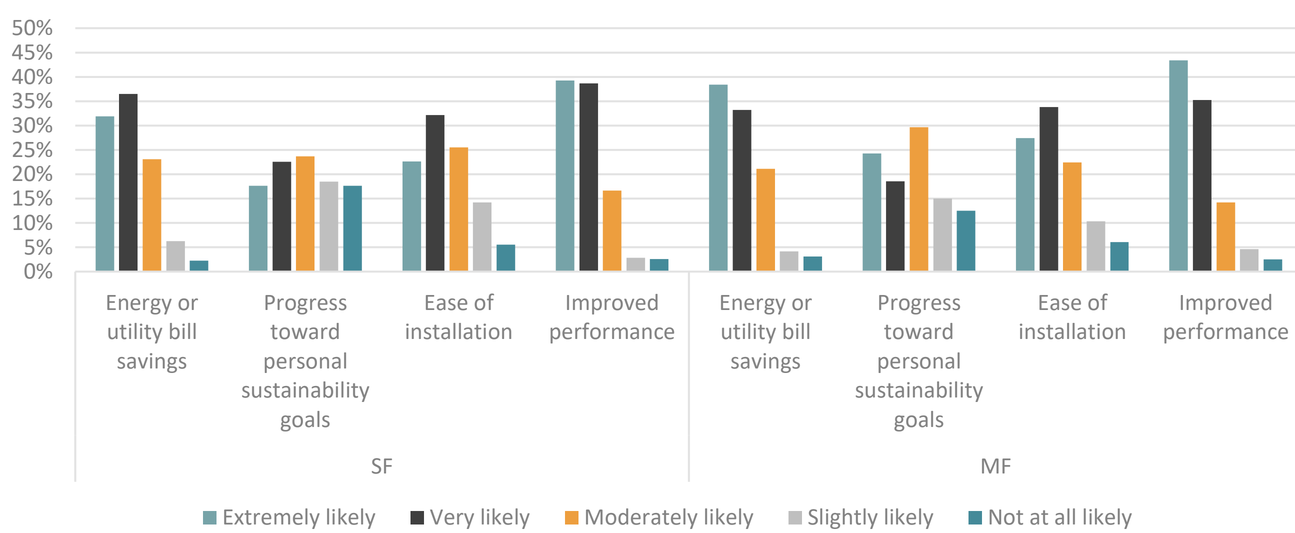
FIGURE 4-14 LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN HOUSEHOLD APPLIANCE WITH A HIGH-EFFICIENCY MODEL INSTEAD OF A STANDARD-EFFICIENCY MODEL



Participants were also asked the likelihood of several factors motivating them to replace their broken appliance with a high-efficiency model. These factors included energy or utility bill savings, progress toward personal sustainability goals, ease of installation, and improved performance.

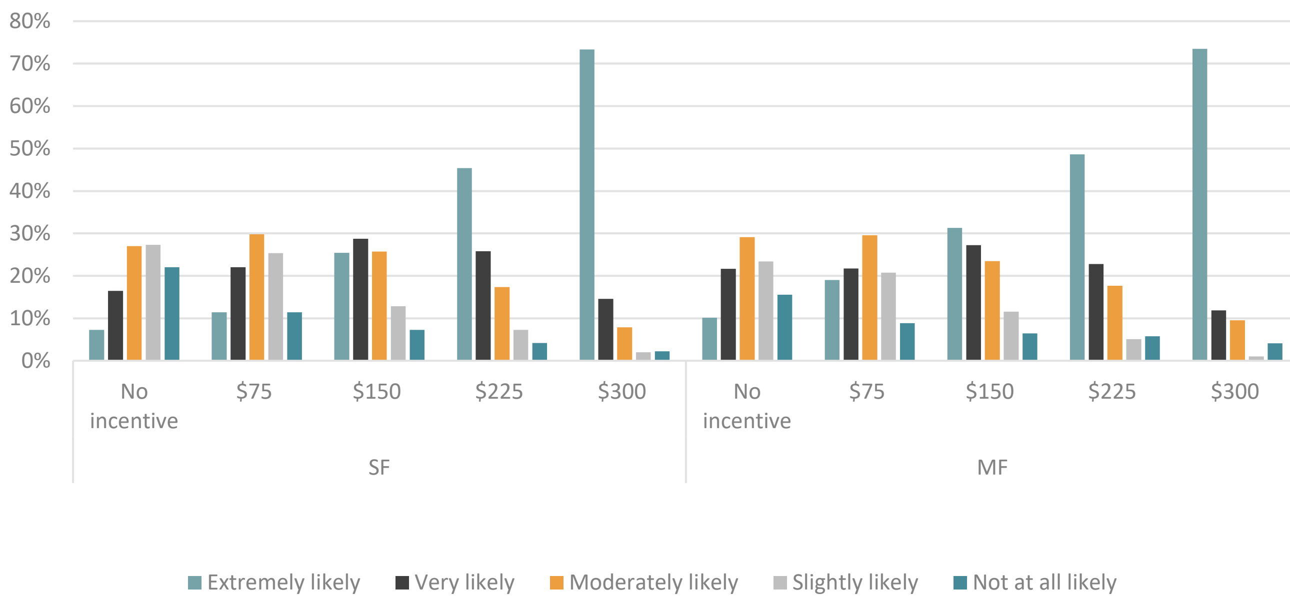
Improved performance was the most likely factor for survey participants to be motivated to improve ceiling insulation or air sealing. 95 percent of single family participants and 93 percent of multifamily participants responded "moderately likely" or higher as a factor that improved comfort would encourage them to improve their ceiling insulation or air sealing. Figure 4-15 shows the results of these questions.

FIGURE 4-15 LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN APPLIANCE WITH A HIGH-EFFICIENCY MODEL



Survey participants were asked how likely they would be to purchase a high-efficiency model instead of a standard-efficiency model at different incentive levels: no incentive, 25 percent of the additional cost of a high-efficiency model ($75), 50 percent ($150), 75 percent ($225), and 100 percent ($300). As shown in Figure 4-16, the likelihood of participating increases as the incentive amount increases. 73 percent of single family and multifamily participants responded that they would be extremely likely to upgrade their home's ceiling insulation or air sealing if 100 percent of the additional cost would be covered by an incentive.

FIGURE 4-16 LIKELIHOOD OF PURCHASING A HIGH EFFICIENCY APPLIANCE AT DIFFERENT INCENTIVE LEVELS



APPENDIX A. Demographics

Appendix A includes tables of demographics asked about on the online and on-site surveys. Results from the surveys are provided by utility and a combined total, by housing type, and by income type. Note that some survey participants did not include their income in the survey, so those participants are not included in the tables of results by income type.

Tables A-1 through A-3 provide the counts of people in each age group living in the survey participants' households.

TABLE A-1. COUNTS OF PEOPLE LIVING IN EACH HOUSEHOLD BY HOUSING TYPE

E3 / Q43: How many people in each of the following age groups currently live in your household? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Under 19	1.03	0.78	1.09	0.80	1.00	0.78	1.09	0.83	0.96	0.86	0.96	0.87	1.21	0.72
19 to 64	1.67	1.65	1.59	1.85	1.72	1.64	1.58	2.00	1.69	1.66	1.72	1.67	1.88	1.65
65 or older	1.09	0.84	0.87	1.16	1.16	0.82	0.87	0.80	1.18	1.08	1.19	1.08	0.88	0.52
Total	**2.67**	**2.18**	**2.54**	**2.45**	**2.73**	**2.17**	**2.53**	**2.39**	**2.66**	**2.28**	**2.70**	**2.30**	**3.00**	**2.08**
Respondents (n)	**1,902**	**1,830**	**558**	**103**	**1,260**	**1,706**	**447**	**80**	**1,069**	**761**	**930**	**734**	**222**	**828**

TABLE A-2. COUNTS OF PEOPLE LIVING IN EACH HOUSEHOLD BY INCOME TYPE - SINGLE FAMILY

E3 / Q43: How many people in each of the following age groups currently live in your household? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Under 19	1.18	0.95	1.23	1.00	1.16	0.92	1.27	0.97	1.04	0.92	1.05	0.91	1.42	1.02
19 to 64	1.69	1.67	1.59	1.59	1.75	1.71	1.59	1.58	1.71	1.67	1.76	1.70	1.81	1.94
65 or older	0.97	1.14	0.67	0.99	1.09	1.19	0.64	1.01	1.16	1.18	1.19	1.19	0.82	0.95
Total	**2.76**	**2.62**	**2.59**	**2.51**	**2.88**	**2.67**	**2.58**	**2.49**	**2.77**	**2.62**	**2.84**	**2.65**	**3.10**	**2.92**
Respondents (n)	**621**	**1,272**	**207**	**350**	**392**	**860**	**166**	**281**	**311**	**750**	**269**	**654**	**102**	**119**

TABLE A-3. COUNTS OF PEOPLE LIVING IN EACH HOUSEHOLD BY INCOME TYPE - MULTIFAMILY

E3 / Q43: How many people in each of the following age groups currently live in your household? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Under 19	1.00	0.55	1.03	0.42	0.99	0.56	1.05	0.53	0.96	0.74	0.95	0.77	1.02	0.47
19 to 64	1.63	1.66	2.16	1.29	1.59	1.67	2.49	1.30	1.55	1.76	1.56	1.77	1.64	1.66
65 or older	0.82	0.86	0.77	1.68	0.81	0.82	0.94	0.58	1.00	1.16	1.00	1.15	0.55	0.49
Total	**2.30**	**2.09**	**2.61**	**2.16**	**2.28**	**2.09**	**2.80**	**1.72**	**2.27**	**2.30**	**2.28**	**2.32**	**2.29**	**1.95**
Respondents (n)	**837**	**988**	**66**	**37**	**763**	**939**	**50**	**29**	**377**	**381**	**365**	**366**	**329**	**499**

Tables A-4 through A-6 show the ownership of the survey respondents' households.

TABLE A-4. OWNERSHIP OF HOUSEHOLD BY HOUSING TYPE

E4 / Q44: Do you own or rent at this address? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Own	89%	45%	86%	15%	90%	47%	85%	13%	93%	54%	93%	53%	73%	41%
Rent	11%	55%	14%	85%	10%	53%	15%	87%	7%	46%	7%	47%	27%	59%
Respondents (n)	**1,931**	**1,881**	**564**	**106**	**1,282**	**1,754**	**454**	**82**	**1,083**	**783**	**943**	**755**	**231**	**847**

TABLE A-5. OWNERSHIP OF HOUSEHOLD BY INCOME TYPE - SINGLE FAMILY

E4 / Q44: Do you own or rent at this address? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Own	76%	95%	72%	94%	78%	95%	72%	93%	82%	97%	83%	98%	64%	81%
Rent	24%	5%	28%	6%	22%	5%	28%	7%	18%	3%	17%	2%	36%	19%
Respondents (n)	**628**	**1,294**	**207**	**357**	**399**	**874**	**167**	**287**	**314**	**761**	**273**	**662**	**105**	**125**

TABLE A-6. OWNERSHIP OF HOUSEHOLD BY INCOME TYPE – MULTIFAMILY

E4 / Q44: Do you own or rent at this address? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Own	28%	59%	4%	33%	30%	60%	4%	27%	40%	67%	40%	66%	19%	55%
Rent	72%	41%	96%	67%	70%	40%	96%	73%	60%	33%	60%	34%	81%	45%
Respondents (n)	**860**	**1,014**	**67**	**39**	**785**	**963**	**51**	**30**	**387**	**391**	**375**	**375**	**335**	**512**

Tables A-7 through A-9 provide the ranges of household incomes.

TABLE A-7. HOUSEHOLD INCOME BY HOUSING TYPE

E5 / Q45: Please indicate the approximate total pre-tax household income for 2023 including wages, salaries, pensions, social security, etc. for all members of this household. Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Under $10,000	3%	6%	4%	15%	3%	6%	4%	15%	3%	5%	3%	5%	4%	6%
$10,000 - $15,000	2%	5%	3%	12%	1%	4%	3%	13%	1%	4%	1%	4%	2%	4%
$15,000 - $20,000	2%	2%	2%	9%	1%	2%	2%	10%	1%	1%	1%	1%	3%	2%
$20,000 - $25,000	3%	5%	4%	6%	3%	5%	4%	6%	2%	5%	2%	5%	5%	4%
$25,000 - $30,000	2%	4%	3%	6%	1%	4%	2%	5%	2%	4%	1%	4%	2%	3%
$30,000 - $35,000	3%	4%	5%	5%	3%	4%	5%	1%	2%	5%	2%	4%	5%	4%
$35,000 - $40,000	3%	4%	3%	9%	3%	3%	3%	9%	3%	4%	3%	4%	3%	3%
$40,000 - $45,000	4%	4%	6%	3%	3%	4%	6%	4%	3%	5%	3%	5%	2%	4%
$45,000 - $50,000	3%	3%	3%	2%	2%	3%	2%	3%	2%	5%	2%	5%	3%	2%
$50,000 - $60,000	7%	8%	8%	6%	6%	9%	8%	6%	6%	11%	6%	11%	9%	6%
$60,000 - $80,000	13%	13%	16%	9%	12%	13%	16%	9%	12%	15%	12%	15%	10%	11%
$80,000 - $100,000	12%	9%	13%	9%	12%	9%	13%	9%	13%	9%	13%	9%	10%	10%

E5 / Q45: Please indicate the approximate total pre-tax household income for 2023 including wages, salaries, pensions, social security, etc. for all members of this household. Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
$100,000 - $150,000	20%	15%	18%	9%	21%	15%	19%	10%	21%	14%	21%	14%	16%	16%
$150,000 or more	24%	18%	14%	3%	29%	19%	14%	1%	28%	12%	30%	11%	22%	26%
Respondents (n)	**1,712**	**1,710**	**520**	**103**	**1,113**	**1,588**	**419**	**80**	**945**	**705**	**816**	**678**	**201**	**775**
Average	***$99,500***	***$81,887***	***$82,400***	***$46,515***	***$107,382***	***$84,176***	***$83,680***	***$44,407***	***$106,701***	***$74,054***	***$109,564***	***$73,718***	***$90,596***	***$95,540***

TABLE A-8. HOUSEHOLD INCOME BY INCOME TYPE - SINGLE FAMILY

E5 / Q45: Please indicate the approximate total pre-tax household income for 2023 including wages, salaries, pensions, social security, etc. for all members of this household. Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Under $10,000	5%	2%	5%	3%	5%	2%	6%	2%	4%	2%	4%	2%	7%	2%
$10,000 - $15,000	5%	0%	7%	0%	4%	0%	7%	0%	4%	0%	4%	0%	5%	0%
$15,000 - $20,000	5%	0%	5%	0%	4%	0%	5%	0%	4%	0%	3%	0%	7%	0%
$20,000 - $25,000	8%	0%	10%	0%	8%	0%	9%	0%	7%	0%	7%	0%	11%	0%
$25,000 - $30,000	5%	0%	7%	0%	4%	0%	5%	0%	6%	0%	4%	0%	4%	0%
$30,000 - $35,000	10%	0%	12%	0%	8%	0%	12%	0%	7%	0%	8%	0%	11%	0%
$35,000 - $40,000	8%	0%	7%	0%	9%	0%	9%	0%	9%	0%	9%	0%	7%	0%
$40,000 - $45,000	10%	0%	16%	0%	7%	0%	16%	0%	9%	0%	8%	0%	5%	0%
$45,000 - $50,000	6%	0%	6%	0%	6%	0%	5%	0%	6%	1%	6%	0%	6%	0%

E5 / Q45: Please indicate the approximate total pre-tax household income for 2023 including wages, salaries, pensions, social security, etc. for all members of this household. Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
$50,000 - $60,000	17%	2%	14%	5%	18%	1%	13%	5%	18%	1%	18%	1%	18%	1%
$60,000 - $80,000	16%	11%	9%	21%	20%	7%	10%	20%	21%	8%	22%	7%	10%	10%
$80,000 - $100,000	4%	17%	2%	20%	5%	15%	2%	20%	6%	16%	6%	16%	3%	16%
$100,000 - $150,000	1%	31%	0%	29%	1%	31%	0%	31%	1%	31%	1%	31%	2%	30%
$150,000 or more	0%	37%	0%	23%	1%	44%	0%	23%	0%	41%	0%	44%	1%	41%
Respondents (n)	**608**	**1,104**	**204**	**316**	**382**	**731**	**164**	**255**	**307**	**638**	**266**	**550**	**96**	**105**
Average	***$42,672***	***$130,796***	***$37,592***	***$111,327***	***$45,672***	***$139,630***	***$37,473***	***$113,397***	***$46,325***	***$135,754***	***$47,522***	***$139,570***	***$40,510***	***$136,390***

TABLE A-8. HOUSEHOLD INCOME BY INCOME TYPE – MULTIFAMILY

E5 / Q45: Please indicate the approximate total pre-tax household income for 2023 including wages, salaries, pensions, social security, etc. for all members of this household. Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Under $10,000	9%	4%	17%	11%	8%	3%	18%	10%	7%	4%	7%	4%	10%	3%
$10,000 - $15,000	9%	0%	18%	0%	8%	0%	20%	0%	8%	0%	7%	0%	9%	0%
$15,000 - $20,000	5%	0%	14%	0%	4%	0%	16%	0%	2%	0%	2%	0%	6%	0%
$20,000 - $25,000	10%	0%	9%	0%	10%	0%	10%	0%	9%	0%	10%	0%	10%	0%
$25,000 - $30,000	8%	0%	9%	0%	7%	0%	8%	0%	8%	0%	8%	0%	6%	0%
$30,000 - $35,000	9%	0%	8%	0%	9%	0%	2%	0%	8%	0%	8%	0%	10%	0%
$35,000 - $40,000	8%	0%	14%	0%	7%	0%	14%	0%	8%	0%	8%	0%	6%	0%
$40,000 - $45,000	9%	0%	5%	0%	9%	0%	6%	0%	9%	0%	9%	0%	9%	0%

E5 / Q45: Please indicate the approximate total pre-tax household income for 2023 including wages, salaries, pensions, social security, etc. for all members of this household. Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
$45,000 - $50,000	6%	1%	2%	3%	6%	1%	2%	3%	8%	1%	9%	1%	5%	0%
$50,000 - $60,000	16%	1%	3%	11%	17%	0%	2%	14%	20%	1%	20%	1%	14%	0%
$60,000 - $80,000	11%	15%	3%	19%	12%	15%	4%	17%	10%	21%	10%	21%	13%	9%
$80,000 - $100,000	1%	17%	0%	24%	1%	17%	0%	24%	1%	19%	1%	19%	1%	16%
$100,000 - $150,000	1%	28%	0%	24%	1%	28%	0%	28%	1%	30%	1%	31%	1%	26%
$150,000 or more	0%	35%	0%	8%	1%	36%	0%	3%	1%	25%	1%	24%	1%	45%
Respondents (n)	**840**	**870**	**66**	**37**	**766**	**822**	**51**	**29**	**379**	**326**	**367**	**311**	**325**	**450**
Average	***$37,184***	***$125,049***	***$23,372***	***$87,799***	***$38,398***	***$126,835***	***$22,719***	***$82,548***	***$39,785***	***$113,895***	***$40,165***	***$113,314***	***$36,972***	***$137,839***

Table A-9 shows the percentage of each utility and housing type that is low income and not low income. This was not a survey question, but was calculated from the income levels in the previous tables.

TABLE A-9. INCOME TYPE

Income Status of Survey Respondents Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Low Income	33%	47%	37%	64%	32%	46%	37%	63%	30%	51%	30%	51%	47%	41%
Not Low Income	67%	53%	63%	36%	68%	54%	63%	37%	70%	49%	70%	49%	53%	59%
No Response (n)	221	311	70	16	146	292	56	12	120	142	102	137	34	150
Total Responses	**1,953**	**1,931**	**574**	**108**	**1,294**	**1,803**	**461**	**82**	**1,089**	**800**	**947**	**771**	**238**	**879**

APPENDIX B Building Characteristics

Appendix B includes tables of building characteristics asked about on the online and on-site surveys. Results from the surveys are provided by utility and a combined total, by housing type, and by income type. Note that some survey participants did not include their income in the survey, so those participants are not included in the tables of results by income type.

Tables B-1 through B-3 provide the types of home for the survey participants. For the respondents who answered “other”, the majority wrote in that their home was one of the dwelling types already listed (e.g., townhouses, single family homes, duplexes). The remaining participants who answered “other” stated that they lived in a triplex, quadruplex, high rise, senior home, coach home, or mixed-use facility.

TABLE B-1. TYPE OF HOME BY HOUSING TYPE

S4 / Q4: What type of home is this dwelling? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Single family home	88%	0%	89%	0%	87%	0%	91%	0%	90%	0%	91%	0%	70%	0%
Duplex (2 dwelling units)	9%	0%	6%	0%	10%	0%	6%	0%	7%	0%	7%	0%	28%	0%
Townhouse/Row home	0%	14%	0%	10%	0%	14%	0%	9%	0%	26%	0%	25%	0%	4%
Condominium	0%	35%	0%	8%	0%	36%	0%	7%	0%	33%	0%	33%	0%	38%
Apartment	0%	49%	0%	77%	0%	48%	0%	78%	0%	39%	0%	39%	0%	56%
Mobile/manufactured home	2%	0%	4%	0%	1%	0%	3%	0%	2%	0%	1%	0%	0%	0%
Other (please specify)	1%	2%	0%	5%	1%	2%	0%	7%	1%	2%	1%	2%	2%	2%
I don’t know (n)	4	15	0	0	4	15	0	0	2	6	2	6	2	9
Respondents (n)	**2,083**	**2,032**	**615**	**118**	**1,381**	**1,892**	**495**	**90**	**1,158**	**843**	**1,008**	**812**	**256**	**923**

TABLE B-2. TYPE OF HOME BY INCOME TYPE - SINGLE FAMILY

S4 / Q4: What type of home is this dwelling? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Single family home	80%	93%	82%	94%	80%	92%	86%	94%	82%	95%	85%	95%	66%	76%
Duplex (2 dwelling units)	14%	6%	9%	5%	18%	7%	6%	6%	13%	5%	12%	5%	31%	24%
Townhouse/Row home	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Condominium	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

S4 / Q4: What type of home is this dwelling? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Apartment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Mobile/manufactured home	5%	1%	9%	1%	2%	1%	7%	1%	5%	0%	3%	0%	1%	0%
Other (please specify)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%
I don't know (n)	9	8	2	0	6	8	1	0	5	6	4	6	2	1
Respondents (n)	**637**	**1,291**	**211**	**360**	**405**	**868**	**170**	**289**	**316**	**757**	**274**	**658**	**109**	**124**

TABLE B-3. TYPE OF HOME BY INCOME TYPE – MULTIFAMILY

S4 / Q4: What type of home is this dwelling? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Single family home	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Duplex (2 dwelling units)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Townhouse/Row home	10%	18%	14%	6%	10%	17%	13%	4%	16%	36%	16%	35%	2%	4%
Condominium	24%	46%	3%	19%	25%	48%	2%	14%	31%	38%	32%	38%	18%	54%
Apartment	66%	36%	83%	75%	64%	35%	85%	82%	53%	26%	52%	27%	79%	42%
Mobile/manufactured home	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other (please specify)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
I don't know (n)	21	18	3	3	17	15	4	2	11	4	11	3	3	12
Respondents (n)	**869**	**1,004**	**65**	**36**	**797**	**956**	**47**	**28**	**386**	**391**	**373**	**376**	**350**	**504**

Tables B-4 and B-5 list the number of dwelling units per building. This is only applicable for multifamily homes.

TABLE B-4. NUMBER OF DWELLING UNITS BY HOUSING TYPE

S5 / Q5: How many dwelling units are in the building that this unit occupies? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
3 to 4 units	NR	27%	NR	39%	NR	26%	NR	36%	NR	33%	NR	32%	NR	22%
5 to 9 units	NR	25%	NR	20%	NR	26%	NR	22%	NR	25%	NR	25%	NR	27%
10 to 19 units	NR	13%	NR	24%	NR	12%	NR	25%	NR	13%	NR	13%	NR	10%
20 to 49 units	NR	14%	NR	10%	NR	14%	NR	9%	NR	15%	NR	15%	NR	13%
More than 50 units	NR	21%	NR	8%	NR	22%	NR	8%	NR	14%	NR	15%	NR	28%
I don't know (n)	0	118	0	10	0	107	0	8	0	50	0	48	0	52
Respondents (n)	**0**	**1,872**	**0**	**102**	**0**	**1,750**	**0**	**76**	**0**	**776**	**0**	**748**	**0**	**855**

TABLE B-5. NUMBER OF DWELLING UNITS BY INCOME TYPE – MULTIFAMILY

S5 / Q5: How many dwelling units are in the building that this unit occupies? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
3 to 4 units	30%	23%	38%	48%	29%	22%	34%	48%	32%	32%	32%	31%	29%	17%
5 to 9 units	25%	26%	23%	9%	25%	27%	25%	16%	23%	28%	23%	28%	27%	27%
10 to 19 units	14%	11%	18%	27%	14%	10%	18%	24%	17%	9%	17%	10%	11%	10%
20 to 49 units	13%	15%	10%	12%	14%	15%	9%	12%	14%	16%	14%	16%	12%	15%
More than 50 units	18%	24%	11%	3%	18%	25%	14%	0%	14%	15%	14%	15%	21%	32%
I don't know (n)	65	34	4	3	61	30	3	3	28	15	28	14	28	15
Respondents (n)	**801**	**970**	**61**	**33**	**733**	**926**	**44**	**25**	**358**	**376**	**345**	**362**	**319**	**489**

APPENDIX C Space Heating

Appendix C includes tables of space heating equipment asked about on the online and on-site surveys. Results from the surveys are provided by utility and a combined total, by housing type, and by income type. Note that some survey participants did not include their income in the survey, so those participants are not included in the tables of results by income type. Residential site visits were used to verify the online response and inform adjustments to the shares of heating fuels and equipment types. See Section 3.2 for further details on how adjustments were made.

Tables C-1 through C-3 provide the primary space heating fuel and heating system type for survey participants.

TABLE C-1. PRIMARY SPACE HEATING FUEL AND HEATING SYSTEM BY HOUSING TYPE

A3 / Q9: What is the main fuel type and heating system used in your home? (For respondents with only one fuel type)

Fuel	Heating System	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Electric	Furnace	3%	6%	6%	16%	1%	5%	6%	18%	1%	5%	1%	5%	2%	4%
	Air source heat pump (with ductwork)	1%	3%	2%	6%	1%	3%	3%	6%	0%	2%	0%	2%	0%	4%
	Baseboards for space heating	0%	6%	1%	20%	0%	5%	1%	15%	0%	6%	0%	6%	0%	3%
	Wall/room heater	0%	5%	1%	8%	0%	5%	0%	9%	0%	3%	0%	3%	0%	5%
	Geothermal heat pump	1%	0%	2%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
	Water source heat pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Ductless heat pump (mini-split)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subtotal - Electric		***6%***	***21%***	***13%***	***49%***	***3%***	***19%***	***13%***	***48%***	***2%***	***15%***	***2%***	***16%***	***3%***	***17%***
Natural Gas	Furnace	83%	60%	78%	45%	85%	60%	80%	44%	90%	67%	90%	66%	74%	59%
	Boiler (water heater or steam)	8%	16%	5%	3%	9%	16%	5%	5%	7%	14%	7%	15%	19%	20%
	Stove or fireplace	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Air source heat pump (with ductwork)	1%	2%	1%	0%	1%	2%	1%	0%	0%	2%	0%	2%	3%	2%
	Geothermal heat pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Water source heat pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Wall/room heater	0%	1%	0%	1%	1%	1%	0%	2%	0%	2%	0%	2%	2%	1%
Subtotal - Natural Gas		***92%***	***78%***	***83%***	***49%***	***96%***	***80%***	***86%***	***50%***	***98%***	***84%***	***98%***	***84%***	***97%***	***82%***
Propane (bottled gas)	Furnace	2%	0%	3%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%
	Boiler (hot water or steam)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subtotal - Propane (bottled gas)		***2%***	***0%***	***3%***	***0%***	***1%***	***0%***	***1%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***
Fuel Oil	Boiler (hot water or steam)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Subtotal - Fuel Oil		***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***1%***
Wood	Stove or fireplace	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Furnace	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

A3 / Q9: What is the main fuel type and heating system used in your home? (For respondents with only one fuel type)															
Fuel	Heating System	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
	Boiler (hot water or steam)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subtotal - Wood		***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***

TABLE C-2. PRIMARY SPACE HEATING FUEL AND HEATING SYSTEM BY INCOME TYPE - SINGLE FAMILY

A3 / Q9: What is the main fuel type and heating system used in your home? (For respondents with only one fuel type)															
Fuel	Heating System	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Electric	Furnace	4%	2%	6%	6%	2%	1%	5%	7%	3%	1%	2%	1%	1%	3%
	Air source heat pump (with ductwork)	2%	1%	4%	2%	0%	1%	4%	3%	0%	0%	0%	0%	0%	0%
	Baseboards for space heating	1%	0%	3%	0%	1%	0%	3%	0%	0%	0%	0%	0%	0%	0%
	Wall/room heater	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
	Geothermal heat pump	0%	1%	1%	3%	0%	0%	1%	2%	0%	0%	0%	0%	0%	0%
	Water source heat pump	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%
	Ductless heat pump (mini-split)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subtotal - Electric		***8%***	***5%***	***15%***	***13%***	***4%***	***2%***	***12%***	***14%***	***4%***	***1%***	***3%***	***1%***	***2%***	***3%***
Natural Gas	Furnace	79%	85%	79%	78%	78%	88%	84%	79%	83%	92%	83%	92%	69%	77%
	Boiler (water heater or steam)	10%	6%	3%	5%	13%	7%	3%	5%	10%	6%	11%	6%	22%	16%
	Stove or fireplace	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%
	Air source heat pump (with ductwork)	1%	1%	0%	1%	1%	1%	0%	1%	0%	0%	0%	0%	3%	3%
	Geothermal heat pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Water source heat pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Wall/room heater	1%	0%	0%	0%	2%	0%	0%	0%	1%	0%	1%	0%	3%	1%

A3 / Q9: What is the main fuel type and heating system used in your home? (For respondents with only one fuel type)															
Fuel	**Heating System**	**SF-LI**	**SF-NLI**	**Ameren-E-SF-LI**	**Ameren-E-SF-NLI**	**ComEd-SF-LI**	**ComEd-SF-NLI**	**Ameren-G-SF-LI**	**Ameren-G-SF-NLI**	**Nicor-SF-LI**	**Nicor-SF-NLI**	**ComEd-Nicor-SF-LI**	**ComEd-Nicor-SF-NLI**	**ComEd-Peoples Gas-SF-LI**	**ComEd-Peoples Gas-SF-NLI**
Subtotal - Natural Gas		***91%***	***93%***	***83%***	***84%***	***95%***	***97%***	***87%***	***86%***	***95%***	***99%***	***96%***	***99%***	***98%***	***97%***
Propane (bottled gas)	Furnace	1%	2%	2%	3%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
	Boiler (hot water or steam)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subtotal - Propane (bottled gas)		***1%***	***2%***	***2%***	***3%***	***1%***	***1%***	***1%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***
Fuel Oil	Boiler (hot water or steam)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subtotal - Fuel Oil		***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***
Wood	Stove or fireplace	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Furnace	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Boiler (hot water or steam)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subtotal - Wood		***0%***	***0%***	***1%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***

TABLE C-3. PRIMARY SPACE HEATING FUEL AND HEATING SYSTEM BY INCOME TYPE – MULTIFAMILY

A3 / Q9: What is the main fuel type and heating system used in your home? (For respondents with only one fuel type)															
Fuel	**Heating System**	**MF-LI**	**MF-NLI**	**Ameren-E-MF-LI**	**Ameren-E-MF-NLI**	**ComEd-MF-LI**	**ComEd-MF-NLI**	**Ameren-G-MF-LI**	**Ameren-G-MF-NLI**	**Nicor-MF-LI**	**Nicor-MF-NLI**	**ComEd-Nicor-MF-LI**	**ComEd-Nicor-MF-NLI**	**ComEd-Peoples Gas-MF-LI**	**ComEd-Peoples Gas-MF-NLI**
Electric	Furnace	8%	4%	14%	15%	7%	3%	16%	19%	7%	3%	6%	3%	5%	3%
	Air source heat pump (with ductwork)	2%	5%	4%	6%	2%	5%	5%	4%	1%	2%	1%	2%	0%	7%
	Baseboards for space heating	9%	4%	28%	6%	7%	4%	24%	4%	8%	4%	9%	4%	3%	3%
	Wall/room heater	7%	4%	10%	6%	7%	4%	11%	8%	3%	2%	3%	2%	8%	4%
	Geothermal heat pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Water source heat pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%
	Ductless heat pump (mini-split)	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%

A3 / Q9: What is the main fuel type and heating system used in your home? (For respondents with only one fuel type)															
Fuel	Heating System	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Subtotal - Electric		***25%***	***18%***	***56%***	***36%***	***22%***	***17%***	***57%***	***38%***	***20%***	***11%***	***20%***	***12%***	***16%***	***18%***
Natural Gas	Furnace	52%	66%	38%	61%	53%	66%	38%	54%	58%	76%	57%	75%	54%	62%
	Boiler (water heater or steam)	19%	13%	4%	3%	21%	13%	3%	8%	18%	10%	19%	11%	26%	16%
	Stove or fireplace	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Air source heat pump (with ductwork)	1%	2%	0%	0%	1%	2%	0%	0%	2%	1%	2%	2%	1%	3%
	Geothermal heat pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Water source heat pump	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
	Wall/room heater	2%	1%	2%	0%	2%	1%	3%	0%	3%	1%	3%	1%	1%	1%
Subtotal - Natural Gas		***74%***	***82%***	***44%***	***64%***	***77%***	***83%***	***43%***	***62%***	***80%***	***89%***	***80%***	***88%***	***82%***	***82%***
Propane (bottled gas)	Furnace	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Boiler (hot water or steam)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subtotal - Propane (bottled gas)		***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***
Fuel Oil	Boiler (hot water or steam)	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	2%	0%
Subtotal - Fuel Oil		***1%***	***0%***	***0%***	***0%***	***1%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***2%***	***0%***
Wood	Stove or fireplace	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Furnace	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Boiler (hot water or steam)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subtotal - Wood		***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***	***0%***

APPENDIX D Space Cooling

Appendix D includes tables of space cooling equipment asked about on the online and on-site surveys. Results from the surveys are provided by utility and a combined total, by housing type, and by income type. Note that some survey participants did not include their income in the survey, so those participants are not included in the tables of results by income type.

Tables D-1 and D-2 provide responses to whether the cooling equipment in multifamily units serves only the respondent's unit or multiple units. This question was not asked to single family survey participants.

TABLE D-1. COOLING EQUIPMENT FOR MULTIFAMILY HOMES BY HOUSING TYPE

A7 / Q13: Do you have cooling equipment in your apartment or unit that only serves your apartment or unit? Answer	SF	MF	Ameren -E-SF	Ameren -E-MF	ComEd-SF	ComEd-MF	Ameren -G-SF	Ameren -G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Yes, the cooling equipment only serves my unit	NR	89%	NR	91%	NR	89%	NR	91%	NR	94%	NR	94%	NR	84%
No, the cooling equipment serves multiple units	NR	11%	NR	9%	NR	11%	NR	9%	NR	6%	NR	6%	NR	16%
Don't know (n)	0	121	0	5	0	116	0	5	0	33	0	33	0	78
Respondents (n)	**0**	**1,822**	**0**	**104**	**0**	**1,697**	**0**	**77**	**0**	**775**	**0**	**746**	**0**	**803**

TABLE D-2. COOLING EQUIPMENT FOR MULTIFAMILY HOMES BY INCOME TYPE - MULTIFAMILY

A7 / Q13: Do you have cooling equipment in your apartment or unit that only serves your apartment or unit? Answer	MF-LI	MF-NLI	Ameren -E-MF-LI	Ameren -E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren -G-MF-LI	Ameren -G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Yes, the cooling equipment only serves my unit	87%	90%	92%	91%	87%	90%	91%	88%	91%	96%	91%	95%	81%	85%
No, the cooling equipment serves multiple units	13%	10%	8%	9%	13%	10%	9%	12%	9%	4%	9%	5%	19%	15%
Don't know (n)	68	46	3	2	65	44	2	3	19	11	19	11	44	31
Respondents (n)	**792**	**957**	**61**	**34**	**724**	**911**	**45**	**25**	**364**	**379**	**352**	**364**	**300**	**473**

Tables D-3 through D-5 include the type of cooling system in respondents' homes. The most common response for single family survey respondents who answered "other" was geothermal heat pumps (42%). The most common response for multifamily survey respondents who answered "other" was fans (28%). There were several other responses listed by respondents in the "other" category, including whole house fans, PTAC units, and ceiling fans.

TABLE D-3. TYPES OF COOLING SYSTEM BY HOUSING TYPE

A8 / Q14: What type(s) of cooling system, if any, does your home have? Answer	SF	MF	Ameren -E-SF	Ameren -E-MF	ComEd-SF	ComEd-MF	Ameren -G-SF	Ameren -G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Central air conditioning (whole house air conditioning, not including heat pumps)	86%	63%	85%	57%	86%	63%	86%	57%	92%	69%	92%	68%	66%	58%
Wall / window air conditioning	13%	31%	16%	39%	12%	31%	14%	37%	10%	26%	9%	27%	27%	34%
Air source heat pump (with ducts)	2%	3%	3%	5%	1%	3%	3%	5%	1%	2%	1%	2%	1%	3%
Ductless heat pump (mini-split)	1%	1%	1%	0%	1%	1%	1%	0%	0%	1%	0%	1%	1%	1%
Ductless air conditioner (mini-split)	1%	1%	1%	1%	0%	1%	1%	1%	1%	0%	0%	0%	0%	1%
Portable / floor-based air conditioning unit	2%	3%	1%	1%	2%	3%	1%	0%	1%	3%	1%	3%	6%	3%
Other (please specify)	1%	2%	2%	0%	1%	2%	2%	0%	1%	2%	1%	2%	0%	2%
No cooling system	2%	1%	1%	0%	3%	1%	1%	0%	1%	0%	1%	0%	9%	1%
Don't know (n)	7	27	0	1	7	26	1	1	5	9	5	9	1	14
Respondents (n)	**2,037**	**1,628**	**604**	**100**	**1,346**	**1,507**	**486**	**75**	**1,133**	**730**	**985**	**702**	**248**	**674**

TABLE D-4. TYPES OF COOLING SYSTEM BY INCOME TYPE - SINGLE FAMILY

A8 / Q14: What type(s) of cooling system, if any, does your home have? Answer	SF-LI	SF-NLI	Ameren -E-SF-LI	Ameren -E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren -G-SF-LI	Ameren -G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Central air conditioning (whole house air conditioning, not including heat pumps)	77%	91%	76%	91%	77%	91%	79%	91%	85%	94%	85%	94%	55%	75%
Wall / window air conditioning	22%	9%	24%	11%	22%	8%	21%	10%	18%	7%	17%	6%	35%	22%
Air source heat pump (with ducts)	2%	2%	4%	3%	0%	1%	3%	4%	1%	1%	1%	1%	0%	1%
Ductless heat pump (mini-split)	0%	1%	1%	1%	0%	1%	1%	1%	0%	1%	0%	0%	0%	1%
Ductless air conditioner (mini-split)	0%	1%	1%	1%	0%	1%	2%	1%	0%	1%	0%	1%	0%	0%
Portable / floor-based air conditioning unit	3%	1%	1%	1%	3%	1%	1%	1%	2%	1%	1%	1%	8%	4%
Other (please specify)	0%	2%	0%	4%	0%	1%	1%	3%	0%	1%	0%	1%	0%	1%

A8 / Q14: What type(s) of cooling system, if any, does your home have? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
No cooling system	4%	1%	1%	0%	5%	2%	1%	0%	2%	1%	2%	1%	14%	6%
Don't know (n)	4	3	0	0	4	3	0	1	3	2	3	2	1	0
Respondents (n)	**636**	**1,296**	**212**	**360**	**402**	**873**	**170**	**288**	**317**	**761**	**274**	**662**	**106**	**125**

TABLE D-5. TYPES OF COOLING SYSTEM BY INCOME TYPE – MULTIFAMILY

A8 / Q14: What type(s) of cooling system, if any, does your home have? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Central air conditioning (whole house air conditioning, not including heat pumps)	51%	72%	43%	74%	51%	71%	45%	67%	57%	80%	57%	80%	44%	67%
Wall / window air conditioning	43%	22%	52%	24%	43%	22%	48%	29%	37%	15%	38%	15%	47%	26%
Air source heat pump (with ducts)	3%	3%	7%	3%	2%	3%	9%	0%	2%	2%	2%	3%	3%	3%
Ductless heat pump (mini-split)	1%	1%	0%	0%	1%	1%	0%	0%	1%	1%	1%	1%	1%	1%
Ductless air conditioner (mini-split)	0%	1%	0%	3%	0%	1%	0%	4%	0%	1%	0%	1%	0%	1%
Portable / floor-based air conditioning unit	4%	2%	2%	0%	4%	3%	0%	0%	4%	2%	4%	2%	5%	2%
Other (please specify)	1%	2%	0%	0%	1%	2%	0%	0%	1%	2%	2%	2%	2%	3%
No cooling system	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	1%	0%	3%	0%
Don't know (n)	13	11	1	0	12	11	1	0	3	4	3	4	7	6
Respondents (n)	**697**	**868**	**58**	**34**	**632**	**822**	**44**	**24**	**340**	**363**	**329**	**347**	**239**	**410**

Tables D-6 through D-8 include the percentage of survey respondents answering that they had a wall / window air conditioning unit that had one, two, three, or four or more units. The average count of units is included as well.

TABLE D-6. NUMBER OF WALL / WINDOW AIR CONDITIONING UNITS BY HOUSING TYPE

A9 / Q15: How many wall / window air conditioning units does your home have? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
1 unit	40%	45%	45%	59%	36%	44%	42%	64%	45%	50%	44%	49%	26%	38%
2 units	32%	37%	29%	33%	35%	37%	30%	29%	29%	37%	30%	38%	39%	39%
3 units	17%	12%	15%	8%	19%	12%	16%	7%	14%	10%	15%	10%	24%	14%
4+ units	11%	6%	11%	0%	10%	7%	12%	0%	12%	3%	11%	3%	11%	9%
Respondents (n)	**266**	**507**	**96**	**39**	**165**	**467**	**69**	**28**	**111**	**187**	**89**	**184**	**66**	**226**
Average Count of Units	**1.98**	**1.79**	**1.93**	**1.49**	**2.03**	**1.81**	**1.97**	**1.43**	**1.93**	**1.66**	**1.93**	**1.67**	**2.20**	**1.93**

TABLE D-7. NUMBER OF WALL / WINDOW AIR CONDITIONING UNITS BY INCOME TYPE - SINGLE FAMILY

A9 / Q15: How many wall / window air conditioning units does your home have? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
1 unit	36%	46%	36%	59%	36%	39%	34%	55%	41%	51%	41%	49%	27%	27%
2 units	34%	27%	34%	21%	34%	32%	37%	21%	30%	25%	33%	27%	35%	38%
3 units	21%	12%	22%	3%	22%	15%	20%	7%	20%	8%	17%	10%	30%	19%
4+ units	8%	15%	8%	18%	8%	14%	9%	17%	9%	16%	9%	15%	8%	15%
Respondents (n)	**140**	**113**	**50**	**39**	**87**	**72**	**35**	**29**	**56**	**51**	**46**	**41**	**37**	**26**
Average Count of Units	**2.01**	**1.96**	**2.02**	**1.79**	**2.02**	**2.04**	**2.03**	**1.86**	**1.96**	**1.88**	**1.93**	**1.90**	**2.19**	**2.23**

TABLE D-8. NUMBER OF WALL / WINDOW AIR CONDITIONING UNITS BY INCOME TYPE -MULTIFAMILY

A9 / Q15: How many wall / window air conditioning units does your home have? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
1 unit	54%	32%	70%	25%	52%	32%	81%	14%	54%	38%	54%	37%	47%	29%
2 units	34%	43%	23%	63%	35%	43%	14%	71%	34%	47%	33%	48%	37%	42%
3 units	10%	14%	7%	13%	10%	14%	5%	14%	10%	9%	11%	10%	10%	16%
4+ units	3%	11%	0%	0%	3%	11%	0%	0%	2%	6%	2%	6%	5%	13%
Respondents (n)	**295**	**192**	**30**	**8**	**265**	**183**	**21**	**7**	**125**	**53**	**123**	**52**	**110**	**107**
Average Count of Units	**1.62**	**2.04**	**1.37**	**1.88**	**1.65**	**2.05**	**1.24**	**2.00**	**1.59**	**1.83**	**1.59**	**1.85**	**1.74**	**2.13**

Tables D-9 through D-11 include the percentage of survey respondents answering that they had a ductless mini-split unit that had one, two, three, four, five, or six or more units. The average count of units is included as well.

TABLE D-9. NUMBER OF DUCTLESS MINI-SPLIT UNITS BY HOUSING TYPE

A10 / Q16: How many ductless mini-split units are there inside your home? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
1 unit	43%	58%	36%	100%	45%	56%	38%	100%	40%	57%	33%	57%	50%	55%
2 units	26%	21%	45%	0%	9%	22%	38%	0%	20%	29%	0%	29%	0%	18%
3 units	9%	5%	9%	0%	9%	6%	13%	0%	0%	0%	0%	0%	50%	9%
4 units	13%	11%	0%	0%	27%	11%	0%	0%	30%	14%	50%	14%	0%	9%
5 units	4%	0%	9%	0%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%
6+ units	4%	5%	0%	0%	9%	6%	0%	0%	10%	0%	17%	0%	0%	9%
Respondents (n)	**23**	**19**	**11**	**1**	**11**	**18**	**8**	**1**	**10**	**7**	**6**	**7**	**2**	**11**
Average Count of Units	**2.22**	**1.89**	**2.00**	**1.00**	**2.55**	**1.94**	**2.13**	**1.00**	**2.60**	**1.71**	**3.33**	**1.71**	**2.00**	**2.09**

TABLE D-10. NUMBER OF DUCTLESS MINI-SPLIT UNITS BY INCOME TYPE - SINGLE FAMILY

A10 / Q16: How many ductless mini-split units are there inside your home? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
1 unit	50%	41%	33%	38%	NR	44%	50%	25%	NR	44%	NR	40%	NR	0%
2 units	25%	29%	33%	50%	NR	11%	25%	50%	NR	22%	NR	0%	NR	0%
3 units	0%	12%	0%	13%	NR	11%	0%	25%	NR	0%	NR	0%	NR	100%
4 units	0%	12%	0%	0%	NR	22%	0%	0%	NR	22%	NR	40%	NR	0%
5 units	25%	0%	33%	0%	NR	0%	25%	0%	NR	0%	NR	0%	NR	0%
6+ units	0%	6%	0%	0%	NR	11%	0%	0%	NR	11%	NR	20%	NR	0%
Respondents (n)	**4**	**17**	**3**	**8**	**0**	**9**	**4**	**4**	**0**	**9**	**0**	**5**	**0**	**1**
Average Count of Units	**2.25**	**2.18**	**2.67**	**1.75**	**0.00**	**2.56**	**2.25**	**2.00**	**0.00**	**2.44**	**0.00**	**3.20**	**0.00**	**3.00**

TABLE D-11. NUMBER OF DUCTLESS MINI-SPLIT UNITS BY INCOME TYPE -MULTIFAMILY

A10 / Q16: How many ductless mini-split units are there inside your home? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
1 unit	40%	64%	NR	100%	40%	62%	NR	100%	50%	60%	50%	60%	33%	63%
2 units	40%	14%	NR	0%	40%	15%	NR	0%	50%	20%	50%	20%	33%	13%
3 units	0%	7%	NR	0%	0%	8%	NR	0%	0%	0%	0%	0%	0%	13%
4 units	0%	14%	NR	0%	0%	15%	NR	0%	0%	20%	0%	20%	0%	13%
5 units	0%	0%	NR	0%	0%	0%	NR	0%	0%	0%	0%	0%	0%	0%
6+ units	20%	0%	NR	0%	20%	0%	NR	0%	0%	0%	0%	0%	33%	0%
Respondents (n)	**5**	**14**	**0**	**1**	**5**	**13**	**0**	**1**	**2**	**5**	**2**	**5**	**3**	**8**
Average Count of Units	**2.40**	**1.71**	**0.00**	**1.00**	**2.40**	**1.77**	**0.00**	**1.00**	**1.50**	**1.80**	**1.50**	**1.80**	**3.00**	**1.75**

Tables D-12 through D-14 include the percentage of survey respondents answering that they had a portable air conditioning unit that had one or two or more units. The average count of units is included as well.

TABLE D-12. NUMBER OF PORTABLE AIR CONDITIONING UNITS BY HOUSING TYPE

A11 / Q17: How many portable / floor-based air conditioning units does your home have? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
1 unit	81%	81%	71%	100%	83%	81%	100%	NR	92%	91%	100%	90%	71%	68%
2+ units	19%	19%	29%	0%	17%	19%	0%	NR	8%	9%	0%	10%	29%	32%
Respondents (n)	**32**	**48**	**7**	**1**	**24**	**47**	**4**	**0**	**13**	**22**	**10**	**21**	**14**	**22**
Average Count of Units	**1.19**	**1.19**	**1.29**	**1.00**	**1.17**	**1.19**	**1.00**	**0.00**	**1.08**	**1.09**	**1.00**	**1.10**	**1.29**	**1.32**

TABLE D-13. NUMBER OF PORTABLE AIR CONDITIONING UNITS BY INCOME TYPE - SINGLE FAMILY

A11 / Q17: How many portable / floor-based air conditioning units does your home have? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
1 unit	81%	80%	67%	75%	85%	80%	100%	100%	83%	100%	100%	100%	78%	60%
2+ units	19%	20%	33%	25%	15%	20%	0%	0%	17%	0%	0%	0%	22%	40%
Respondents (n)	**16**	**15**	**3**	**4**	**13**	**10**	**1**	**3**	**6**	**6**	**4**	**5**	**9**	**5**

A11 / Q17: How many portable / floor-based air conditioning units does your home have? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Average Count of Units	**0.81**	**0.80**	**0.67**	**0.75**	**0.85**	**0.80**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

TABLE D-14. NUMBER OF PORTABLE AIR CONDITIONING UNITS BY INCOME TYPE – MULTIFAMILY

A11 / Q17: How many portable / floor-based air conditioning units does your home have? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
1 unit	82%	80%	100%	NR	81%	80%	NR	NR	93%	88%	92%	88%	69%	67%
2+ units	18%	20%	0%	NR	19%	20%	NR	NR	7%	13%	8%	13%	31%	33%
Respondents (n)	**28**	**20**	**1**	**0**	**27**	**20**	**0**	**0**	**14**	**8**	**13**	**8**	**13**	**9**
Average Count of Units	**0.82**	**0.80**	**1.00**	**0.00**	**0.81**	**0.80**	**0.00**	**0.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

APPENDIX E Other HVAC

Appendix E includes tables of other HVAC equipment not included in Appendices C and D asked about on the online and on-site surveys. Results from the surveys are provided by utility and a combined total, by housing type, and by income type. Note that some survey participants did not include their income in the survey, so those participants are not included in the tables of results by income type.

Tables E-1 through E-3 display if the survey respondents have dehumidifiers in their home.

TABLE E-1. DEHUMIDIFIERS BY HOUSING TYPE

A12 / Q18: Do you use a dehumidifier at your home? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Yes	41%	16%	36%	14%	43%	16%	33%	12%	45%	17%	44%	16%	34%	15%
No	59%	84%	64%	86%	57%	84%	67%	88%	55%	83%	56%	84%	66%	85%
Don't know (n)	27	74	4	2	23	72	3	1	18	34	17	34	6	35
Respondents (n)	**1,990**	**1,866**	**597**	**111**	**1,306**	**1,736**	**482**	**85**	**1,099**	**769**	**953**	**742**	**239**	**845**

TABLE E-2. DEHUMIDIFIERS BY INCOME TYPE - SINGLE FAMILY

A12 / Q18: Do you use a dehumidifier at your home? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Yes	33%	45%	31%	40%	33%	47%	30%	37%	34%	49%	34%	48%	28%	39%
No	67%	55%	69%	60%	67%	53%	70%	63%	66%	51%	66%	52%	72%	61%
Don't know (n)	13	9	2	1	11	8	1	1	8	8	7	8	4	0
Respondents (n)	**621**	**1,274**	**210**	**356**	**389**	**855**	**169**	**286**	**308**	**743**	**266**	**645**	**101**	**123**

TABLE E-3. DEHUMIDIFIERS BY INCOME TYPE - MULTIFAMILY

A12 / Q18: Do you use a dehumidifier at your home? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Yes	16%	16%	14%	16%	16%	16%	14%	10%	16%	17%	16%	17%	17%	15%
No	84%	84%	86%	84%	84%	84%	86%	90%	84%	83%	84%	83%	83%	85%
Don't know (n)	36	26	2	0	34	26	1	0	17	11	17	11	15	15
Respondents (n)	**827**	**973**	**64**	**38**	**755**	**926**	**49**	**29**	**369**	**373**	**357**	**360**	**325**	**492**

Tables E-4 through E-6 show if the survey participants have had preventative maintenance tune-ups in the past 12 months for their heating equipment and Central ACs.

TABLE E-4. PREVENTATIVE MAINTENANCE TUNE-UPS BY HOUSING TYPE

A13 / Q19: Have you had a preventative maintenance tune-up for the following in the past 12 months? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Heating Equipment:														
Yes	61%	50%	51%	35%	66%	51%	52%	42%	65%	56%	67%	56%	62%	47%
No	39%	50%	49%	65%	34%	49%	48%	58%	35%	44%	33%	44%	38%	53%
Don't know (n)	44	298	12	24	32	274	9	20	20	100	18	97	12	157
Respondents (n)	**1,963**	**1,639**	**583**	**88**	**1,295**	**1,530**	**470**	**67**	**1,095**	**696**	**951**	**670**	**232**	**724**
Central AC:														
Yes	59%	58%	53%	57%	62%	57%	53%	69%	61%	63%	62%	63%	56%	51%
No	41%	42%	47%	43%	38%	43%	47%	31%	39%	37%	38%	37%	44%	49%
Don't know (n)	29	74	11	9	18	64	8	8	13	32	11	30	7	29
Respondents (n)	**1,691**	**928**	**489**	**47**	**1,122**	**862**	**401**	**35**	**1,003**	**460**	**875**	**437**	**153**	**359**

TABLE E-5. PREVENTATIVE MAINTENANCE TUNE-UPS BY INCOME TYPE - SINGLE FAMILY

A13 / Q19: Have you had a preventative maintenance tune-up for the following in the past 12 months? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Heating Equipment:														
Yes	54%	64%	47%	54%	58%	69%	47%	56%	60%	67%	60%	69%	57%	64%
No	46%	36%	53%	46%	42%	31%	53%	44%	40%	33%	40%	31%	43%	36%
Don't know (n)	27	14	10	2	17	12	7	2	13	6	11	6	4	6
Respondents (n)	**600**	**1,277**	**201**	**358**	**378**	**857**	**162**	**287**	**299**	**749**	**258**	**651**	**100**	**119**
Central AC:														

A13 / Q19: Have you had a preventative maintenance tune-up for the following in the past 12 months? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Yes	55%	60%	49%	55%	59%	62%	46%	56%	61%	61%	60%	63%	56%	53%
No	45%	40%	51%	45%	41%	38%	54%	44%	39%	39%	40%	37%	44%	47%
Don't know (n)	16	10	9	2	7	8	6	2	7	5	5	5	2	3
Respondents (n)	**467**	**1,156**	**152**	**323**	**295**	**775**	**129**	**259**	**258**	**704**	**225**	**612**	**54**	**90**

TABLE E-6. PREVENTATIVE MAINTENANCE TUNE-UPS BY INCOME TYPE – MULTIFAMILY

A13 / Q19: Have you had a preventative maintenance tune-up for the following in the past 12 months? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Heating Equipment:														
Yes	41%	57%	31%	39%	42%	57%	36%	46%	47%	64%	47%	64%	37%	53%
No	59%	43%	69%	61%	58%	43%	64%	54%	53%	36%	53%	36%	63%	47%
Don't know (n)	163	119	14	6	149	113	11	6	64	30	62	30	71	80
Respondents (n)	**700**	**894**	**51**	**33**	**641**	**850**	**39**	**24**	**318**	**360**	**308**	**345**	**272**	**432**
Central AC:														
Yes	56%	58%	52%	59%	56%	58%	59%	77%	61%	63%	63%	63%	48%	51%
No	44%	42%	48%	41%	44%	42%	41%	23%	39%	37%	38%	37%	52%	49%
Don't know (n)	27	40	4	3	23	36	3	3	15	14	14	13	5	22
Respondents (n)	**322**	**576**	**21**	**22**	**294**	**544**	**17**	**13**	**176**	**273**	**168**	**259**	**97**	**249**

Tables E-7 through E-9 describe the type of temperature control survey participants use.

TABLE E-7. TEMPERATURE CONTROL BY HOUSING TYPE

A14 / Q20: What type of temperature control do you use for the main heating / cooling system at your home? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Simple on / off switch with no specific temperature control	5%	14%	5%	18%	4%	14%	6%	18%	3%	12%	4%	12%	8%	16%
Non-programmable thermostat (temperature is manually set and does not change automatically)	21%	32%	29%	44%	18%	31%	30%	44%	17%	32%	16%	32%	23%	28%
Programmable thermostat (can set it to automatically change temperature at specific times)	41%	33%	32%	25%	45%	33%	30%	23%	46%	37%	47%	37%	40%	31%
Basic networked or Wi-Fi enabled thermostat (has remote control, but no occupancy sensing or learning features)	6%	3%	7%	2%	5%	3%	8%	0%	5%	4%	5%	3%	3%	4%
Advanced smart thermostat which includes advanced features such as occupancy sensing, schedule learning, etc., (e.g., Nest, Ecobee, Honeywell, Lyric, Emerson Sensi, etc.)	28%	17%	26%	11%	28%	18%	25%	15%	29%	15%	29%	15%	26%	21%
Not sure / Not applicable (n)	29	164	9	2	19	162	3	1	15	39	9	39	6	114
Respondents (n)	**1,996**	**1,793**	**587**	**111**	**1,323**	**1,660**	**477**	**87**	**1,114**	**772**	**973**	**743**	**240**	**770**

TABLE E-8. TEMPERATURE CONTROL BY INCOME TYPE - SINGLE FAMILY

A14 / Q20: What type of temperature control do you use for the main heating / cooling system at your home? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Simple on / off switch with no specific temperature control	8%	2%	9%	3%	8%	3%	11%	3%	6%	2%	7%	2%	10%	6%
Non-programmable thermostat (temperature is manually set and does not change automatically)	31%	16%	37%	25%	27%	13%	37%	26%	26%	13%	25%	12%	30%	16%

A14 / Q20: What type of temperature control do you use for the main heating / cooling system at your home? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Programmable thermostat (can set it to automatically change temperature at specific times)	42%	40%	36%	29%	46%	44%	34%	28%	48%	45%	49%	45%	41%	40%
Basic networked or Wi-Fi enabled thermostat (has remote control, but no occupancy sensing or learning features)	4%	7%	4%	9%	3%	6%	4%	10%	4%	6%	4%	6%	2%	5%
Advanced smart thermostat which includes advanced features such as occupancy sensing, schedule learning, etc., (e.g., Nest, Ecobee, Honeywell, Lyric, Emerson Sensi, etc.)	16%	34%	15%	34%	16%	34%	15%	33%	16%	35%	16%	35%	17%	33%
Not sure / Not applicable (n)	20	9	5	4	14	5	2	1	9	6	6	3	4	2
Respondents (n)	**617**	**1,289**	**206**	**356**	**390**	**870**	**167**	**288**	**310**	**756**	**270**	**660**	**102**	**123**

TABLE E-9. TEMPERATURE CONTROL BY INCOME TYPE – MULTIFAMILY

A14 / Q20: What type of temperature control do you use for the main heating / cooling system at your home? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Simple on / off switch with no specific temperature control	19%	10%	21%	13%	19%	10%	24%	13%	15%	8%	15%	8%	25%	11%
Non-programmable thermostat (temperature is manually set and does not change automatically)	36%	28%	45%	39%	35%	28%	45%	40%	38%	27%	37%	27%	31%	26%
Programmable thermostat (can set it to automatically change temperature at specific times)	35%	32%	27%	21%	36%	32%	22%	23%	40%	36%	39%	36%	32%	30%
Basic networked or Wi-Fi enabled thermostat (has remote control, but no occupancy sensing or learning features)	2%	4%	2%	3%	2%	4%	0%	0%	2%	5%	2%	5%	4%	3%

A14 / Q20: What type of temperature control do you use for the main heating / cooling system at your home? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Advanced smart thermostat which includes advanced features such as occupancy sensing, schedule learning, etc., (e.g., Nest, Ecobee, Honeywell, Lyric, Emerson Sensi, etc.)	8%	26%	5%	24%	8%	26%	10%	23%	6%	24%	6%	24%	8%	29%
Not sure / Not applicable (n)	101	58	1	0	100	58	0	0	29	7	29	7	66	47
Respondents (n)	**775**	**959**	**66**	**38**	**701**	**909**	**51**	**30**	**362**	**387**	**350**	**372**	**279**	**465**

TABLE E-10. WINTER SEASON FREQUENCY OF TEMPERATURE MANAGEMENT BY HOUSING TYPE

A15 / Q21: How do you most frequently manage the temperature at your home during the winter heating season? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Keep it at a constant temperature	31%	34%	36%	39%	29%	33%	36%	36%	29%	35%	30%	35%	28%	33%
Manually adjust thermostat to desire temperature as needed	28%	44%	31%	49%	27%	43%	32%	51%	25%	44%	24%	44%	37%	41%
Create customized / programmed settings to automatically change temperatures at different times of the day	25%	12%	18%	6%	28%	13%	17%	3%	28%	13%	29%	13%	20%	14%
Use an app on a smartphone to control the temperature	6%	4%	6%	3%	6%	4%	5%	5%	6%	3%	6%	4%	5%	5%
Smart/learning thermostat manages the temperature from learning preferences and/or detecting when home or away	11%	6%	10%	4%	11%	6%	9%	5%	11%	5%	11%	5%	11%	8%
Respondents (n)	**2,016**	**1,911**	**593**	**114**	**1,336**	**1,775**	**477**	**88**	**1,124**	**801**	**977**	**771**	**246**	**849**

Tables E-11 through E-13 list how frequently survey participants manage the temperature at their homes during the winter heating season.

TABLE E-11. WINTER SEASON FREQUENCY OF TEMPERATURE MANAGEMENT BY INCOME TYPE - SINGLE FAMILY

A15 / Q21: How do you most frequently manage the temperature at your home during the winter heating season? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Keep it at a constant temperature	38%	27%	39%	34%	38%	24%	38%	35%	39%	24%	39%	25%	33%	24%
Manually adjust thermostat to desire temperature as needed	37%	23%	42%	24%	34%	23%	45%	25%	32%	21%	31%	21%	43%	29%
Create customized / programmed settings to automatically change temperatures at different times of the day	15%	30%	10%	22%	17%	34%	10%	21%	20%	33%	20%	33%	9%	30%
Use an app on a smartphone to control the temperature	4%	7%	4%	8%	3%	7%	4%	6%	3%	8%	3%	7%	4%	6%
Smart/learning thermostat manages the temperature from learning preferences and/or detecting when home or away	6%	13%	5%	13%	7%	13%	4%	13%	6%	14%	6%	14%	10%	11%
Respondents (n)	**634**	**1,294**	**210**	**358**	**402**	**873**	**168**	**287**	**317**	**760**	**274**	**661**	**106**	**125**

TABLE E-12. WINTER SEASON FREQUENCY OF TEMPERATURE MANAGEMENT BY INCOME TYPE – MULTIFAMILY

A15 / Q21: How do you most frequently manage the temperature at your home during the winter heating season? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Keep it at a constant temperature	37%	31%	45%	26%	36%	31%	39%	27%	37%	33%	36%	32%	38%	30%
Manually adjust thermostat to desire temperature as needed	51%	38%	51%	49%	51%	37%	55%	50%	52%	36%	52%	36%	48%	37%
Create customized / programmed settings to automatically change temperatures at different times of the day	8%	17%	4%	8%	8%	17%	4%	0%	7%	19%	7%	19%	9%	17%
Use an app on a smartphone to control the temperature	2%	5%	0%	8%	3%	5%	2%	10%	2%	5%	2%	5%	3%	5%

A15 / Q21: How do you most frequently manage the temperature at your home during the winter heating season? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Smart/learning thermostat manages the temperature from learning preferences and/or detecting when home or away	2%	9%	0%	10%	3%	9%	0%	13%	2%	8%	2%	8%	3%	10%
Respondents (n)	**852**	**1,002**	**67**	**39**	**777**	**951**	**51**	**30**	**386**	**393**	**374**	**377**	**326**	**499**

TABLE E-13. SUMMER SEASON FREQUENCY OF TEMPERATURE MANAGEMENT BY HOUSING TYPE

A16 / Q22: How do you most frequently manage the temperature at your home during the summer cooling season? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Keep it at a constant temperature	30%	28%	36%	34%	27%	27%	37%	39%	29%	30%	28%	30%	24%	24%
Manually adjust thermostat to desire temperature as needed	32%	49%	34%	54%	31%	49%	35%	49%	29%	49%	29%	49%	41%	49%
Create customized / programmed settings to automatically change temperatures at different times of the day	22%	12%	16%	8%	25%	12%	15%	5%	25%	13%	25%	13%	20%	13%
Use an app on a smartphone to control the temperature	6%	4%	6%	2%	6%	5%	5%	3%	7%	4%	7%	4%	6%	5%
Smart/learning thermostat manages the temperature from learning preferences and/or detecting when home or away	10%	6%	8%	2%	11%	7%	8%	4%	11%	5%	11%	5%	10%	8%
Respondents (n)	**1,961**	**1,588**	**588**	**99**	**1,286**	**1,468**	**474**	**75**	**1,105**	**712**	**959**	**684**	**217**	**653**

Tables E-14 through E-16 list how frequently survey participants manage the temperature at their homes during the summer cooling season.

TABLE E-14. SUMMER SEASON FREQUENCY OF TEMPERATURE MANAGEMENT BY INCOME TYPE - SINGLE FAMILY

A16 / Q22: How do you most frequently manage the temperature at your home during the summer cooling season? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Keep it at a constant temperature	38%	25%	39%	33%	37%	22%	38%	35%	40%	23%	40%	23%	28%	21%
Manually adjust thermostat to desire temperature as needed	42%	27%	43%	28%	41%	27%	47%	27%	36%	26%	37%	26%	53%	30%
Create customized / programmed settings to automatically change temperatures at different times of the day	12%	28%	10%	20%	13%	31%	8%	19%	15%	29%	15%	29%	7%	31%
Use an app on a smartphone to control the temperature	4%	8%	4%	8%	4%	8%	4%	7%	3%	9%	3%	8%	6%	6%
Smart/learning thermostat manages the temperature from learning preferences and/or detecting when home or away	4%	12%	3%	11%	5%	13%	2%	12%	5%	13%	5%	13%	6%	13%
Respondents (n)	**601**	**1,275**	**207**	**359**	**372**	**853**	**167**	**288**	**307**	**751**	**265**	**652**	**86**	**117**

TABLE E-15. SUMMER SEASON FREQUENCY OF TEMPERATURE MANAGEMENT BY INCOME TYPE – MULTIFAMILY

A16 / Q22: How do you most frequently manage the temperature at your home during the summer cooling season? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Keep it at a constant temperature	31%	25%	33%	29%	30%	25%	36%	29%	31%	29%	31%	28%	31%	21%
Manually adjust thermostat to desire temperature as needed	58%	43%	62%	47%	57%	43%	57%	50%	57%	40%	57%	40%	56%	43%
Create customized / programmed settings to automatically change temperatures at different times of the day	7%	17%	5%	12%	7%	17%	5%	4%	7%	19%	7%	19%	8%	17%

A16 / Q22: How do you most frequently manage the temperature at your home during the summer cooling season? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Use an app on a smartphone to control the temperature	3%	6%	0%	6%	3%	6%	0%	8%	3%	4%	3%	5%	3%	7%
Smart/learning thermostat manages the temperature from learning preferences and/or detecting when home or away	2%	10%	0%	6%	2%	10%	2%	8%	2%	8%	2%	8%	3%	11%
Respondents (n)	**678**	**858**	**58**	**34**	**613**	**812**	**44**	**24**	**334**	**360**	**323**	**344**	**226**	**403**

APPENDIX F Water Heating

Appendix F includes tables of water heating equipment asked about on the online and on-site surveys. Results from the surveys are provided by utility and a combined total, by housing type, and by income type. Note that some survey participants did not include their income in the survey, so those participants are not included in the tables of results by income type. The analysis team developed adjustment factors to reconcile online responses with site visits. See Section 3.4 for further details on how these adjustments were made.

Tables F-1 and F-2 provide the percentage of multifamily homes with water heating equipment in their unit. This question did not apply to single family survey participants.

TABLE F-1. PERCENTAGE OF MULTIFAMILY HOMES WITH WATER HEATING EQUIPMENT IN THEIR UNIT BY HOUSING TYPE

B1 / Q23: Do you have water heating equipment in your apartment or unit? Do not include water heaters that are not in your apartment or unit or those that serve multiple units. Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Yes	NR	47%	NR	72%	NR	45%	NR	74%	NR	60%	NR	59%	NR	32%
No	NR	53%	NR	28%	NR	55%	NR	26%	NR	40%	NR	41%	NR	68%
Don't know (n)	NR	187	NR	13	NR	174	NR	12	NR	59	NR	59	NR	103
Respondents (n)	**0**	**1,732**	**0**	**95**	**0**	**1,616**	**0**	**70**	**0**	**734**	**0**	**705**	**0**	**770**

TABLE F-2. PERCENTAGE OF MULTIFAMILY HOMES WITH WATER HEATING EQUIPMENT IN THEIR UNIT BY INCOME TYPE - MULTIFAMILY

B1 / Q23: Do you have water heating equipment in your apartment or unit? Do not include water heaters that are not in your apartment or unit or those that serve multiple units. Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Yes	44%	50%	68%	77%	41%	48%	72%	73%	53%	66%	52%	65%	27%	34%
No	56%	50%	32%	23%	59%	52%	28%	27%	47%	34%	48%	35%	73%	66%
Don't know (n)	97	80	5	5	92	75	4	6	40	17	40	17	44	54
Respondents (n)	**759**	**923**	**59**	**31**	**693**	**880**	**43**	**22**	**340**	**373**	**328**	**358**	**299**	**450**

Tables F-3 through F-5 include the primary water heater type in survey participants' homes.

TABLE F-3. WATER HEATER TYPE BY HOUSING TYPE

B2 / Q24: What best describes the main water heater in your home? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Heat pump water heater with a tank	1%	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%	1%	2%	1%
Electric water heater with a tank	10%	20%	21%	61%	6%	17%	19%	56%	6%	16%	5%	16%	7%	11%
Natural gas water heater with a tank	81%	74%	70%	31%	86%	77%	74%	36%	87%	80%	88%	80%	83%	80%
Propane water heater with a tank	1%	0%	2%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Electric tankless / on-demand	2%	2%	3%	2%	2%	2%	2%	2%	1%	1%	1%	1%	3%	2%
Natural gas tankless / on-demand	3%	2%	3%	0%	3%	2%	2%	0%	4%	1%	3%	1%	4%	3%
Solar water heater	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other (please specify)	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
No water heater	0%	1%	0%	4%	0%	1%	0%	5%	0%	0%	0%	0%	1%	2%
Don't know (n)	25	20	8	1	17	19	5	1	12	9	10	9	6	7
Respondents (n)	**2,053**	**779**	**567**	**52**	**1,390**	**706**	**465**	**42**	**1,190**	**431**	**1,038**	**406**	**239**	**245**

TABLE F-4. WATER HEATER TYPE BY INCOME TYPE - SINGLE FAMILY

B2 / Q24: What best describes the main water heater in your home? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Heat pump water heater with a tank	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	1%
Electric water heater with a tank	14%	8%	28%	17%	8%	5%	26%	16%	7%	5%	6%	5%	10%	5%
Natural gas water heater with a tank	78%	83%	64%	72%	84%	87%	67%	78%	86%	88%	87%	89%	80%	85%
Propane water heater with a tank	1%	1%	1%	3%	1%	1%	1%	1%	0%	0%	0%	0%	1%	0%

B2 / Q24: What best describes the main water heater in your home? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Electric tankless / on-demand	2%	2%	2%	3%	1%	2%	3%	2%	2%	1%	1%	1%	1%	5%
Natural gas tankless / on-demand	3%	4%	3%	3%	3%	4%	3%	2%	2%	4%	2%	4%	5%	3%
Solar water heater	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other (please specify)	0%	0%	1%	1%	1%	0%	0%	0%	1%	0%	1%	0%	0%	0%
No water heater	1%	0%	1%	0%	1%	0%	0%	0%	1%	0%	1%	0%	1%	2%
Don't know (n)	16	8	7	1	9	7	5	0	6	5	4	5	4	2
Respondents (n)	**606**	**1,362**	**186**	**357**	**396**	**934**	**152**	**293**	**320**	**824**	**279**	**718**	**98**	**126**

TABLE F-5. WATER HEATER TYPE BY INCOME TYPE – MULTIFAMILY

B2 / Q24: What best describes the main water heater in your home? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Heat pump water heater with a tank	1%	1%	1%	2%	2%	1%	1%	3%	1%	1%	1%	1%	2%	1%
Electric water heater with a tank	26%	16%	63%	58%	22%	15%	53%	65%	20%	14%	19%	15%	16%	8%
Natural gas water heater with a tank	68%	79%	29%	40%	72%	80%	38%	32%	76%	83%	77%	82%	76%	82%
Propane water heater with a tank	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	0%
Electric tankless / on-demand	2%	1%	3%	0%	2%	1%	4%	0%	1%	1%	1%	1%	1%	2%
Natural gas tankless / on-demand	1%	2%	0%	0%	1%	2%	0%	0%	1%	1%	1%	2%	1%	3%
Solar water heater	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other (please specify)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
No water heater	2%	1%	3%	0%	2%	1%	4%	0%	1%	0%	1%	0%	3%	2%
Don't know (n)	11	9	1	0	10	9	1	0	6	3	6	3	2	5
Respondents (n)	**301**	**455**	**30**	**19**	**264**	**423**	**26**	**12**	**175**	**247**	**167**	**231**	**73**	**164**

APPENDIX G Appliances & Lighting

Appendix G includes tables of penetrations of appliances and LED lighting asked about in the online and on-site surveys. Results from the surveys are provided by utility and a combined total, by housing type, and by income type. Note that some survey participants did not include their income in the survey, so those participants are not included in the tables of results by income type.

Tables G-1 through G-3 provide the percentage of homes surveyed that have certain appliances. 39% of single-family homes surveyed and 9.8% of multifamily homes have a free-standing individual freezer. Of these homes with free-standing freezers, 88% of single-family homes and 96% of multifamily homes have just one freezer, with the remainder having more than one freezer. Over 99% of surveyed homes have a refrigerator. 27.5% of single-family homes and 3.8% of multifamily homes have a secondary refrigerator. Of the homes with secondary refrigerators, 83% of single-family and 80% of multifamily homes have just one secondary refrigerator, with the remainder having more than one.

TABLE G-1. KITCHEN APPLIANCES BY HOUSING TYPE

C1 / Q25: Which of the following kitchen appliances are used in your household? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Refrigerator	99%	100%	99%	99%	99%	100%	99%	100%	99%	100%	100%	100%	98%	100%
Free-standing individual freezer(s)(Please specify how many)	39%	10%	46%	9%	35%	10%	46%	9%	37%	14%	36%	14%	30%	6%
Other refrigerator(s) (Please specify how many)	27%	4%	28%	4%	26%	4%	29%	3%	30%	5%	30%	5%	13%	3%
Mini-fridge / dorm refrigerator or wine fridge	23%	9%	20%	7%	24%	10%	20%	6%	24%	10%	24%	10%	21%	9%
Traditional electric range (combines oven and stovetop; non-induction)	19%	25%	39%	67%	10%	23%	40%	69%	11%	24%	10%	24%	6%	16%
Natural gas range (combines oven and stovetop)	61%	59%	43%	19%	70%	61%	41%	20%	70%	62%	71%	62%	75%	68%
Electric cooktop/stovetop (coil or smooth top; no oven)	6%	7%	10%	14%	5%	6%	9%	10%	5%	6%	4%	6%	5%	5%
Natural gas cooktop/stovetop (no oven)	11%	6%	4%	1%	14%	6%	5%	2%	13%	7%	14%	7%	9%	7%
Induction range (electromagnetic)	2%	1%	3%	1%	2%	1%	4%	1%	1%	1%	1%	1%	2%	2%
Induction cooktop (electromagnetic)	2%	1%	2%	1%	2%	1%	2%	1%	2%	1%	2%	1%	2%	1%
Wall oven: electric	11%	7%	8%	3%	13%	7%	9%	2%	12%	6%	13%	6%	7%	8%
Wall oven: natural gas	5%	3%	2%	3%	6%	3%	2%	2%	6%	3%	6%	4%	5%	3%
Dishwasher	59%	59%	55%	37%	61%	61%	55%	34%	65%	64%	66%	64%	40%	58%
Respondents (n)	**2,005**	**1,934**	**590**	**112**	**1,329**	**1,800**	**473**	**86**	**1,121**	**801**	**974**	**771**	**243**	**874**

TABLE G-2. KITCHEN APPLIANCES BY INCOME TYPE – SINGLE FAMILY

C1 / Q25: Which of the following kitchen appliances are used in your household? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Refrigerator	98%	100%	98%	99%	99%	100%	99%	100%	99%	99%	99%	100%	96%	100%
Free-standing individual freezer(s)(Please specify how many)	36%	41%	38%	52%	34%	36%	38%	52%	36%	38%	36%	38%	31%	29%
Other refrigerator(s) (Please specify how many)	15%	34%	15%	36%	15%	32%	15%	36%	16%	36%	17%	36%	11%	15%
Mini-fridge / dorm refrigerator or wine fridge	18%	26%	18%	22%	18%	27%	18%	22%	19%	27%	18%	27%	17%	23%
Traditional electric range (combines oven and stovetop; non-induction)	22%	18%	42%	37%	11%	9%	43%	39%	13%	11%	12%	9%	8%	4%
Natural gas range (combines oven and stovetop)	62%	61%	43%	43%	73%	69%	44%	40%	72%	68%	75%	70%	74%	78%
Electric cooktop/stovetop (coil or smooth top; no oven)	7%	6%	9%	10%	7%	4%	7%	10%	6%	4%	5%	4%	8%	2%
Natural gas cooktop/stovetop (no oven)	7%	13%	2%	4%	9%	17%	2%	6%	9%	15%	10%	17%	8%	10%
Induction range (electromagnetic)	1%	3%	1%	4%	1%	2%	1%	5%	0%	2%	0%	2%	1%	3%
Induction cooktop (electromagnetic)	1%	2%	2%	2%	1%	2%	1%	2%	1%	2%	1%	2%	0%	3%
Wall oven: electric	6%	14%	5%	10%	6%	16%	6%	10%	6%	15%	7%	16%	4%	10%
Wall oven: natural gas	3%	6%	1%	2%	4%	7%	1%	3%	4%	7%	4%	7%	3%	6%
Dishwasher	39%	69%	38%	66%	39%	71%	37%	66%	46%	74%	46%	74%	20%	57%
Respondents (n)	**636**	**1,298**	**211**	**360**	**403**	**875**	**169**	**289**	**319**	**762**	**276**	**663**	**106**	**125**

TABLE G-3. KITCHEN APPLIANCES BY INCOME TYPE –MULTIFAMILY

C1 / Q25: Which of the following kitchen appliances are used in your household? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Refrigerator	99%	100%	100%	97%	99%	100%	100%	100%	99%	100%	99%	100%	99%	100%
Free-standing individual freezer(s)(Please specify how many)	11%	9%	9%	8%	11%	9%	12%	3%	14%	13%	13%	13%	8%	4%
Other refrigerator(s) (Please specify how many)	4%	4%	4%	3%	4%	4%	4%	3%	4%	5%	4%	5%	3%	3%
Mini-fridge / dorm refrigerator or wine fridge	6%	12%	6%	10%	6%	12%	6%	7%	8%	12%	7%	12%	4%	12%
Traditional electric range (combines oven and stovetop; non-induction)	29%	22%	76%	56%	24%	21%	76%	57%	27%	21%	26%	21%	16%	16%
Natural gas range (combines oven and stovetop)	55%	63%	15%	26%	58%	65%	18%	27%	57%	66%	58%	66%	67%	69%
Electric cooktop/stovetop (coil or smooth top; no oven)	7%	6%	12%	15%	7%	6%	8%	13%	7%	6%	7%	6%	6%	5%
Natural gas cooktop/stovetop (no oven)	6%	6%	1%	0%	6%	6%	4%	0%	5%	8%	5%	7%	8%	6%
Induction range (electromagnetic)	1%	2%	0%	3%	1%	2%	0%	3%	1%	1%	1%	1%	1%	2%
Induction cooktop (electromagnetic)	1%	2%	0%	3%	1%	2%	0%	3%	1%	2%	1%	2%	1%	1%
Wall oven: electric	5%	9%	3%	3%	5%	9%	4%	0%	4%	8%	4%	8%	4%	10%
Wall oven: natural gas	4%	3%	4%	0%	4%	3%	4%	0%	4%	4%	3%	4%	5%	3%
Dishwasher	44%	72%	28%	46%	45%	73%	27%	37%	52%	75%	52%	76%	36%	73%
Respondents (n)	**870**	**1,018**	**67**	**39**	**795**	**967**	**51**	**30**	**390**	**394**	**378**	**378**	**341**	**513**

Tables G-4 through G-6 describe how survey participants use their kitchen exhaust fans. The most common response for the survey participants (42% of single-family and 39% of multifamily participants) was that they sometimes turn on the kitchen exhaust fan when using the stove. For the survey participants that answered, “something else”, responses included that the fan was broken, the fan automatically turned on when needed, or that the fan is never needed or used.

TABLE G-4. KITCHEN EXHAUST FAN BY HOUSING TYPE

C2 / Q26: Which of the following best describes how you use your kitchen exhaust fan? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Do not have a kitchen exhaust fan	20%	22%	29%	16%	16%	23%	29%	18%	16%	16%	15%	16%	22%	31%
Almost always turn on the kitchen exhaust fan when using the stove	19%	20%	17%	26%	20%	19%	16%	27%	19%	21%	20%	21%	20%	17%
Sometimes turn on the kitchen exhaust fan when using the stove	42%	39%	36%	47%	45%	39%	36%	45%	46%	43%	48%	43%	35%	34%
Almost never turn on the kitchen exhaust fan when using the stove	18%	16%	18%	7%	18%	17%	18%	8%	17%	17%	17%	17%	20%	16%
Something else (please specify)	1%	2%	1%	3%	2%	2%	1%	2%	1%	2%	1%	2%	4%	2%
Respondents (n)	**1,910**	**1,807**	**565**	**110**	**1,260**	**1,675**	**453**	**85**	**1,073**	**748**	**929**	**718**	**223**	**812**

TABLE G-5. KITCHEN EXHAUST FAN BY INCOME TYPE – SINGLE FAMILY

C2 / Q26: Which of the following best describes how you use your kitchen exhaust fan? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Do not have a kitchen exhaust fan	30%	15%	39%	23%	25%	12%	39%	23%	24%	13%	23%	11%	30%	16%
Almost always turn on the kitchen exhaust fan when using the stove	18%	19%	16%	17%	20%	20%	18%	15%	19%	20%	20%	20%	16%	22%
Sometimes turn on the kitchen exhaust fan when using the stove	34%	46%	30%	40%	35%	49%	28%	42%	39%	49%	38%	51%	28%	40%
Almost never turn on the kitchen exhaust fan when using the stove	17%	18%	15%	19%	19%	18%	14%	20%	18%	17%	19%	17%	18%	21%
Something else (please specify)	1%	1%	0%	1%	2%	1%	1%	1%	0%	1%	0%	1%	7%	2%
Respondents (n)	**594**	**1,255**	**203**	**346**	**369**	**847**	**163**	**278**	**300**	**737**	**258**	**640**	**92**	**121**

TABLE G-6. KITCHEN EXHAUST FAN BY INCOME TYPE – MULTIFAMILY

C2 / Q26: Which of the following best describes how you use your kitchen exhaust fan? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Do not have a kitchen exhaust fan	26%	20%	17%	18%	27%	20%	16%	23%	19%	15%	19%	15%	40%	26%
Almost always turn on the kitchen exhaust fan when using the stove	22%	17%	24%	31%	22%	17%	24%	33%	26%	17%	25%	17%	17%	16%
Sometimes turn on the kitchen exhaust fan when using the stove	34%	43%	44%	49%	34%	43%	45%	43%	37%	48%	38%	48%	28%	38%
Almost never turn on the kitchen exhaust fan when using the stove	14%	18%	11%	3%	15%	19%	12%	0%	16%	19%	16%	19%	13%	19%
Something else (please specify)	3%	1%	5%	0%	3%	1%	4%	0%	2%	1%	2%	1%	3%	2%
Respondents (n)	**789**	**977**	**66**	**39**	**715**	**926**	**51**	**30**	**355**	**379**	**343**	**363**	**303**	**490**

Tables G-7 through G-9 explain if the households' kitchen exhaust fans are connected to a duct. Only 69% of single-family and 55% of multifamily households' fans are connected to a duct, and the remainder are not.

TABLE G-7. KITCHEN FAN CONNECTION TO DUCT BY HOUSING TYPE

C3 / Q27: Is your kitchen exhaust fan connected to a duct? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Yes, the exhaust from the fan goes outdoors or to the attic	69%	55%	57%	56%	74%	55%	56%	57%	74%	62%	76%	61%	67%	48%
No, the fan is not connected to a duct	31%	45%	43%	44%	26%	45%	44%	43%	26%	38%	24%	39%	33%	52%
I'm not sure (n)	193	444	69	39	119	403	50	34	97	182	79	179	33	188
Respondents (n)	**1,333**	**950**	**332**	**52**	**939**	**880**	**269**	**35**	**801**	**442**	**712**	**419**	**141**	**371**

TABLE G-8. KITCHEN FAN CONNECTION TO DUCT BY INCOME TYPE – SINGLE FAMILY

C3 / Q27: Is your kitchen exhaust fan connected to a duct? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Yes, the exhaust from the fan goes outdoors or to the attic	61%	73%	54%	57%	63%	79%	50%	58%	68%	77%	68%	79%	52%	77%
No, the fan is not connected to a duct	39%	27%	46%	43%	37%	21%	50%	42%	32%	23%	32%	21%	48%	23%
I'm not sure (n)	86	97	29	35	55	59	20	26	43	50	35	41	17	14
Respondents (n)	**328**	**966**	**94**	**232**	**220**	**687**	**78**	**188**	**184**	**591**	**163**	**527**	**46**	**88**

TABLE G-9. KITCHEN FAN CONNECTION TO DUCT BY INCOME TYPE – MULTIFAMILY

C3 / Q27: Is your kitchen exhaust fan connected to a duct? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Yes, the exhaust from the fan goes outdoors or to the attic	56%	54%	65%	45%	55%	54%	59%	64%	62%	61%	62%	61%	46%	47%
No, the fan is not connected to a duct	44%	46%	35%	55%	45%	46%	41%	36%	38%	39%	38%	39%	54%	53%
I'm not sure (n)	208	221	24	11	182	210	21	11	96	79	94	79	68	115
Respondents (n)	**369**	**560**	**31**	**20**	**332**	**529**	**22**	**11**	**191**	**245**	**183**	**230**	**112**	**249**

Tables G-10 through G-12 provide the breakdown of washers and dryers in survey participants' homes. 96% of single-family and 58% of multifamily respondents have washers. 95% of single-family and 57% of multifamily respondents have dryers.

TABLE G-10. LAUNDRY APPLIANCES BY HOUSING TYPE

C4 / Q28: Which of the following laundry appliances are used in your household (do not include those in areas shared with other households)? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Washer: top-loading	65%	38%	69%	44%	63%	37%	68%	44%	65%	49%	63%	48%	61%	27%
Washer: front-loading	32%	22%	28%	9%	34%	22%	29%	9%	34%	17%	35%	17%	26%	28%
Dryer: natural gas	54%	27%	25%	9%	67%	28%	22%	6%	69%	37%	71%	36%	57%	24%
Dryer: electric	41%	29%	71%	43%	27%	28%	74%	47%	28%	28%	25%	28%	30%	27%
Dryer: heat pump	1%	1%	1%	0%	1%	1%	1%	0%	0%	0%	1%	0%	0%	2%
None of the above	4%	41%	2%	46%	4%	41%	3%	44%	2%	34%	2%	34%	13%	46%
Respondents (n)	**1,997**	**1,915**	**589**	**112**	**1,322**	**1,781**	**472**	**86**	**1,117**	**796**	**970**	**766**	**240**	**861**
Percent With Washer - Subtotal	96%	58%	97%	53%	95%	58%	97%	53%	98%	65%	98%	64%	86%	54%
Percent With Dryer - Subtotal	95%	57%	96%	52%	94%	57%	96%	52%	96%	64%	96%	63%	85%	52%

TABLE G-11. LAUNDRY APPLIANCES BY INCOME TYPE – SINGLE FAMILY

C4 / Q28: Which of the following laundry appliances are used in your household (do not include those in areas shared with other households)? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Washer: top-loading	69%	62%	76%	64%	65%	61%	73%	64%	68%	63%	65%	62%	66%	57%
Washer: front-loading	23%	37%	18%	35%	25%	38%	21%	35%	27%	37%	30%	38%	13%	36%
Dryer: natural gas	48%	57%	20%	28%	63%	70%	18%	24%	64%	70%	67%	73%	55%	59%
Dryer: electric	43%	40%	73%	71%	27%	26%	74%	75%	30%	27%	26%	24%	27%	32%
Dryer: heat pump	1%	0%	0%	0%	1%	1%	1%	0%	1%	0%	1%	0%	1%	0%
None of the above	7%	2%	4%	1%	10%	2%	5%	1%	4%	1%	5%	1%	20%	8%
Respondents (n)	**630**	**1,297**	**210**	**360**	**398**	**874**	**168**	**289**	**315**	**762**	**272**	**663**	**105**	**124**
Percent With Washer - Subtotal	91%	98%	94%	99%	90%	98%	94%	99%	94%	99%	94%	99%	78%	92%
Percent With Dryer - Subtotal	90%	97%	93%	98%	87%	96%	93%	98%	93%	97%	92%	97%	78%	90%

TABLE G-12. LAUNDRY APPLIANCES BY INCOME TYPE –MULTIFAMILY

C4 / Q28: Which of the following laundry appliances are used in your household (do not include those in areas shared with other households)? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Washer: top-loading	34%	41%	42%	51%	33%	40%	43%	50%	43%	55%	42%	55%	23%	30%
Washer: front-loading	11%	31%	6%	15%	11%	32%	6%	13%	10%	24%	10%	23%	11%	38%
Dryer: natural gas	18%	35%	6%	15%	20%	35%	4%	10%	25%	48%	25%	46%	15%	29%
Dryer: electric	25%	34%	42%	49%	22%	33%	45%	50%	27%	29%	26%	30%	16%	34%
Dryer: heat pump	1%	1%	0%	0%	1%	1%	0%	0%	1%	0%	1%	0%	1%	2%
None of the above	55%	28%	51%	31%	56%	29%	49%	33%	47%	21%	48%	22%	67%	32%
Respondents (n)	**860**	**1,011**	**67**	**39**	**785**	**960**	**51**	**30**	**388**	**391**	**376**	**375**	**334**	**509**
Percent With Washer - Subtotal	44%	71%	48%	67%	43%	71%	49%	63%	52%	78%	51%	77%	33%	67%

C4 / Q28: Which of the following laundry appliances are used in your household (do not include those in areas shared with other households)? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Percent With Dryer - Subtotal	43%	69%	48%	64%	42%	69%	49%	60%	51%	76%	50%	75%	31%	65%

When asked about air purifiers, 69% of single-family households, and 71% of multifamily households said they did not have an air purifier. The remaining respondents either have an electric air purifier attached to a furnace, a portable air purifier, or both.

Tables G-13 through G-15 list renewable energy technologies that survey respondents have. Of the EV chargers located at survey participants' homes, 14% of single-family respondents had a Level 1 charger and 86% had a Level 2 charger. For multifamily homes, 17% had a Level 1 charger, 76% had a Level 2 charger, and 7% had a Level 3 charger.

TABLE G-13. RENEWABLE ENERGY TECHNOLOGIES BY HOUSEHOLD TYPE

C7 / Q31: Do you have any of the following technologies at your household? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Solar panels for home electricity	9%	0%	10%	0%	9%	0%	10%	0%	10%	0%	10%	0%	5%	0%
Battery to store electricity from solar panels	1%	0%	1%	0%	1%	0%	1%	0%	1%	0%	1%	0%	0%	0%
Electric Vehicle (EV)	6%	2%	4%	2%	7%	3%	4%	1%	7%	2%	8%	2%	5%	3%
EV charger	5%	2%	4%	1%	6%	2%	4%	0%	5%	2%	6%	2%	6%	2%
Solar water heating	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
None of the above	86%	97%	88%	98%	85%	97%	88%	99%	84%	96%	84%	96%	90%	96%
Respondents (n)	**1,912**	**1,870**	**562**	**110**	**1,270**	**1,739**	**445**	**85**	**1,073**	**781**	**930**	**752**	**233**	**836**

TABLE G-14. RENEWABLE ENERGY TECHNOLOGIES BY INCOME TYPE – SINGLE FAMILY

C7 / Q31: Do you have any of the following technologies at your household? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Solar panels for home electricity	6%	11%	6%	13%	5%	11%	5%	13%	7%	11%	6%	11%	2%	8%
Battery to store electricity from solar panels	1%	1%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%
Electric Vehicle (EV)	1%	9%	0%	6%	2%	10%	0%	6%	2%	10%	2%	10%	0%	10%
EV charger	1%	7%	0%	5%	2%	8%	1%	6%	1%	7%	2%	8%	2%	10%
Solar water heating	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
None of the above	93%	82%	93%	85%	93%	81%	94%	84%	92%	81%	92%	80%	96%	86%
Respondents (n)	**614**	**1,242**	**204**	**344**	**388**	**841**	**163**	**272**	**306**	**732**	**264**	**636**	**105**	**119**

TABLE G-15. RENEWABLE ENERGY TECHNOLOGIES BY INCOME TYPE –MULTIFAMILY

C7 / Q31: Do you have any of the following technologies at your household? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Solar panels for home electricity	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	0%
Battery to store electricity from solar panels	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Electric Vehicle (EV)	1%	4%	1%	3%	1%	4%	2%	0%	2%	3%	2%	3%	1%	4%
EV charger	1%	3%	0%	3%	1%	3%	0%	0%	1%	3%	1%	3%	1%	3%
Solar water heating	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
None of the above	98%	95%	99%	97%	98%	95%	98%	100%	98%	95%	98%	95%	99%	95%
Respondents (n)	**852**	**986**	**67**	**39**	**777**	**935**	**51**	**30**	**384**	**385**	**372**	**369**	**330**	**492**

Tables G-16 through G-18 include the approximate percentage of light bulbs that are high-efficiency LEDs. The most common response to this question (41.2% for single-family and 31.1% for multifamily) was that most light bulbs in the home were LEDs.

TABLE G-16. LIGHTING BY HOUSEHOLD TYPE

C8 / Q32: Considering all currently installed bulbs in all fixtures and lamps at your household, indoors as well as outdoors: Approximately what percentage of light bulbs are high-efficiency LEDs? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
None	3%	10%	2.4%	17.6%	2.9%	9.7%	2.2%	13.3%	2.1%	8.8%	2.0%	8.2%	7.5%	10.7%
Few (<25%)	8%	11%	8.1%	10.2%	7.8%	11.1%	8.0%	10.8%	7.3%	11.7%	7.5%	11.5%	10.0%	10.9%
Some (about 25%)	8%	12%	9.3%	13.9%	8.0%	12.0%	8.9%	18.1%	7.7%	11.6%	7.7%	11.5%	9.1%	13.1%
About half	15%	13%	13.8%	14.8%	16.2%	13.4%	14.5%	15.7%	15.8%	13.2%	15.9%	13.5%	15.8%	13.0%
Most (about 75%)	41%	31%	41.6%	28.7%	40.7%	31.4%	40.8%	25.3%	42.2%	32.0%	41.7%	32.6%	38.2%	30.6%
All	25%	22%	24.7%	14.8%	24.5%	22.3%	25.7%	16.9%	25.0%	22.7%	25.3%	22.6%	19.5%	21.6%
Respondents (n)	**1,981**	**1,907**	**579**	**108**	**1,316**	**1,777**	**463**	**83**	**1,110**	**794**	**964**	**764**	**241**	**860**

TABLE G-17. LIGHTING BY INCOME TYPE – SINGLE FAMILY

C8 / Q32: Considering all currently installed bulbs in all fixtures and lamps at your household, indoors as well as outdoors: Approximately what percentage of light bulbs are high-efficiency LEDs? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
None	5%	2%	3.8%	1.1%	5.3%	1.8%	3.6%	0.7%	2.9%	1.7%	2.6%	1.7%	12.3%	4.0%
Few (<25%)	12%	5%	13.9%	5.0%	11.3%	5.7%	14.4%	4.5%	11.1%	5.3%	11.0%	5.4%	11.3%	8.8%
Some (about 25%)	10%	7%	11.1%	8.4%	9.5%	7.0%	10.8%	8.0%	10.2%	6.7%	9.2%	7.1%	11.3%	6.4%
About half	16%	15%	12.5%	14.5%	18.0%	15.3%	13.8%	15.0%	16.9%	15.3%	18.8%	14.7%	17.0%	14.4%
Most (about 75%)	36%	44%	37.5%	44.7%	33.8%	43.8%	37.7%	43.2%	35.0%	45.0%	33.8%	44.8%	34.0%	42.4%

C8 / Q32: Considering all currently installed bulbs in all fixtures and lamps at your household, indoors as well as outdoors: Approximately what percentage of light bulbs are high-efficiency LEDs? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
All	22%	26%	21.2%	26.3%	22.1%	26.3%	19.8%	28.6%	23.9%	26.1%	24.6%	26.3%	14.2%	24.0%
Respondents (n)	**629**	**1,294**	**208**	**358**	**399**	**873**	**167**	**287**	**314**	**760**	**272**	**661**	**106**	**125**

TABLE G-18. LIGHTING BY INCOME TYPE –MULTIFAMILY

C8 / Q32: Considering all currently installed bulbs in all fixtures and lamps at your household, indoors as well as outdoors: Approximately what percentage of light bulbs are high-efficiency LEDs? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
None	14%	7%	13.8%	20.5%	14.1%	6.1%	8.2%	20.0%	11.3%	6.3%	10.4%	6.3%	17.2%	6.1%
Few (<25%)	14%	9%	10.8%	10.3%	13.9%	8.8%	12.2%	10.0%	14.9%	8.6%	14.9%	8.2%	13.3%	9.4%
Some (about 25%)	13%	11%	13.8%	15.4%	13.1%	11.0%	18.4%	20.0%	13.4%	9.9%	13.3%	9.8%	14.5%	12.0%
About half	12%	15%	13.8%	15.4%	12.2%	14.5%	16.3%	13.3%	11.1%	15.0%	11.4%	15.1%	13.0%	13.4%
Most (about 75%)	27%	35%	32.3%	23.1%	26.5%	35.7%	26.5%	23.3%	28.6%	35.5%	29.0%	36.5%	23.4%	35.8%
All	20%	24%	15.4%	15.4%	20.3%	23.8%	18.4%	13.3%	20.6%	24.6%	21.0%	24.1%	18.6%	23.4%
Respondents (n)	**862**	**1,014**	**65**	**39**	**789**	**963**	**49**	**30**	**388**	**394**	**376**	**378**	**338**	**509**

APPENDIX H Building Shell

Appendix H includes tables of penetrations of building shell measures asked about on the online and on-site surveys. Results from the surveys are provided by utility and a combined total, by housing type, and by income type. Note that some survey participants did not include their income in the survey, so those participants are not included in the tables of results by income type.

Tables H-1 through H-3 include the percentage of respondents' homes occupied year-round versus seasonally.

TABLE H-1. YEAR-ROUND VS. SEASONAL OCCUPATION BY HOUSING TYPE

D1 / Q33: Is your home occupied year-round or is it a seasonal home? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Year-round	98%	97%	97%	97%	98%	97%	97%	98%	98%	97%	98%	97%	99%	97%
Seasonal	2%	3%	3%	3%	2%	3%	3%	2%	2%	3%	2%	3%	1%	3%
Respondents (n)	**1,967**	**1,897**	**573**	**108**	**1,308**	**1,767**	**460**	**84**	**1,102**	**790**	**959**	**761**	**238**	**854**

TABLE H-2. YEAR-ROUND VS. SEASONAL OCCUPATION BY INCOME TYPE - SINGLE FAMILY

D1 / Q33: Is your home occupied year-round or is it a seasonal home? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Year-round	99%	97%	98%	97%	99%	97%	98%	97%	99%	98%	99%	97%	98%	100%
Seasonal	1%	3%	2%	3%	1%	3%	2%	3%	1%	3%	1%	3%	2%	0%
Respondents (n)	**626**	**1,293**	**204**	**358**	**400**	**872**	**164**	**287**	**314**	**760**	**273**	**661**	**106**	**124**

TABLE H-3. YEAR-ROUND VS. SEASONAL OCCUPATION BY INCOME TYPE – MULTIFAMILY

D1 / Q33: Is your home occupied year-round or is it a seasonal home? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Year-round	98%	96%	99%	95%	98%	96%	98%	97%	99%	96%	99%	96%	98%	97%
Seasonal	2%	4%	1%	5%	2%	4%	2%	3%	1%	4%	1%	4%	2%	3%
Respondents (n)	**854**	**1,018**	**67**	**39**	**779**	**967**	**51**	**30**	**385**	**394**	**373**	**378**	**332**	**513**

Tables H-4 and H-5 provide the year ranges that the survey participants' homes were built. Note that the number of multifamily survey participants that knew what year their home was built was very low for all utilities.

TABLE H-4. AGE OF HOME BY HOUSING TYPE

D2 / Q34: Approximately what year was your home built? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
1800 - 1850	1%	0%	1%	0%	1%	0%	0%	0%	1%	0%	0%	0%	2%	0%
1851 - 1900	6%	13%	5%	0%	6%	15%	5%	0%	4%	6%	3%	7%	22%	27%
1901 - 1950	24%	28%	27%	0%	22%	33%	29%	0%	19%	25%	19%	27%	42%	36%
1951 - 1970	24%	16%	24%	20%	25%	15%	25%	25%	25%	25%	25%	27%	20%	0%
1971 - 1990	19%	19%	16%	60%	20%	11%	15%	75%	22%	19%	23%	20%	5%	0%
1991 - 2010	20%	19%	19%	20%	21%	19%	19%	0%	24%	25%	24%	20%	6%	18%
2011 - 2020	5%	3%	7%	0%	4%	4%	5%	0%	4%	0%	4%	0%	2%	9%
2021- Present	2%	3%	2%	0%	1%	4%	2%	0%	1%	0%	1%	0%	2%	9%
Respondents (n)	**1,776**	**32**	**532**	**5**	**1,162**	**27**	**427**	**4**	**1,001**	**16**	**867**	**15**	**191**	**11**

TABLE H-5. AGE OF HOME BY INCOME TYPE - SINGLE FAMILY

D2 / Q34: Approximately what year was your home built? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
1800 - 1850	1%	0%	0%	1%	2%	0%	0%	0%	1%	0%	1%	0%	4%	0%
1851 - 1900	8%	5%	6%	5%	10%	5%	6%	4%	5%	4%	5%	3%	21%	24%
1901 - 1950	30%	21%	37%	22%	26%	20%	41%	23%	23%	17%	23%	17%	36%	47%
1951 - 1970	30%	22%	28%	22%	31%	22%	27%	24%	34%	22%	33%	23%	26%	15%
1971 - 1990	15%	21%	15%	16%	15%	23%	14%	16%	17%	24%	17%	25%	9%	2%
1991 - 2010	12%	24%	10%	24%	14%	24%	8%	25%	18%	26%	19%	26%	2%	9%
2011 - 2020	2%	6%	3%	8%	2%	4%	2%	7%	2%	5%	2%	5%	1%	2%
2021- Present	2%	2%	3%	2%	1%	2%	2%	2%	1%	2%	0%	2%	1%	2%
Respondents (n)	**542**	**1,197**	**189**	**334**	**332**	**803**	**154**	**266**	**268**	**710**	**231**	**616**	**81**	**105**

Tables H-6 through H-8 show the square footage of survey participants' homes.

TABLE H-6. SQUARE FOOTAGE BY HOUSING TYPE

D3 / Q35: How many square feet of heated / cooled space does your home have? (Do not include unfinished basements or crawlspaces) Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Under 1,000	10%	39%	12%	55%	9%	38%	13%	61%	7%	32%	7%	33%	15%	42%
1,000 - 1,500	28%	39%	32%	35%	27%	39%	32%	32%	27%	41%	27%	41%	31%	38%
1,501 - 2,000	26%	14%	27%	6%	26%	15%	26%	5%	27%	18%	27%	18%	25%	13%
2,001 - 3,000	26%	7%	22%	2%	27%	7%	20%	1%	28%	7%	28%	6%	20%	6%
More than 3,000	10%	2%	7%	2%	11%	2%	8%	1%	10%	2%	11%	2%	10%	2%
Respondents (n)	**1,958**	**1,876**	**575**	**105**	**1,298**	**1,749**	**461**	**82**	**1,097**	**779**	**953**	**750**	**235**	**848**

TABLE H-7. SQUARE FOOTAGE BY INCOME TYPE - SINGLE FAMILY

D3 / Q35: How many square feet of heated / cooled space does your home have? (Do not include unfinished basements or crawlspaces) Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Under 1,000	20%	5%	22%	6%	18%	5%	23%	7%	16%	4%	16%	4%	22%	9%
1,000 - 1,500	41%	22%	44%	26%	39%	21%	45%	26%	42%	21%	41%	21%	37%	25%
1,501 - 2,000	23%	27%	25%	28%	23%	27%	24%	27%	24%	28%	24%	28%	21%	27%
2,001 - 3,000	12%	33%	8%	29%	14%	33%	6%	29%	13%	34%	14%	34%	13%	26%
More than 3,000	4%	13%	1%	10%	6%	14%	2%	11%	4%	12%	5%	13%	7%	13%
Respondents (n)	**620**	**1,289**	**204**	**359**	**395**	**867**	**164**	**288**	**313**	**755**	**272**	**656**	**103**	**124**

TABLE H-8. SQUARE FOOTAGE BY INCOME TYPE – MULTIFAMILY

D3 / Q35: How many square feet of heated / cooled space does your home have? (Do not include unfinished basements or crawlspaces) Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Under 1,000	50%	29%	66%	33%	48%	29%	69%	46%	42%	23%	41%	24%	54%	33%
1,000 - 1,500	37%	40%	30%	47%	37%	40%	27%	39%	43%	39%	43%	39%	32%	41%
1,501 - 2,000	9%	19%	3%	11%	9%	19%	2%	11%	9%	27%	9%	27%	9%	15%
2,001 - 3,000	3%	9%	1%	3%	3%	10%	2%	0%	4%	9%	4%	9%	3%	9%
More than 3,000	2%	2%	0%	6%	2%	2%	0%	4%	3%	2%	3%	2%	2%	2%
Respondents (n)	**848**	**1,004**	**67**	**36**	**773**	**956**	**51**	**28**	**382**	**387**	**370**	**371**	**330**	**509**

Tables H-9 and H-10 list the types of basements in single family respondents' homes.

TABLE H-9. BASEMENT TYPE BY HOUSING TYPE

D4 / Q36: What type of basement does your home have? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
None	14%	NR	20%	NR	12%	NR	20%	NR	13%	NR	12%	NR	8%	NR
Finished	29%	NR	17%	NR	34%	NR	16%	NR	32%	NR	33%	NR	43%	NR
Unfinished	27%	NR	30%	NR	26%	NR	29%	NR	26%	NR	25%	NR	27%	NR
Partially finished	20%	NR	19%	NR	21%	NR	20%	NR	21%	NR	22%	NR	19%	NR
Crawlspace	8%	NR	13%	NR	6%	NR	14%	NR	7%	NR	7%	NR	1%	NR
Other	1%	NR	1%	NR	1%	NR	1%	NR	1%	NR	1%	NR	2%	NR
Respondents (n)	**1,977**	**0**	**579**	**0**	**1,313**	**0**	**464**	**0**	**1,107**	**0**	**963**	**0**	**239**	**0**

TABLE H-10. BASEMENT TYPE BY INCOME TYPE - SINGLE FAMILY

D4 / Q36: What type of basement does your home have? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
None	22%	11%	31%	14%	18%	10%	30%	15%	22%	9%	21%	9%	8%	7%
Finished	22%	33%	13%	20%	27%	37%	11%	19%	24%	36%	25%	36%	30%	54%
Unfinished	31%	25%	33%	28%	30%	24%	34%	25%	28%	25%	28%	24%	35%	22%
Partially finished	16%	22%	11%	23%	19%	22%	10%	26%	18%	22%	18%	23%	25%	14%
Crawlspace	8%	8%	11%	15%	5%	6%	14%	14%	8%	7%	8%	7%	0%	2%
Other	1%	1%	1%	0%	1%	1%	2%	0%	0%	1%	0%	1%	2%	2%
Respondents (n)	**631**	**1,297**	**208**	**359**	**402**	**875**	**167**	**288**	**316**	**762**	**275**	**663**	**106**	**125**

Tables H-11 through H-13 provide whether the attic walls/floor, exterior walls, crawlspace, basement walls/ceiling, and garage walls/door are insulated.

TABLE H-11. INSULATION BY HOUSING TYPE

D5 / Q37: Indicate whether the following areas of your home are insulated? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Attic Walls:														
Yes, all	42%	NR	38%	NR	44%	NR	39%	NR	44%	NR	45%	NR	39%	NR
Yes, some	14%	NR	14%	NR	14%	NR	15%	NR	14%	NR	14%	NR	16%	NR
No	26%	NR	30%	NR	24%	NR	29%	NR	27%	NR	26%	NR	20%	NR
Not applicable	18%	NR	18%	NR	18%	NR	17%	NR	16%	NR	15%	NR	25%	NR
Don't know (n)	382	0	142	0	221	0	109	0	187	0	152	0	55	0
Respondents (n)	**1,496**	**0**	**410**	**0**	**1,024**	**0**	**335**	**0**	**863**	**0**	**762**	**0**	**171**	**0**
Attic Floor:														
Yes, all	65%	NR	67%	NR	65%	NR	65%	NR	71%	NR	70%	NR	38%	NR
Yes, some	13%	NR	12%	NR	12%	NR	13%	NR	12%	NR	12%	NR	15%	NR
No	11%	NR	12%	NR	11%	NR	11%	NR	10%	NR	10%	NR	20%	NR
Not applicable	11%	NR	9%	NR	12%	NR	11%	NR	8%	NR	8%	NR	28%	NR
Don't know (n)	328	0	114	0	196	0	94	0	162	0	135	0	52	0
Respondents (n)	**1,588**	**0**	**453**	**0**	**1,069**	**0**	**360**	**0**	**913**	**0**	**799**	**0**	**172**	**0**

D5 / Q37: Indicate whether the following areas of your home are insulated? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Exterior (Outside) Walls:														
Yes, all	74%	NR	78%	NR	72%	NR	77%	NR	77%	NR	76%	NR	46%	NR
Yes, some	16%	NR	15%	NR	17%	NR	15%	NR	15%	NR	15%	NR	28%	NR
No	8%	NR	6%	NR	9%	NR	7%	NR	7%	NR	7%	NR	20%	NR
Not applicable	2%	NR	1%	NR	2%	NR	1%	NR	1%	NR	1%	NR	6%	NR
Don't know (n)	358	0	125	0	220	0	99	0	172	0	140	0	70	0
Respondents (n)	**1,568**	**0**	**441**	**0**	**1,055**	**0**	**356**	**0**	**907**	**0**	**799**	**0**	**160**	**0**
Crawlspace:														
Yes, all	26%	NR	25%	NR	25%	NR	27%	NR	24%	NR	25%	NR	50%	NR
Yes, some	22%	NR	20%	NR	25%	NR	18%	NR	24%	NR	26%	NR	50%	NR
No	50%	NR	55%	NR	45%	NR	56%	NR	48%	NR	45%	NR	0%	NR
Not applicable	2%	NR	0%	NR	5%	NR	0%	NR	3%	NR	4%	NR	0%	NR
Don't know (n)	35	0	20	0	12	0	18	0	14	0	11	0	0	0
Respondents (n)	**121**	**0**	**55**	**0**	**60**	**0**	**45**	**0**	**62**	**0**	**53**	**0**	**2**	**0**
Basement Walls:														
Yes, all	38%	NR	28%	NR	41%	NR	24%	NR	42%	NR	42%	NR	36%	NR
Yes, some	21%	NR	18%	NR	22%	NR	19%	NR	22%	NR	23%	NR	19%	NR
No	39%	NR	52%	NR	35%	NR	54%	NR	34%	NR	33%	NR	42%	NR
Not applicable	2%	NR	2%	NR	2%	NR	3%	NR	2%	NR	2%	NR	3%	NR
Don't know (n)	231	0	71	0	152	0	57	0	108	0	92	0	48	0
Respondents (n)	**1,240**	**0**	**297**	**0**	**886**	**0**	**234**	**0**	**746**	**0**	**655**	**0**	**160**	**0**
Basement Ceiling:														
Yes, all	20%	NR	12%	NR	23%	NR	12%	NR	22%	NR	24%	NR	26%	NR
Yes, some	13%	NR	12%	NR	14%	NR	12%	NR	13%	NR	13%	NR	15%	NR
No	64%	NR	72%	NR	60%	NR	72%	NR	62%	NR	61%	NR	56%	NR
Not applicable	3%	NR	3%	NR	3%	NR	3%	NR	3%	NR	3%	NR	3%	NR
Don't know (n)	243	0	68	0	168	0	53	0	123	0	106	0	51	0
Respondents (n)	**1,199**	**0**	**291**	**0**	**852**	**0**	**231**	**0**	**715**	**0**	**626**	**0**	**156**	**0**

D5 / Q37: Indicate whether the following areas of your home are insulated? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Garage Walls (for attached garages only):														
Yes, all	27%	NR	26%	NR	27%	NR	25%	NR	31%	NR	32%	NR	5%	NR
Yes, some	11%	NR	10%	NR	12%	NR	11%	NR	14%	NR	14%	NR	3%	NR
No	24%	NR	19%	NR	27%	NR	19%	NR	26%	NR	27%	NR	26%	NR
Not applicable	38%	NR	45%	NR	35%	NR	45%	NR	28%	NR	27%	NR	66%	NR
Don't know (n)	224	0	74	0	140	0	50	0	141	0	114	0	13	0
Respondents (n)	**1,643**	**0**	**474**	**0**	**1,099**	**0**	**388**	**0**	**911**	**0**	**801**	**0**	**207**	**0**
Garage Door (for attached garages only):														
Yes, all	24%	NR	23%	NR	23%	NR	22%	NR	28%	NR	28%	NR	5%	NR
Yes, some	4%	NR	3%	NR	4%	NR	3%	NR	5%	NR	5%	NR	1%	NR
No	34%	NR	28%	NR	36%	NR	29%	NR	38%	NR	38%	NR	25%	NR
Not applicable	39%	NR	45%	NR	36%	NR	45%	NR	30%	NR	29%	NR	69%	NR
Don't know (n)	193	0	60	0	125	0	43	0	115	0	96	0	16	0
Respondents (n)	**1,657**	**0**	**481**	**0**	**1,103**	**0**	**390**	**0**	**928**	**0**	**810**	**0**	**203**	**0**

TABLE H-12. INSULATION BY INCOME TYPE - SINGLE FAMILY

D5 / Q37: Indicate whether the following areas of your home are insulated? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Attic Walls:														
Yes, all	37%	44%	30%	41%	40%	45%	32%	42%	41%	45%	43%	45%	38%	40%
Yes, some	16%	13%	14%	14%	17%	13%	14%	15%	16%	13%	15%	14%	22%	12%
No	25%	26%	31%	29%	24%	24%	31%	29%	26%	27%	26%	26%	19%	20%
Not applicable	21%	17%	25%	15%	19%	18%	23%	14%	18%	15%	16%	15%	21%	28%
Don't know (n)	169	205	63	78	100	114	47	61	81	101	67	80	27	26
Respondents (n)	**440**	**1,042**	**138**	**269**	**287**	**726**	**117**	**216**	**222**	**631**	**196**	**557**	**77**	**93**
Attic Floor:														
Yes, all	51%	72%	52%	74%	50%	71%	49%	73%	59%	75%	59%	75%	26%	47%

D5 / Q37: Indicate whether the following areas of your home are insulated? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Yes, some	14%	12%	11%	13%	14%	11%	13%	14%	13%	12%	13%	12%	18%	11%
No	18%	7%	18%	8%	19%	7%	20%	6%	14%	7%	15%	7%	30%	12%
Not applicable	17%	9%	19%	5%	17%	10%	18%	6%	14%	6%	13%	6%	26%	30%
Don't know (n)	139	185	51	63	83	109	40	54	65	93	54	77	25	27
Respondents (n)	**478**	**1,092**	**155**	**294**	**307**	**748**	**125**	**232**	**243**	**659**	**213**	**576**	**77**	**92**
Exterior (Outside) Walls:														
Yes, all	64%	79%	70%	81%	60%	77%	69%	80%	66%	81%	67%	80%	39%	52%
Yes, some	20%	15%	18%	13%	20%	16%	17%	14%	21%	13%	19%	14%	25%	29%
No	13%	5%	11%	4%	15%	6%	13%	4%	11%	5%	12%	5%	26%	15%
Not applicable	3%	1%	1%	1%	4%	1%	1%	2%	2%	1%	2%	1%	10%	3%
Don't know (n)	159	192	63	60	91	124	49	49	69	98	55	81	32	37
Respondents (n)	**461**	**1,092**	**142**	**297**	**302**	**740**	**116**	**238**	**241**	**656**	**214**	**575**	**72**	**86**
Crawlspace:														
Yes, all	24%	27%	21%	28%	25%	26%	28%	26%	23%	26%	26%	24%	NR	50%
Yes, some	19%	24%	16%	22%	25%	26%	11%	22%	23%	26%	26%	27%	NR	50%
No	52%	47%	63%	50%	40%	46%	61%	52%	50%	46%	42%	45%	NR	0%
Not applicable	5%	1%	0%	0%	10%	3%	0%	0%	5%	3%	5%	3%	NR	0%
Don't know (n)	8	27	4	16	2	10	5	13	3	11	2	9	0	0
Respondents (n)	**42**	**78**	**19**	**36**	**20**	**39**	**18**	**27**	**22**	**39**	**19**	**33**	**0**	**2**
Basement Walls:														
Yes, all	30%	41%	18%	33%	34%	43%	14%	29%	36%	44%	38%	44%	26%	43%
Yes, some	18%	22%	13%	21%	19%	23%	15%	21%	19%	23%	19%	24%	18%	20%
No	49%	35%	66%	45%	43%	32%	68%	47%	41%	32%	39%	32%	51%	34%
Not applicable	4%	2%	3%	2%	4%	2%	3%	3%	4%	1%	4%	1%	4%	2%
Don't know (n)	78	144	25	46	52	91	17	40	35	67	30	56	18	28
Respondents (n)	**346**	**882**	**90**	**203**	**247**	**631**	**72**	**159**	**180**	**558**	**161**	**487**	**76**	**83**
Basement Ceiling:														
Yes, all	18%	21%	8%	14%	22%	24%	4%	16%	22%	23%	24%	24%	19%	33%

D5 / Q37: Indicate whether the following areas of your home are insulated? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Yes, some	15%	13%	15%	11%	14%	13%	13%	12%	16%	12%	13%	13%	17%	14%
No	62%	64%	73%	72%	58%	61%	78%	70%	57%	63%	56%	62%	60%	50%
Not applicable	5%	2%	3%	3%	6%	2%	4%	3%	6%	1%	6%	2%	4%	3%
Don't know (n)	79	155	26	41	52	108	18	35	39	77	33	67	16	34
Respondents (n)	**340**	**847**	**86**	**202**	**245**	**598**	**69**	**159**	**174**	**534**	**156**	**463**	**78**	**76**
Garage Walls (for attached garages only):														
Yes, all	15%	33%	12%	34%	17%	32%	10%	34%	21%	36%	23%	36%	3%	7%
Yes, some	9%	13%	6%	12%	10%	12%	7%	13%	11%	15%	11%	14%	5%	1%
No	25%	24%	20%	19%	28%	26%	18%	20%	27%	26%	27%	27%	32%	21%
Not applicable	51%	31%	62%	35%	45%	30%	64%	33%	41%	24%	39%	23%	60%	71%
Don't know (n)	65	153	22	51	43	92	12	38	41	94	35	74	5	8
Respondents (n)	**528**	**1,101**	**174**	**297**	**335**	**753**	**146**	**239**	**258**	**645**	**225**	**568**	**94**	**111**
Garage Door (for attached garages only):														
Yes, all	13%	28%	10%	31%	15%	27%	8%	31%	18%	32%	19%	32%	5%	5%
Yes, some	3%	4%	2%	4%	4%	4%	1%	4%	4%	5%	4%	5%	2%	0%
No	29%	36%	24%	31%	32%	38%	23%	33%	33%	39%	33%	40%	27%	22%
Not applicable	55%	31%	64%	33%	50%	31%	68%	32%	44%	24%	43%	23%	65%	74%
Don't know (n)	66	120	20	39	46	73	15	28	38	71	35	56	7	9
Respondents (n)	**524**	**1,120**	**175**	**303**	**329**	**764**	**142**	**245**	**260**	**660**	**223**	**579**	**91**	**110**

Tables H-13 and H-14 show whether the multifamily respondents' exterior walls are insulated.

TABLE H-13. EXTERIOR INSULATION BY HOUSING TYPE

D6 / Q38: Are the exterior (outside) walls of your apartment or unit insulated? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Yes	NR	75%	NR	82%	NR	74%	NR	81%	NR	85%	NR	85%	NR	65%
No	NR	25%	NR	18%	NR	26%	NR	19%	NR	15%	NR	15%	NR	35%
Don't Know (n)	0	882	0	58	0	821	0	42	0	340	0	332	0	415
Respondents (n)	**0**	**987**	**0**	**44**	**0**	**925**	**0**	**36**	**0**	**437**	**0**	**417**	**0**	**432**

TABLE H-14. EXTERIOR INSULATION BY INCOME TYPE – MULTIFAMILY

D6 / Q38: Are the exterior (outside) walls of your apartment or unit insulated? Answer	MF-LI	MF-NLI	Ameren-E-MF-LI	Ameren-E-MF-NLI	ComEd-MF-LI	ComEd-MF-NLI	Ameren-G-MF-LI	Ameren-G-MF-NLI	Nicor-MF-LI	Nicor-MF-NLI	ComEd-Nicor-MF-LI	ComEd-Nicor-MF-NLI	ComEd-Peoples Gas-MF-LI	ComEd-Peoples Gas-MF-NLI
Yes	67%	80%	73%	90%	66%	80%	74%	86%	79%	89%	79%	89%	51%	73%
No	33%	20%	27%	10%	34%	20%	26%	14%	21%	11%	21%	11%	49%	27%
Don't Know (n)	453	418	42	16	410	400	28	14	188	145	183	142	178	235
Respondents (n)	**391**	**582**	**22**	**20**	**363**	**552**	**19**	**14**	**189**	**244**	**182**	**232**	**158**	**267**

Tables H-15 and H-16 list whether any energy efficiency improvements have been made at single family respondents' homes in the last 10 years.

TABLE H-15. ENERGY EFFICIENCY IMPROVEMENTS BY HOUSING TYPE

D7 / Q39: Which of the following energy efficiency improvements have been made at your home in the last 10 years? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Added caulking or weather-stripping	37%	NR	34%	NR	38%	NR	36%	NR	35%	NR	36%	NR	43%	NR
Added duct sealing or duct insulation	12%	NR	10%	NR	12%	NR	12%	NR	12%	NR	12%	NR	15%	NR

D7 / Q39: Which of the following energy efficiency improvements have been made at your home in the last 10 years? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
Had a home energy audit / inspection	10%	NR	8%	NR	11%	NR	10%	NR	9%	NR	10%	NR	16%	NR
Installed higher-efficiency window(s) or door(s)	33%	NR	27%	NR	36%	NR	26%	NR	35%	NR	36%	NR	37%	NR
Installed water / energy-savings faucet head(s) / aerator(s) / showerhead(s)	29%	NR	25%	NR	30%	NR	24%	NR	30%	NR	31%	NR	30%	NR
Installed extra insulation to ceiling / attic	20%	NR	15%	NR	23%	NR	15%	NR	21%	NR	22%	NR	20%	NR
Installed extra insulation walls	8%	NR	6%	NR	9%	NR	6%	NR	7%	NR	8%	NR	15%	NR
Installed insulation in foundation / basement / crawlspace / rim joints	9%	NR	9%	NR	9%	NR	9%	NR	9%	NR	9%	NR	8%	NR
Installed hot-water pipe insulation	12%	NR	10%	NR	12%	NR	11%	NR	12%	NR	13%	NR	10%	NR
Installed / seasonally installed temporary plastic sheeting to insulate window(s)	10%	NR	10%	NR	9%	NR	10%	NR	9%	NR	9%	NR	13%	NR
None of these	29%	NR	33%	NR	27%	NR	32%	NR	29%	NR	29%	NR	20%	NR
Don't know (n)	239	NR	87	NR	141	NR	71	NR	103	NR	86	NR	46	NR
Respondents (n)	**1,696**	**0**	**478**	**0**	**1,145**	**0**	**382**	**0**	**982**	**0**	**859**	**0**	**186**	**0**

TABLE H-16. ENERGY EFFICIENCY IMPROVEMENTS BY INCOME TYPE - SINGLE FAMILY

D7 / Q39: Which of the following energy efficiency improvements have been made at your home in the last 10 years? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Added caulking or weather-stripping	36%	37%	35%	33%	36%	39%	34%	37%	35%	36%	33%	37%	42%	44%
Added duct sealing or duct insulation	12%	12%	10%	10%	13%	12%	12%	13%	10%	12%	12%	13%	15%	14%
Had a home energy audit / inspection	12%	9%	11%	6%	13%	10%	15%	7%	10%	9%	11%	10%	19%	14%

D7 / Q39: Which of the following energy efficiency improvements have been made at your home in the last 10 years? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
Installed higher-efficiency window(s) or door(s)	26%	36%	22%	30%	28%	39%	21%	29%	26%	38%	27%	39%	33%	40%
Installed water / energy-savings faucet head(s) / aerator(s) / showerhead(s)	27%	29%	29%	22%	26%	32%	27%	22%	28%	31%	27%	33%	28%	30%
Installed extra insulation to ceiling / attic	14%	23%	13%	17%	13%	26%	15%	15%	12%	24%	14%	25%	12%	27%
Installed extra insulation walls	8%	8%	6%	6%	9%	9%	6%	6%	7%	7%	8%	8%	14%	15%
Installed insulation in foundation / basement / crawlspace / rim joints	8%	10%	7%	11%	8%	9%	8%	10%	7%	10%	8%	9%	9%	8%
Installed hot-water pipe insulation	11%	12%	10%	11%	11%	13%	10%	12%	11%	13%	11%	14%	10%	10%
Installed / seasonally installed temporary plastic sheeting to insulate window(s)	13%	8%	14%	8%	13%	8%	13%	9%	13%	7%	12%	8%	14%	13%
None of these	31%	27%	35%	32%	29%	26%	34%	31%	32%	28%	31%	27%	23%	17%
Don't know (n)	111	124	40	46	67	71	31	39	45	55	38	45	25	21
Respondents (n)	**512**	**1,165**	**167**	**308**	**328**	**801**	**135**	**245**	**267**	**703**	**233**	**615**	**78**	**104**

Tables H-17 and H-18 list the electric panel capacity for single family respondents' homes. Note that roughly half of survey participants did not know their electric panel capacity. For the respondents who selected "something else", 33% of those respondents answered 33% and 14% of those respondents answered 150 Amps.

TABLE H-17. ELECTRIC PANEL CAPACITY BY HOUSING TYPE

D8 / Q40: What is the capacity of your electric panel? Answer	SF	MF	Ameren-E-SF	Ameren-E-MF	ComEd-SF	ComEd-MF	Ameren-G-SF	Ameren-G-MF	Nicor-SF	Nicor-MF	ComEd-Nicor-SF	ComEd-Nicor-MF	ComEd-Peoples Gas-SF	ComEd-Peoples Gas-MF
100 Amps	29%	NR	26%	NR	30%	NR	30%	NR	29%	NR	30%	NR	39%	NR
200 Amps	67%	NR	68%	NR	67%	NR	65%	NR	68%	NR	68%	NR	54%	NR
Something else (please specify)	4%	NR	6%	NR	3%	NR	4%	NR	3%	NR	2%	NR	7%	NR
Don't know (n)	954	NR	283	NR	626	NR	224	NR	502	NR	420	NR	158	NR
Respondents (n)	**982**	**0**	**285**	**0**	**657**	**0**	**231**	**0**	**582**	**0**	**522**	**0**	**74**	**0**

TABLE H-18. ELECTRIC PANEL CAPACITY BY INCOME TYPE - SINGLE FAMILY

D8 / Q40: What is the capacity of your electric panel? Answer	SF-LI	SF-NLI	Ameren-E-SF-LI	Ameren-E-SF-NLI	ComEd-SF-LI	ComEd-SF-NLI	Ameren-G-SF-LI	Ameren-G-SF-NLI	Nicor-SF-LI	Nicor-SF-NLI	ComEd-Nicor-SF-LI	ComEd-Nicor-SF-NLI	ComEd-Peoples Gas-SF-LI	ComEd-Peoples Gas-SF-NLI
100 Amps	38%	26%	33%	23%	39%	27%	43%	25%	36%	27%	36%	28%	59%	29%
200 Amps	59%	70%	62%	71%	59%	70%	51%	71%	61%	70%	61%	70%	36%	63%
Something else (please specify)	3%	4%	5%	6%	3%	3%	6%	4%	2%	3%	3%	2%	5%	8%
Don't know (n)	393	546	124	157	256	357	99	124	192	300	162	249	81	74
Respondents (n)	**233**	**741**	**84**	**199**	**140**	**511**	**68**	**161**	**122**	**455**	**110**	**407**	**22**	**51**

Appendix I Willingness to Participate

Appendix I includes tables of penetrations of building shell measures asked about on the online surveys. Results from the surveys are provided by housing type, and by income type. Results are not included by utility, because for some questions there was a very small sample size when broken out by utility. Note that some survey participants did not include their income in the survey, so those participants are not included in the tables of results by income type.

Table I-1 reports the likelihood of certain barriers preventing participants from replacing a broken central heating system with a high-efficiency model.

TABLE I-1. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING PARTICIPANTS FROM REPLACING BROKEN CENTRAL HEATING SYSTEM WITH A HIGH-EFFICIENCY MODEL BY HOUSING AND INCOME TYPE

HV1 / Q1: How likely is it that the following factors would prevent you from replacing your broken central heating system with a high-efficiency model?						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Higher Purchase Price:						
Extremely likely	25%	25%	42%	17%	36%	17%
Very likely	21%	23%	20%	22%	20%	24%
Moderately likely	24%	27%	18%	27%	22%	30%
Slightly likely	15%	15%	10%	18%	12%	18%
Not at all likely	14%	10%	10%	16%	9%	11%
Total	**365**	**317**	**119**	**246**	**127**	**190**
Difficulty in Accessing Money or Financing:						
Extremely likely	23%	23%	41%	14%	37%	14%
Very likely	16%	16%	23%	12%	15%	16%
Moderately likely	13%	22%	13%	14%	29%	16%
Slightly likely	19%	18%	9%	24%	9%	24%
Not at all likely	29%	21%	14%	36%	10%	28%
Total	**361**	**311**	**119**	**242**	**123**	**188**
Difficulty finding information about energy efficient options:						
Extremely likely	7%	8%	8%	7%	11%	5%
Very likely	11%	15%	9%	11%	17%	13%
Moderately likely	26%	28%	23%	27%	27%	29%
Slightly likely	26%	23%	28%	24%	22%	24%
Not at all likely	31%	26%	32%	30%	22%	29%
Total	**364**	**308**	**120**	**244**	**122**	**186**
Uncertainty about the amount of energy or utility bill savings:						
Extremely likely	12%	12%	20%	8%	16%	9%
Very likely	19%	19%	21%	18%	20%	18%
Moderately likely	25%	27%	22%	26%	28%	27%
Slightly likely	21%	26%	15%	24%	23%	29%
Not at all likely	23%	16%	22%	23%	14%	17%
Total	**366**	**314**	**122**	**244**	**123**	**191**

HV1 / Q1: How likely is it that the following factors would prevent you from replacing your broken central heating system with a high-efficiency model? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Concern over the appearance of the high efficiency option:						
Extremely likely	3%	3%	6%	1%	6%	1%
Very likely	5%	7%	9%	2%	11%	4%
Moderately likely	5%	11%	7%	4%	16%	7%
Slightly likely	14%	18%	14%	15%	14%	21%
Not at all likely	73%	61%	64%	78%	52%	66%
Total	**360**	**309**	**119**	**241**	**122**	**187**

Table I-2 reports the likelihood of certain factors motivating participants to replace a broken central heating system with a high-efficiency model.

TABLE I-2. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN CENTRAL HEATING SYSTEM WITH A HIGH-EFFICIENCY MODEL BY HOUSING AND INCOME TYPE

How likely is it that the following factors would motivate you to replace your broken central heating system with a high-efficiency model? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Energy or utility bill savings:						
Extremely likely	51%	57%	56%	48%	64%	52%
Very likely	31%	26%	26%	33%	22%	29%
Moderately likely	14%	13%	17%	13%	8%	15%
Slightly likely	2%	3%	1%	3%	3%	3%
Not at all likely	2%	2%	1%	2%	3%	1%
Total	**368**	**312**	**120**	**248**	**120**	**192**
Progress toward personal sustainability or environmental goals:						
Extremely likely	24%	24%	26%	23%	22%	26%
Very likely	23%	27%	19%	25%	28%	26%
Moderately likely	23%	24%	29%	19%	20%	27%
Slightly likely	15%	14%	13%	16%	18%	11%
Not at all likely	15%	11%	13%	16%	13%	11%
Total	**360**	**307**	**116**	**244**	**120**	**187**
Improved occupant comfort:						
Extremely likely	36%	37%	40%	35%	36%	38%
Very likely	32%	36%	28%	33%	36%	37%
Moderately likely	20%	17%	21%	19%	15%	17%
Slightly likely	8%	7%	8%	9%	8%	6%
Not at all likely	4%	3%	3%	4%	4%	3%
Total	**358**	**308**	**116**	**242**	**119**	**189**
Reduce fossil fuel consumption:						

How likely is it that the following factors would motivate you to replace your broken central heating system with a high-efficiency model? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	27%	30%	27%	27%	29%	31%
Very likely	23%	28%	26%	22%	29%	28%
Moderately likely	24%	21%	27%	22%	17%	24%
Slightly likely	14%	14%	14%	15%	18%	11%
Not at all likely	12%	6%	6%	14%	7%	6%
Total	**362**	**307**	**117**	**245**	**119**	**188**
Increased system reliability:						
Extremely likely	38%	38%	44%	35%	33%	42%
Very likely	38%	39%	30%	42%	42%	38%
Moderately likely	15%	14%	15%	16%	14%	14%
Slightly likely	5%	5%	7%	4%	8%	4%
Not at all likely	3%	3%	3%	3%	4%	2%
Total	**359**	**308**	**115**	**244**	**120**	**188**
Quieter operation than your current system:						
Extremely likely	24%	29%	28%	22%	26%	32%
Very likely	26%	28%	25%	27%	25%	30%
Moderately likely	21%	24%	17%	23%	27%	22%
Slightly likely	18%	10%	19%	18%	11%	10%
Not at all likely	11%	8%	11%	11%	12%	6%
Total	**358**	**309**	**116**	**242**	**120**	**189**

Tables I-3 through I-7 report the likelihood of survey participants purchasing high-efficiency HVAC systems at different incentive levels. Note that if a survey participant answered “extremely likely”, they were not asked their willingness to purchase equipment at higher incentive levels.

TABLE I-3. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC WITH NO INCENTIVE BY HOUSING AND INCOME TYPE

HV7a / Q7a: How likely would you be to purchase a high efficiency model if you received no incentive? You would pay the full additional cost of $1,000 to upgrade to the energy-efficient model? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	12%	10%	11%	13%	10%	10%
Very likely	18%	18%	13%	21%	14%	20%
Moderately likely	28%	36%	19%	32%	34%	37%
Slightly likely	21%	20%	24%	20%	19%	21%
Not at all likely	21%	17%	33%	14%	22%	13%
Total	**384**	**335**	**127**	**257**	**135**	**200**

TABLE I-4. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC WITH $250 INCENTIVE BY HOUSING AND INCOME TYPE

HV7b / Q7b: How likely would you be to purchase a high efficiency model if you received an incentive for ONE-QUARTER ($250) of the additional cost of a high-efficiency model? You would pay the additional $750 to upgrade to the energy-efficient model, resulting in five-year simple payback.						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	9%	11%	10%	9%	9%	12%
Very likely	26%	29%	22%	28%	25%	32%
Moderately likely	35%	32%	28%	38%	32%	32%
Slightly likely	19%	19%	24%	17%	23%	17%
Not at all likely	11%	9%	16%	8%	12%	7%
Total	**337**	**300**	**113**	**224**	**120**	**180**

TABLE I-5. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC WITH $500 INCENTIVE BY HOUSING AND INCOME TYPE

HV7c / Q7c: How likely would you be to purchase a high efficiency model if you received an incentive for HALF ($500) of the additional cost of a high-efficiency model? You would pay the additional $500 to upgrade to a high-efficiency model, resulting in about a three-year simple payback.						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	17%	17%	13%	19%	15%	18%
Very likely	38%	40%	33%	41%	32%	46%
Moderately likely	26%	26%	31%	24%	29%	23%
Slightly likely	11%	11%	13%	9%	13%	9%
Not at all likely	8%	6%	11%	6%	11%	3%
Total	**303**	**266**	**101**	**202**	**108**	**158**

TABLE I-6. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC WITH $750 INCENTIVE BY HOUSING AND INCOME TYPE

HV7d / Q7d: How likely would you be to purchase a high efficiency model if you received an incentive for THREE-QUARTERS ($750) of the additional cost of a high-efficiency model? You would pay the additional $250 to upgrade to a high-efficiency model, resulting in about a 1.5-year simple payback.						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	30%	33%	22%	35%	22%	41%
Very likely	36%	33%	39%	34%	34%	33%
Moderately likely	21%	20%	25%	19%	26%	16%

Slightly likely	7%	6%	8%	6%	7%	6%
Not at all likely	6%	7%	7%	6%	12%	4%
Total	**251**	**220**	**88**	**163**	**92**	**128**

TABLE I-7. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC WITH $1000 INCENTIVE BY HOUSING AND INCOME TYPE

HV7e / Q7e: How likely would you be to purchase a high efficiency model if you received an incentive for ALL ($1,000) of the additional cost of a high-efficiency model? This would be an instant payback on all the costs.						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	49%	51%	42%	53%	47%	54%
Very likely	26%	27%	32%	22%	26%	28%
Moderately likely	14%	10%	13%	14%	8%	12%
Slightly likely	5%	4%	4%	6%	6%	3%
Not at all likely	6%	8%	9%	5%	13%	4%
Total	**174**	**148**	**69**	**105**	**72**	**76**

Table I-8 reports if survey participants answered that they already had a heat pump in their home.

TABLE I-8. HEAT PUMP SATURATION BY HOUSING AND INCOME TYPE

HV9 / Q9: Do you currently have a heat pump installed in your home?						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Yes	6%	6%	6%	6%	7%	5%
No	83%	71%	71%	89%	66%	74%
Don't know	11%	24%	23%	5%	27%	21%
Total	**383**	**325**	**126**	**257**	**131**	**194**

Table I-9 shows the survey participants' satisfaction who already own a heat pump.

TABLE I-9. HEAT PUMP SATISFACTION BY HOUSING AND INCOME TYPE

HV9a / Q9a: Given your experience with the heat pump, how satisfied are you with your heat pump?						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely satisfied	33%	28%	38%	31%	11%	44%
Very satisfied	42%	22%	38%	44%	44%	0%
Moderately satisfied	21%	39%	13%	25%	44%	33%
Slightly satisfied	0%	6%	0%	0%	0%	11%
Not at all satisfied	4%	6%	13%	0%	0%	11%
Total	**24**	**18**	**8**	**16**	**9**	**9**

Table I-10 reports the likelihood of certain barriers preventing participants from replacing a broken water heater with a high-efficiency model.

TABLE I-10. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN WATER HEATER WITH A HIGH-EFFICIENCY WATER HEATER BY HOUSING AND INCOME TYPE

WH2 / Q14: How likely is it that the following factors will prevent you from replacing your broken water heater with a high efficiency water heater instead of a standard-efficiency water heater? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Higher Purchase Price:						
Extremely likely	31%	24%	41%	26%	30%	21%
Very likely	24%	23%	21%	26%	22%	23%
Moderately likely	25%	31%	21%	27%	28%	32%
Slightly likely	13%	13%	11%	14%	9%	15%
Not at all likely	7%	9%	5%	7%	9%	9%
Total	**364**	**291**	**121**	**243**	**116**	**175**
Difficulty in accessing money or financing:						
Extremely likely	22%	19%	41%	13%	30%	11%
Very likely	15%	16%	22%	12%	17%	15%
Moderately likely	15%	25%	14%	16%	25%	24%
Slightly likely	15%	16%	10%	17%	12%	19%
Not at all likely	33%	25%	13%	42%	16%	31%
Total	**358**	**289**	**116**	**242**	**117**	**172**
Plumbing or structural changes needed to your home:						
Extremely likely	25%	30%	29%	23%	32%	30%
Very likely	24%	29%	31%	21%	29%	30%
Moderately likely	25%	21%	19%	28%	18%	23%
Slightly likely	12%	9%	9%	14%	9%	9%
Not at all likely	14%	10%	13%	14%	12%	9%
Total	**360**	**292**	**117**	**243**	**117**	**175**
Uncertainty about the amount of energy or utility bill savings:						
Extremely likely	14%	12%	18%	12%	16%	10%
Very likely	20%	21%	19%	21%	21%	22%
Moderately likely	33%	35%	36%	32%	36%	34%
Slightly likely	20%	18%	11%	24%	15%	20%
Not at all likely	13%	13%	16%	12%	12%	15%
Total	**360**	**289**	**118**	**242**	**117**	**172**
Lack of knowledge about high efficiency water heaters:						
Extremely likely	9%	11%	15%	7%	14%	8%
Very likely	18%	19%	17%	19%	24%	16%
Moderately likely	24%	30%	25%	23%	31%	30%
Slightly likely	21%	22%	21%	21%	18%	25%
Not at all likely	27%	18%	21%	30%	13%	21%

Total	**361**	**292**	**117**	**244**	**119**	**173**

Table I-11 reports the likelihood of certain factors motivating participants to replace a broken water heater with a high-efficiency model.

TABLE I-11. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN WATER HEATER WITH A HIGH-EFFICIENCY MODEL BY HOUSING AND INCOME TYPE

WH5 / Q17: How likely is it that the following factors would motivate you to replace your broken water heater with a high efficiency model? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Energy or utility bill savings:						
Extremely likely	40%	37%	44%	39%	40%	35%
Very likely	33%	38%	34%	33%	38%	39%
Moderately likely	20%	17%	17%	22%	12%	20%
Slightly likely	4%	4%	3%	5%	5%	3%
Not at all likely	2%	4%	3%	2%	5%	3%
Total	**368**	**289**	**119**	**249**	**113**	**176**
Progress toward personal sustainability goals:						
Extremely likely	21%	22%	25%	20%	16%	26%
Very likely	23%	23%	19%	25%	27%	20%
Moderately likely	22%	28%	28%	19%	29%	28%
Slightly likely	17%	17%	13%	18%	18%	16%
Not at all likely	17%	10%	15%	18%	10%	10%
Total	**360**	**284**	**116**	**244**	**111**	**173**
Improved home comfort:						
Extremely likely	29%	28%	30%	28%	23%	31%
Very likely	35%	42%	38%	33%	42%	41%
Moderately likely	21%	20%	18%	23%	21%	20%
Slightly likely	10%	7%	7%	11%	10%	5%
Not at all likely	6%	4%	8%	5%	4%	3%
Total	**361**	**284**	**117**	**244**	**112**	**172**
Improved water heater reliability:						
Extremely likely	38%	38%	41%	36%	38%	39%
Very likely	37%	32%	34%	39%	29%	35%
Moderately likely	16%	19%	15%	17%	20%	18%
Slightly likely	7%	6%	5%	8%	8%	5%
Not at all likely	2%	4%	4%	1%	6%	3%
Total	**365**	**285**	**119**	**246**	**112**	**173**

Tables I-12 through I-16 report the likelihood of survey participants purchasing high-efficiency water heaters at different incentive levels. Note that if a survey participant answered "extremely likely", they were not asked their willingness to purchase equipment at higher incentive levels.

TABLE I-12. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER WITH NO INCENTIVE BY HOUSING AND INCOME TYPE

WH8a / Q20a: How likely would you be to purchase a high-efficiency water heater instead of a standard-efficiency water heater if you received no incentive and you paid the additional $900 to purchase a high-efficiency water heater?						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	8%	7%	9%	8%	5%	8%
Very likely	13%	16%	8%	16%	14%	17%
Moderately likely	25%	27%	17%	29%	26%	27%
Slightly likely	25%	25%	22%	27%	27%	23%
Not at all likely	29%	25%	44%	21%	27%	24%
Total	**374**	**311**	**123**	**251**	**125**	**186**

TABLE I-13. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER WITH $225 INCENTIVE BY HOUSING AND INCOME TYPE

WH8b / Q20b: How likely would you be to purchase a high-efficiency water heater instead of a standard-efficiency water heater if you received an incentive for ONE-QUARTER ($225) of the additional cost of the high-efficiency water heater? You would pay the additional $675 to upgrade to a high-efficiency water heater. This is a 4.5-year simple payback.						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	8%	10%	5%	9%	7%	12%
Very likely	20%	17%	16%	21%	17%	18%
Moderately likely	32%	33%	24%	36%	31%	34%
Slightly likely	27%	28%	31%	25%	32%	25%
Not at all likely	14%	13%	23%	9%	13%	12%
Total	**343**	**290**	**111**	**232**	**119**	**171**

TABLE I-14. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER WITH $450 INCENTIVE BY HOUSING AND INCOME TYPE

WH8c / Q20c: How likely would you be to purchase a high-efficiency water heater instead of a standard-efficiency water heater if you received an incentive for HALF ($450) of the additional cost of the high-efficiency water heater? You would pay the additional $450 to upgrade to a high-efficiency water heater. This is a 3-year simple payback.						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	16%	13%	13%	18%	11%	15%
Very likely	26%	28%	19%	30%	23%	32%

WH8c / Q20c: How likely would you be to purchase a high-efficiency water heater instead of a standard-efficiency water heater if you received an incentive for HALF ($450) of the additional cost of the high-efficiency water heater? You would pay the additional $450 to upgrade to a high-efficiency water heater. This is a 3-year simple payback.						
Answer	**SF**	**MF**	**SF-LI**	**SF-NLI**	**MF-LI**	**MF-NLI**
Moderately likely	35%	31%	33%	36%	33%	30%
Slightly likely	13%	17%	20%	10%	21%	13%
Not at all likely	9%	10%	16%	6%	11%	10%
Total	**312**	**258**	**102**	**210**	**108**	**150**

TABLE I-15. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER WITH $675 INCENTIVE BY HOUSING AND INCOME TYPE

WH8d / Q20d: How likely would you be to purchase a high-efficiency water heater instead of a standard-efficiency water heater if you received an incentive for THREE-QUARTERS ($675) of the additional cost of the high-efficiency heat pump water heater? You would pay the additional $225 to upgrade to a high-efficiency water heater. This is a 1.5-year simple payback.						
Answer	**SF**	**MF**	**SF-LI**	**SF-NLI**	**MF-LI**	**MF-NLI**
Extremely likely	22%	21%	9%	29%	11%	28%
Very likely	38%	32%	36%	39%	30%	33%
Moderately likely	27%	28%	40%	20%	34%	23%
Slightly likely	7%	8%	4%	8%	13%	5%
Not at all likely	6%	11%	10%	4%	11%	11%
Total	**260**	**224**	**89**	**171**	**96**	**128**

TABLE I-16. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER WITH $900 INCENTIVE BY HOUSING AND INCOME TYPE

WH8e / Q20e: How likely would you be to purchase a high-efficiency water heater instead of a standard-efficiency water heater if you received an incentive for ALL ($900) of the additional cost of the high-efficiency water heater? This is an instant payback.						
Answer	**SF**	**MF**	**SF-LI**	**SF-NLI**	**MF-LI**	**MF-NLI**
Extremely likely	55%	51%	44%	62%	50%	52%
Very likely	25%	20%	37%	17%	17%	23%
Moderately likely	12%	12%	14%	11%	14%	10%
Slightly likely	5%	6%	0%	9%	8%	3%
Not at all likely	2%	11%	5%	1%	11%	12%

Total	**203**	**176**	**81**	**122**	**84**	**92**

Table I-17 provides the heat pump water heater saturation for survey participants.

TABLE I-17. HEAT PUMP WATER HEATER SATURATION BY HOUSING AND INCOME TYPE

WH10 / Q22: Do you currently have a heat pump water heater installed in your home?						
Answer	**SF**	**MF**	**SF-LI**	**SF-NLI**	**MF-LI**	**MF-NLI**
Yes	4%	3%	6%	3%	3%	3%
No	86%	72%	75%	91%	65%	76%
Don't know	10%	25%	19%	6%	33%	21%
Total	**370**	**306**	**121**	**249**	**120**	**186**

Table I-18 shows the satisfaction of survey participants who already own a heat pump water heater.

TABLE I-18. HEAT PUMP WATER HEATER SATISFACTION BY HOUSING AND INCOME TYPE

WH10a / Q22a: Given your experience with the heat pump water heater, how satisfied are you with your heat pump water heater?						
Answer	**SF**	**MF**	**SF-LI**	**SF-NLI**	**MF-LI**	**MF-NLI**
Extremely satisfied	43%	44%	43%	43%	0%	67%
Very satisfied	29%	22%	29%	29%	33%	17%
Moderately satisfied	21%	11%	14%	29%	0%	17%
Slightly satisfied	0%	22%	0%	0%	67%	0%
Not at all satisfied	7%	0%	14%	0%	0%	0%
Total	**14**	**9**	**7**	**7**	**3**	**6**

Table I-19 reports the likelihood of certain barriers preventing participants from making improvements to their home's ceiling insulation or air sealing.

TABLE I-19. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM MAKING IMPROVEMENTS TO THEIR HOME'S CEILING INSULATION OR AIR SEALING BY HOUSING AND INCOME TYPE

I2 / Q27: How likely is it that the following factors would prevent you from making improvements to your home's ceiling insulation or air sealing?						
Answer	**SF**	**MF**	**SF-LI**	**SF-NLI**	**MF-LI**	**MF-NLI**
Cost:						
Extremely likely	41%	38%	63%	30%	42%	36%
Very likely	20%	24%	17%	22%	25%	24%
Moderately likely	24%	20%	10%	30%	20%	20%
Slightly likely	8%	7%	3%	11%	3%	11%
Not at all likely	7%	10%	7%	7%	10%	10%
Total	**355**	**281**	**117**	**238**	**111**	**170**

I2 / Q27: How likely is it that the following factors would prevent you from making improvements to your home's ceiling insulation or air sealing? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Difficulty in accessing money or financing:						
Extremely likely	26%	23%	48%	16%	34%	15%
Very likely	11%	18%	17%	9%	17%	19%
Moderately likely	19%	22%	12%	22%	27%	18%
Slightly likely	14%	16%	7%	17%	11%	19%
Not at all likely	30%	22%	16%	37%	11%	28%
Total	**348**	**278**	**114**	**234**	**109**	**169**
Disruption in the home during the work:						
Extremely likely	8%	15%	11%	6%	15%	15%
Very likely	13%	21%	16%	12%	22%	20%
Moderately likely	26%	28%	26%	26%	28%	27%
Slightly likely	29%	20%	28%	30%	19%	20%
Not at all likely	24%	16%	19%	26%	16%	17%
Total	**349**	**280**	**116**	**233**	**109**	**171**
Uncertainty about the amount of energy or money savings:						
Extremely likely	13%	16%	18%	10%	18%	15%
Very likely	31%	27%	30%	32%	30%	25%
Moderately likely	29%	34%	23%	33%	30%	37%
Slightly likely	14%	10%	16%	14%	11%	10%
Not at all likely	12%	12%	13%	12%	12%	13%
Total	**347**	**282**	**115**	**232**	**113**	**169**
Lack of knowledge about the insulation needed:						
Extremely likely	15%	19%	22%	12%	22%	18%
Very likely	17%	25%	17%	17%	21%	28%
Moderately likely	27%	31%	22%	29%	34%	29%
Slightly likely	15%	12%	17%	15%	11%	12%
Not at all likely	25%	13%	21%	27%	12%	14%
Total	**349**	**278**	**116**	**233**	**109**	**169**
Uncertainty on how to find a qualified contractor:						
Extremely likely	22%	28%	29%	18%	28%	28%
Very likely	23%	24%	25%	22%	19%	28%
Moderately likely	22%	21%	22%	23%	25%	18%
Slightly likely	14%	10%	10%	16%	11%	9%
Not at all likely	19%	17%	14%	21%	17%	17%
Total	**347**	**278**	**114**	**233**	**109**	**169**

Table I-20 reports the likelihood of certain factors motivating participants to improve ceiling insulation or air sealing.

TABLE I-20. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO IMPROVE CEILING INSULATION OR AIR SEALING BY HOUSING AND INCOME TYPE

I5 / Q30: How likely is it that the following factors would motivate you to make improvements to your home's ceiling insulation or air sealing? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Energy or utility bill savings:						
Extremely likely	42%	35%	51%	38%	37%	35%
Very likely	33%	32%	25%	37%	32%	32%
Moderately likely	16%	20%	17%	16%	19%	22%
Slightly likely	7%	5%	7%	7%	3%	7%
Not at all likely	1%	7%	1%	1%	9%	5%
Total	**350**	**279**	**114**	**236**	**108**	**171**
Progress toward personal sustainability goals:						
Extremely likely	20%	24%	25%	18%	23%	25%
Very likely	18%	14%	15%	19%	19%	11%
Moderately likely	26%	29%	28%	25%	31%	28%
Slightly likely	19%	19%	19%	19%	13%	23%
Not at all likely	16%	14%	12%	18%	15%	14%
Total	**347**	**275**	**113**	**234**	**108**	**167**
Improved occupant comfort:						
Extremely likely	37%	32%	38%	37%	26%	36%
Very likely	36%	34%	33%	38%	38%	32%
Moderately likely	19%	22%	19%	19%	22%	23%
Slightly likely	5%	7%	7%	3%	8%	6%
Not at all likely	3%	4%	4%	2%	6%	3%
Total	**346**	**277**	**113**	**233**	**109**	**168**
Reduce ice dams, condensation, or solve other physical problems:						
Extremely likely	37%	33%	41%	34%	29%	36%
Very likely	28%	28%	30%	28%	28%	28%
Moderately likely	20%	22%	15%	23%	25%	19%
Slightly likely	9%	8%	7%	9%	6%	9%
Not at all likely	6%	9%	7%	6%	13%	7%
Total	**349**	**278**	**114**	**235**	**108**	**170**

Tables I-21 through I-24 report the likelihood of survey participants upgrading their ceiling insulation or air sealing at different incentive levels. Note that if a survey participant answered “extremely likely”, they were not asked their willingness to purchase equipment at higher incentive levels.

TABLE I-21. LIKELIHOOD OF SURVEY PARTICIPANTS UPGRADE CEILING INSULATION OR AIR SEALING WITH NO INCENTIVE BY HOUSING AND INCOME TYPE

I8a / Q33a: How likely would you be to upgrade your home's ceiling insulation or air sealing if you received no incentive and paid the $2,000 to install upgraded ceiling insulation or complete air sealing? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	4%	5%	3%	4%	3%	6%
Very likely	8%	7%	4%	10%	9%	5%
Moderately likely	21%	26%	18%	22%	20%	29%
Slightly likely	29%	27%	26%	31%	29%	26%
Not at all likely	38%	36%	48%	33%	38%	34%
Total	**363**	**298**	**119**	**244**	**117**	**181**

TABLE I-22. LIKELIHOOD OF SURVEY PARTICIPANTS UPGRADE CEILING INSULATION OR AIR SEALING WITH $500 INCENTIVE BY HOUSING AND INCOME TYPE

I8b / Q33b: How likely would you be to upgrade your home's ceiling insulation or air sealing if you received an incentive for ONE-QUARTER (~$500) of the cost of the project? You would pay the additional ~$1,500 to upgrade your home's ceiling insulation or complete air sealing, resulting in a six-year simple payback. *(ASK IF I8a < Extremely Likely)* Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	4%	6%	3%	4%	6%	6%
Very likely	15%	13%	12%	17%	10%	15%
Moderately likely	30%	29%	26%	32%	28%	29%
Slightly likely	34%	34%	33%	34%	37%	32%
Not at all likely	17%	18%	25%	12%	19%	18%
Total	**350**	**284**	**115**	**235**	**113**	**171**

TABLE I-23. LIKELIHOOD OF SURVEY PARTICIPANTS UPGRADE CEILING INSULATION OR AIR SEALING WITH $1000 INCENTIVE BY HOUSING AND INCOME TYPE

I8c / Q33c: How likely would you be to upgrade your home's ceiling insulation or air sealing if you received an incentive for ONE-HALF ($1,000) of the cost of the project? You would pay the additional $1,000 to upgrade your home's ceiling insulation or air sealing, resulting in a four-year simple payback. *(ASK IF I8b < Extremely Likely)* Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	13%	8%	8%	15%	5%	10%
Very likely	22%	24%	17%	24%	22%	26%
Moderately likely	38%	37%	37%	38%	37%	37%
Slightly likely	15%	16%	19%	14%	20%	14%

I8c / Q33c: How likely would you be to upgrade your home's ceiling insulation or air sealing if you received an incentive for ONE-HALF ($1,000) of the cost of the project? You would pay the additional $1,000 to upgrade your home's ceiling insulation or air sealing, resulting in a four-year simple payback. *(ASK IF I8b < Extremely Likely)* Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Not at all likely	12%	15%	19%	9%	17%	13%
Total	**332**	**267**	**111**	**221**	**106**	**161**

TABLE I-24. LIKELIHOOD OF SURVEY PARTICIPANTS UPGRADE CEILING INSULATION OR AIR SEALING WITH $1500 INCENTIVE BY HOUSING AND INCOME TYPE

I8d / Q33d: How likely would you be to upgrade your home's ceiling insulation or air sealing if you received an incentive for THREE-QUARTERS (~$1,500) of the cost of the project? You would pay the additional ~$500 to upgrade your home's ceiling insulation or air sealing, resulting in a two-year simple payback. *(ASK IF I8c < Extremely Likely)* Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	20%	21%	14%	23%	16%	24%
Very likely	37%	32%	30%	41%	29%	34%
Moderately likely	24%	23%	33%	19%	27%	21%
Slightly likely	10%	11%	8%	11%	16%	8%
Not at all likely	9%	13%	15%	6%	13%	13%
Total	**289**	**245**	**102**	**187**	**101**	**144**

TABLE I-24. LIKELIHOOD OF SURVEY PARTICIPANTS UPGRADE CEILING INSULATION OR AIR SEALING WITH $2000 INCENTIVE BY HOUSING AND INCOME TYPE

I8e / Q33e: How likely would you be to upgrade your home's ceiling insulation or air sealing if you received an incentive for ALL ($2,000) of the cost of the upgraded ceiling insulation or air sealing? This provides an immediate payback. *(ASK IF I8d < Extremely Likely)* Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	53%	44%	44%	59%	39%	49%
Very likely	23%	19%	30%	19%	21%	17%
Moderately likely	13%	20%	13%	13%	21%	18%
Slightly likely	4%	6%	3%	4%	5%	6%
Not at all likely	7%	12%	10%	6%	14%	10%
Total	**232**	**194**	**88**	**144**	**85**	**109**

Table I-25 reports the likelihood of certain barriers preventing participants from replacing a broken appliance with a high-efficiency model.

TABLE I-25. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN HOUSEHOLD APPLIANCE WITH A HIGH-EFFICIENCY MODEL INSTEAD OF A STANDARD-EFFICIENCY MODEL BY HOUSING AND INCOME TYPE

AP1 / Q35: How likely is it that the following factors will prevent you from replacing a broken major household appliance with a high-efficiency model instead of a standard-efficiency model? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
High purchase price:						
Extremely likely	34%	32%	47%	28%	36%	29%
Very likely	24%	24%	28%	22%	24%	24%
Moderately likely	22%	24%	15%	26%	24%	24%
Slightly likely	11%	12%	4%	14%	9%	14%
Not at all likely	9%	9%	6%	10%	7%	10%
Total	**353**	**286**	**115**	**238**	**110**	**176**
Availability of features you want:						
Extremely likely	17%	17%	15%	18%	16%	18%
Very likely	32%	37%	34%	32%	34%	39%
Moderately likely	34%	30%	33%	35%	33%	28%
Slightly likely	9%	11%	7%	10%	14%	10%
Not at all likely	7%	5%	12%	5%	4%	5%
Total	**350**	**283**	**113**	**237**	**110**	**173**
Uncertainty about the amount of energy or money savings:						
Extremely likely	8%	12%	14%	5%	18%	8%
Very likely	25%	21%	24%	26%	25%	19%
Moderately likely	36%	34%	36%	36%	29%	37%
Slightly likely	17%	21%	12%	20%	20%	22%
Not at all likely	14%	12%	14%	14%	8%	14%
Total	**348**	**281**	**112**	**236**	**110**	**171**
Lack of knowledge about the performance of the high efficiency appliance:						
Extremely likely	8%	12%	13%	6%	16%	10%
Very likely	15%	18%	15%	15%	18%	18%
Moderately likely	29%	32%	30%	28%	35%	30%
Slightly likely	22%	19%	17%	24%	20%	18%
Not at all likely	26%	19%	25%	26%	10%	24%
Total	**346**	**281**	**112**	**234**	**110**	**171**

Table I-26 reports the likelihood of certain factors motivating participants to replace a broken appliance with a high-efficiency model.

TABLE I-26. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN APPLIANCE WITH A HIGH-EFFICIENCY MODEL BY HOUSING AND INCOME TYPE

AP4 / Q38: How likely is it that the following factors will motivate you to replace a broken major appliance with a high-efficiency model instead of a standard-efficiency model? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Energy or utility bill savings						
Extremely likely	32%	38%	41%	28%	39%	38%
Very likely	36%	33%	31%	39%	35%	32%
Moderately likely	23%	21%	20%	25%	19%	23%
Slightly likely	6%	4%	6%	6%	2%	6%
Not at all likely	2%	3%	2%	3%	5%	2%
Total	**351**	**289**	**115**	**236**	**112**	**177**
Progress toward personal sustainability goals:						
Extremely likely	18%	24%	22%	15%	21%	26%
Very likely	23%	19%	19%	24%	24%	15%
Moderately likely	24%	30%	24%	24%	26%	32%
Slightly likely	18%	15%	17%	19%	14%	16%
Not at all likely	18%	13%	19%	17%	15%	11%
Total	**346**	**280**	**113**	**233**	**108**	**172**
Ease of installation:						
Extremely likely	23%	27%	32%	18%	27%	28%
Very likely	32%	34%	30%	33%	34%	34%
Moderately likely	26%	22%	23%	27%	23%	22%
Slightly likely	14%	10%	9%	17%	10%	10%
Not at all likely	6%	6%	6%	5%	6%	6%
Total	**345**	**281**	**113**	**232**	**108**	**173**
Improved performance:						
Extremely likely	39%	43%	39%	39%	39%	46%
Very likely	39%	35%	41%	38%	31%	38%
Moderately likely	17%	14%	12%	19%	16%	13%
Slightly likely	3%	5%	3%	3%	7%	3%
Not at all likely	3%	2%	5%	1%	6%	0%
Total	**349**	**281**	**115**	**234**	**108**	**173**

Tables I-27 through I-31 report the likelihood of survey participants purchasing a high-efficiency appliance at different incentive levels. Note that if a survey participant answered “extremely likely”, they were not asked their willingness to purchase equipment at higher incentive levels.

TABLE I-27. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY APPLIANCE WITH NO INCENTIVE BY HOUSING AND INCOME TYPE

AP7a / Q41a: How likely would you be to purchase a high-efficiency model instead of a standard-efficiency model if you received no incentive and paid an additional $300 to purchase a high-efficiency appliance? Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	7%	10%	6%	8%	8%	12%
Very likely	16%	22%	8%	20%	19%	23%
Moderately likely	27%	29%	19%	31%	29%	29%
Slightly likely	27%	23%	29%	27%	24%	23%
Not at all likely	22%	16%	37%	15%	20%	13%
Total	**359**	**295**	**118**	**241**	**114**	**181**

TABLE I-28. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY APPLIANCE WITH $75 INCENTIVE BY HOUSING AND INCOME TYPE

AP7b / Q41b: How likely would you be to purchase a high-efficiency model instead of a standard-efficiency model if you received an incentive for ONE-QUARTER ($75) of the additional cost of a high-efficiency model? You would pay the remaining $225 to upgrade to a high-efficiency model. Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	5%	10%	3%	5%	8%	11%
Very likely	24%	24%	18%	27%	20%	27%
Moderately likely	32%	33%	27%	35%	31%	34%
Slightly likely	27%	23%	31%	26%	30%	19%
Not at all likely	12%	10%	22%	8%	11%	9%
Total	**333**	**264**	**111**	**222**	**105**	**159**

TABLE I-29. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY APPLIANCE WITH $150 INCENTIVE BY HOUSING AND INCOME TYPE

AP7c / Q41c: How likely would you be to purchase a high-efficiency model instead of a standard-efficiency model if you received an incentive for HALF ($150) of the additional cost of a high-efficiency model? You would pay the remaining $150 to upgrade to a high-efficiency model. Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	16%	15%	12%	18%	10%	18%
Very likely	32%	34%	23%	37%	26%	39%
Moderately likely	29%	29%	32%	27%	34%	26%
Slightly likely	15%	14%	20%	11%	20%	11%
Not at all likely	8%	8%	12%	6%	10%	6%
Total	**317**	**238**	**108**	**209**	**97**	**141**

TABLE I-30. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY APPLIANCE WITH $225 INCENTIVE BY HOUSING AND INCOME TYPE

AP7d / Q41d: How likely would you be to purchase a high-efficiency model instead of a standard-efficiency model if you received an incentive for THREE-QUARTERS ($225) of the additional cost of a high-efficiency model? You would pay the remaining $75 to upgrade to a high-efficiency model.						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	27%	25%	19%	31%	15%	33%
Very likely	35%	33%	26%	39%	32%	34%
Moderately likely	23%	26%	32%	19%	29%	23%
Slightly likely	10%	7%	14%	8%	13%	3%
Not at all likely	6%	8%	9%	4%	11%	6%
Total	**266**	**202**	**95**	**171**	**87**	**115**

TABLE I-31. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY APPLIANCE WITH $300 INCENTIVE BY HOUSING AND INCOME TYPE

AP7e / Q41e: How likely would you be to purchase a high-efficiency model instead of a standard-efficiency model if you received an incentive for ALL ($300) of the additional cost of an energy-efficient model?						
Answer	SF	MF	SF-LI	SF-NLI	MF-LI	MF-NLI
Extremely likely	51%	48%	45%	55%	41%	56%
Very likely	27%	23%	32%	23%	22%	25%
Moderately likely	14%	19%	14%	15%	24%	13%
Slightly likely	4%	2%	1%	5%	1%	3%
Not at all likely	4%	8%	6%	3%	12%	4%
Total	**194**	**151**	**77**	**117**	**74**	**77**

APPENDIX B. Non-Residential Baseline Study Report

PREPARED BY GDS ASSOCIATES, INC.

2023-2024 Illinois Baseline Study

Ameren Illinois, Commonwealth Edison, and Nicor Gas

Nonresidential Baseline Study Results

FINAL

October 31, 2024

GDS Associates, Inc.
ENGINEERS & CONSULTANTS

MichaelsEnergy

CADMUS

brightline GROUP

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1 Introduction

ComEd, Ameren Illinois (Ameren), and Nicor Gas (the Utilities) contracted with GDS Associates (GDS) and GDS's team of subcontractors to develop a baseline study for the nonresidential (C&I) sector. The nonresidential baseline study, a companion residential baseline study, and an energy efficiency potential study combine to provide comprehensive perspectives on the energy use and energy efficiency opportunities within the Utilities' service territories. The nonresidential baseline study provided inputs into the energy efficiency potential study and also provides data and insight for other stakeholders and users of the data.

The nonresidential baseline study was completed with three major elements of primary data collection. These include:

- A large-scale online survey of the Utilities' nonresidential customers to understand the presence of energy consuming equipment. The online survey was also used to recruit for onsite data collection and an additional willingness to participate survey.
- Onsite data collection was conducted by trained technicians to gather technical information difficult to acquire via the online survey. Additionally, site visits were used to verify and inform possible adjustments to the online survey results.
- The willingness to participate survey enabled respondents to describe how they may choose or not choose energy efficiency equipment under various simple payback levels. Additionally, these results were used to inform adoption curves used in the potential study.

Recruitment into the nonresidential baseline study was driven by utility account records with email addresses. These records served as the starting point to understand and confirm respondent energy service providers, building type, and other firmographic information, with utility service provider and building type being points of disaggregation in the results. This report is organized to present the study and results in the following major sections:

Section 2: Methodology Summary

Section 3: Online and Onsite Combined Utility Results

Section 4: Willingness to Participate Results

Appendix: Willingness to Participate Detailed Responses

Note that detailed tables for baseline results are not provided in this written report due to the extensive and complex nature of the responses across building types and utilities. These details are available in an MS-Excel workbook entitled "2023-2024 Illinois Nonresidential Baseline Study."

2 Methods

To collect baseline C&I facility and equipment information, the team used a multi-pronged approach. The team first contacted non-residential customers of Ameren Illinois, ComEd, and Nicor Gas through an online survey. The survey collected high-level penetration information on energy-using equipment and facility characteristics. It also served as a recruitment tool for subsequent on-site data collection, where more detailed equipment information was collected, and a second survey focused on customers' willingness to participate in energy efficiency programs.

2.1 SAMPLE DEVELOPMENT

The study's sampling unit was the business premise, which is defined as a unique business at a unique location. Using data provided by the three sponsor utilities, the team consolidated individual customer accounts into unique business premises. We further cleaned the data by removing premises that were out of the scope of the study (e.g., cell phone towers or street lighting) or had missing usage data.

Following the identification of sites for the population, each site was assigned to sample stratum. Two stratification variables were established for this study:

- **Size - Annual Energy Use**. "Small" denotes sites using less than 100 MWh/year AND less than 60,000 Therms/year while "large" denotes sites using 100 MWh/year or more OR 60,000 Therms/year or more.
- **Segment** – Using 4-digit NAICS codes, the team classified the premises into 11 segments, including nine commercial segments, agriculture, and industrial. Large shares of the premises has missing segments in the utility data and the survey was used to assign respondents to a study segment if needed (or to confirm the utility's segmentation).

The team used a stratified random sample approach to ensure coverage of each important group. Stratification improves the precision of the results by breaking the overall population into more homogenous groups to target specific areas of interest. It also served as an important guide for recruiting to limit reliance on the weighting scheme during analysis. Stratifying premises by their energy usage allowed the team to collect information on energy-using equipment typically only found in large facilities, and to assure that these types of facilities were adequately represented in overall estimates.

Table 1, Table 2, and Table 3 show the populations of C&I premises for ComEd, Ameren Illinois, and Nicor Gas, respectively.

TABLE 1. COMED C&I POPULATION

Segment	Small	Large	Total
Office	113,900	12,440	126,340
Hospitals/ Health Services	20,819	2,420	23,239
Retail	26,678	4,651	31,329
Food Service	12,778	5,577	18,355
Warehouse	10,447	2,797	13,244
Grocery/Convenience	5,220	3,100	8,320
Education	4,691	3,026	7,717
Lodging/Hospitality	1,111	707	1,818
Other Commercial	41,680	5,483	47,163

Segment	Small	Large	Total
Multifamily	3,405	231	3,636
Agriculture	27,199	6,202	33,401
Industrial	9,493	1,304	10,797
Unknown	27,185	1,873	29,058
Total	304,606	49,811	354,417

TABLE 2. AMEREN ILLINOIS C&I POPULATION

Segment	Small	Large	Total
Office	47,360	2,675	50,035
Hospitals/ Health Services	5,211	1,008	6,219
Retail	11,192	1,193	12,385
Food Service	1,351	113	1,464
Warehouse	15,576	998	16,574
Grocery/Convenience	1,747	1,092	2,839
Education	5,538	1,336	6,874
Lodging/Hospitality	1,119	395	1,514
Other Commercial	24,782	2,272	27,054
Multifamily	3,220	240	3,460
Agriculture	14,753	1,885	16,638
Industrial	6,227	134	6,361
Unknown	44,138	2,089	46,227
Total	182,214	15,430	197,644

TABLE 3. NICOR GAS C&I POPULATION

Segment	Small	Large	Total
Office	49,509	326	49,835
Hospitals/ Health Services	13,192	284	13,476
Retail	15,807	109	15,916
Food Service	13,729	60	13,789
Warehouse	8,797	255	9,052
Grocery/Convenience	3,417	187	3,604
Education	8,869	562	9,431
Lodging/Hospitality	870	33	902
Other Commercial	20,478	297	20,775
Multifamily	28,889	145	29,034
Agriculture	889	70	958
Industrial	23,645	1,275	24,920
Total	188,090	3,602	191,692

After establishing the C&I population of the three sponsor utilities, the team consolidated the data into a single sample frame consisting of unique premises with an email address. The team then set targets for each utility/segment/size stratum based on a combination of the number of premises in the sample frame, an expected response rate, and precision goals.

Using the stratified random sampling approach, the team attempted to contact 116,685 of the 467,776 business premises in the sample frame to complete the survey.[1] The team sent invitation emails from March to June 2024. As responses were received, the data collection team tracked response rates by targeted groups and adjusted the proportions by group for each survey wave. This was done to reach all the stratum targets. In addition to the email invitations, the study team worked with utility account managers to reach large managed accounts to increase the number of completes in the large usage strata. Overall, the survey effort resulted in a total of 1,702 complete C&I surveys or a 1.5% response rate as well as 657 partial surveys. After reviewing all responses, the study team was able to use 2,157 surveys in the analysis, supplemented by 399 site visits, as shown in the table below.

TABLE 4. C&I BASELINE STUDY COMPLETED SURVEYS AND SITE VISITS

Segment	Size	Electric Utility	Sample Frame	Completed Surveys	Completed Site Visits
Office	Large	Ameren Illinois	2,675	3	2
		ComEd	12,440	46	4
	Small	Ameren Illinois	47,360	127	20
		ComEd	113,900	186	27
Hospitals/ Health Services	Large	Ameren Illinois	1,008	1	1
		ComEd	2,420	19	5
	Small	Ameren Illinois	5,211	25	2
		ComEd	20,819	167	33
Retail	Large	Ameren Illinois	1,193	2	1
		ComEd	4,651	17	2
	Small	Ameren Illinois	11,192	113	23
		ComEd	26,678	171	35
Food Service	Large	Ameren Illinois	113	8	4
		ComEd	5,577	31	11
	Small	Ameren Illinois	1,351	21	5
		ComEd	12,778	86	23
Warehouse	Large	Ameren Illinois	998	1	0
		ComEd	2,797	21	1
	Small	Ameren Illinois	15,576	86	11
		ComEd	10,447	89	13
Grocery/Convenience	Large	Ameren Illinois	1,092	7	3
		ComEd	3,100	8	3
	Small	Ameren Illinois	1,747	10	2
		ComEd	5,220	20	5
Education	Large	Ameren Illinois	1,336	4	2
		ComEd	3,026	38	12
	Small	Ameren Illinois	5,538	26	5
		ComEd	4,691	52	16
Lodging/Hospitality	Large	Ameren Illinois	395	4	0

[1] The team only contacted 24% of the total sample frame because some strata, such as small office, accounted for large shares of the total and did not need to be contacted after the target number of surveys were achieved.

Segment	Size	Electric Utility	Sample Frame	Completed Surveys	Completed Site Visits
		ComEd	707	11	5
		Ameren Illinois	1,119	18	6
	Small	ComEd	1,111	5	0
Other Commercial	Large	Ameren Illinois	2,272	8	1
		ComEd	5,483	43	6
	Small	Ameren Illinois	24,782	88	10
		ComEd	41,680	73	11
Multifamily	Large	Ameren Illinois	134	1	1
		ComEd	1,304	12	2
	Small	Ameren Illinois	6,227	65	10
		ComEd	9,493	109	18
Agriculture	Large	Ameren Illinois	240	2	1
		ComEd	231	3	1
	Small	Ameren Illinois	3,220	50	8
		ComEd	3,405	47	10
Industrial	Large	Ameren Illinois	1,885	4	0
		ComEd	6,202	59	9
	Small	Ameren Illinois	14,753	31	8
		ComEd	27,199	139	21
Subtotal	*Large*	*Ameren Illinois*	*13,341*	*45*	*16*
		ComEd	*47,938*	*308*	*61*
	Small	*Ameren Illinois*	*138,076*	*660*	*110*
		ComEd	*277,421*	*1,144*	*212*
Total			**476,776**	**2,157**	**399**

2.2 DATA COLLECTION

2.2.1 Survey Instrument

The C&I baseline survey collected a variety of information about C&I facilities and their energy-using equipment. The data points collected in the C&I baseline survey are summarized in the list below.

- Occupancy Verification
- Business segment
- On-site study recruitment
- Building characteristics (age, square footage, seasonality)
- Cooling equipment
- Heating equipment and energy source
- Ventilation
- HVAC controls
- Water heating equipment and energy source
- Refrigeration
- Lighting
- Commercial kitchen equipment
- Compressed air
- Motors and pumps
- Energy management

- On-site generation
- EVs and EV chargers
- Agriculture equipment
- Other equipment
- Maintenance and behavior
- Firmographics
- Consent to receive Willingness to Pay survey invitation

The data points collected in the C&I Willingness To Pay survey are summarized in the list below.

- Perspectives on investment levels to define “major” or “minor” investments in energy efficiency
- For space heating and cooling, domestic water heating, and refrigeration:
    - Barriers and motivators to invest in energy efficient equipment
    - Simple payback scenarios to understand willingness to install energy efficient equipment with utility incentives
- For advanced lighting controls:
    - The presence of various lighting control equipment in their facility,
    - Experience with and knowledge of advanced lighting control technologies
    - Current status of their facility vis a vis LED lighting retrofits
    - Interest in future considerations for installing advanced lighting controls

2.2.2 On-Site Data Collection Tool

The study team developed a customized on-site data collection tool to collect the facility and equipment information required for this study. The team programmed the survey into QuickBase, a cloud-based application development platform. The application ensured consistent data collection across technicians and sites, as well as skip logic so only the appropriate fields are collected depending on the previous entered information about the site and equipment. It also served as both a scheduling tool for site visits and a comprehensive data repository to display and analyze data. The tool collected detailed facility and equipment information, including:

- General site information
- Building information
- Building envelope characteristics
- HVAC controls
- Cooling equipment
- Chillers
- Energy management systems
- Heating equipment
- HVAC ventilation
- Steam traps
- Lighting
- Commercial kitchen equipment
- Commercial laundry
- Combined heat and power
- Renewables
- Other equipment
- Compressed air equipment

- Motors
- Retrocommissioning
- Water heating
- Agriculture equipment and irrigation

2.2.3 Data Collection

2.2.3.1 Online Baseline Survey

As discussed above, the study team sent email invitations to a stratified random sample of C&I customers of Ameren Illinois, ComEd, and Nicor Gas. The team offered a $25 incentive to complete the survey.

2.2.3.2 Willingness to Participate Survey

The study team included in the online baseline survey an invitation to participate in the willingness to participate survey. The team offered a sweepstakes incentive for a chance to win one of 10 $200 gift cards.

2.2.3.3 On-Site Data Collection

The on-line survey was used to recruit a subset of C&I facilities for the on-site data collection. Within two weeks of the survey completion, the study team contacted respondents who indicated an interest to schedule an on-site assessment at their convenience. To maximize study participation, on-site assessment participants were offered a $150 stipend (in addition to the $25 online survey stipend). Once an onsite survey was scheduled, trained field engineers were deployed to the facility to conduct the site visit.

3 Key Baseline Study Results

3.1 BUILDING CHARACTERISTICS

Survey participants were asked about the characteristics of their premise and the facility in which they were located. Table 5 shows the mean area of the business premise by segment.

TABLE 5. MEAN PREMISE SQUARE FOOTAGE BY SEGMENT

Segment	Total
Office	15,064
Hospitals/ Health Services	6,666
Retail	8,097
Food Service	3,302
Warehouse	49,993
Grocery/Convenience	5,924
Education	31,948
Lodging/Hospitality	38,151
Other Commercial	8,361
Multifamily	29,008
Agriculture	23,631
Industrial	31,346

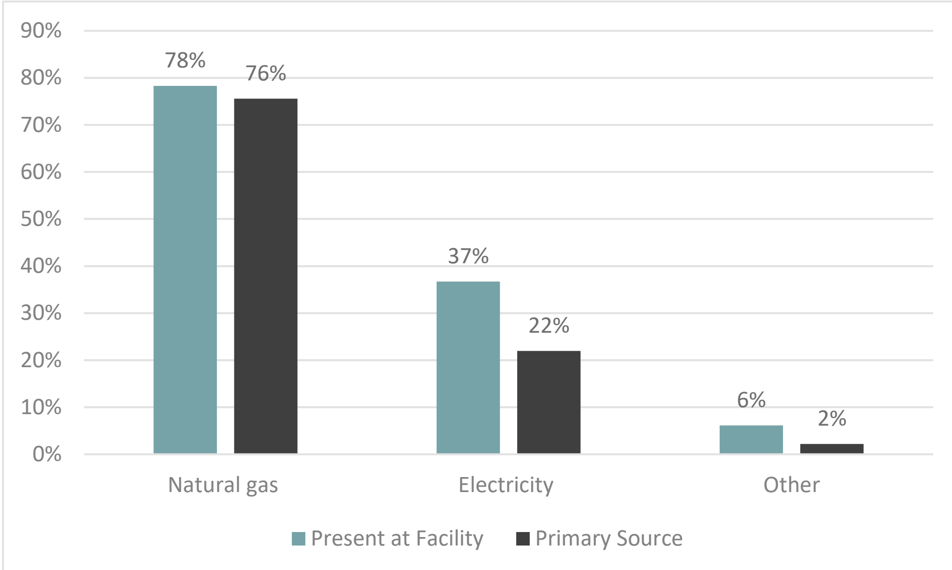
Other key building characteristics findings include:

- Overall, 51% of businesses owned their space at the facility in which they were located. However, this varied by geography: 72% of Ameren Illinois electric customers owned their space compared to only 43% of ComEd customers and 45% of Nicor Gas customers.
- Nearly all facilities (98%) operate year-round.
- 69% of businesses occupy all of the facility in which they are located.
- Approximately half (54%) of facilities are stand-along buildings, while 30% are buildings that share walls with other buildings and 8% consist of multiple buildings.
- Approximately one in five (17%) of facilities participated in an energy efficiency program in the past five years. This share was very similar across the different utilities.

3.2 SPACE HEATING

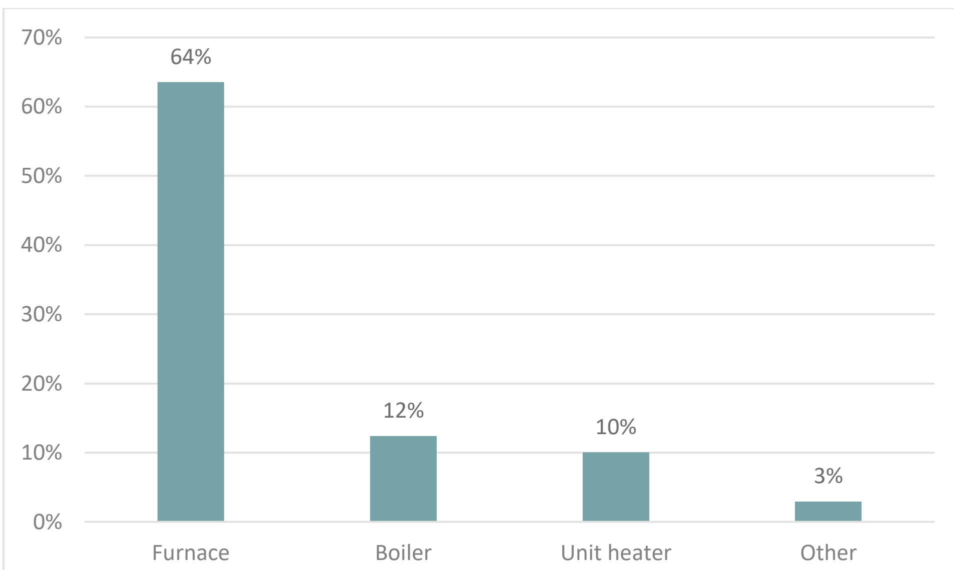
The vast majority (87%) of organizations have dedicated heating systems that serve only their space and is not shared with other spaces. Natural gas was the primary energy source for space heating equipment among Illinois C&I facilities. As shown in Figure 1, more than three quarters (78%) of facilities had natural gas heating equipment and natural gas was the primary energy source at 76%. Thirty-seven percent of facilities had electric heating equipment, but this was the primary energy source for only 22% of facilities.

FIGURE 1. ENERGY SOURCE FOR SPACE HEATING (N=2050)



Furnaces made up the majority of natural gas space heating equipment and 64% of facilities have a natural gas furnace, compared to 12% with a natural gas boiler and 10% with a natural gas unit heater.

FIGURE 2. PENETRATION OF NATURAL GAS SPACE HEATING EQUIPMENT (N=1321)



Twenty percent of Illinois facilities have electric resistance space heating equipment and 13% have electric unit heaters. According to the survey, six percent of facilities have heat pumps. This is similar to the penetration of heat pumps found in the site visits (9%).

FIGURE 3. PENETRATION OF ELECTRIC SPACE HEATING EQUIPMENT (N=487)

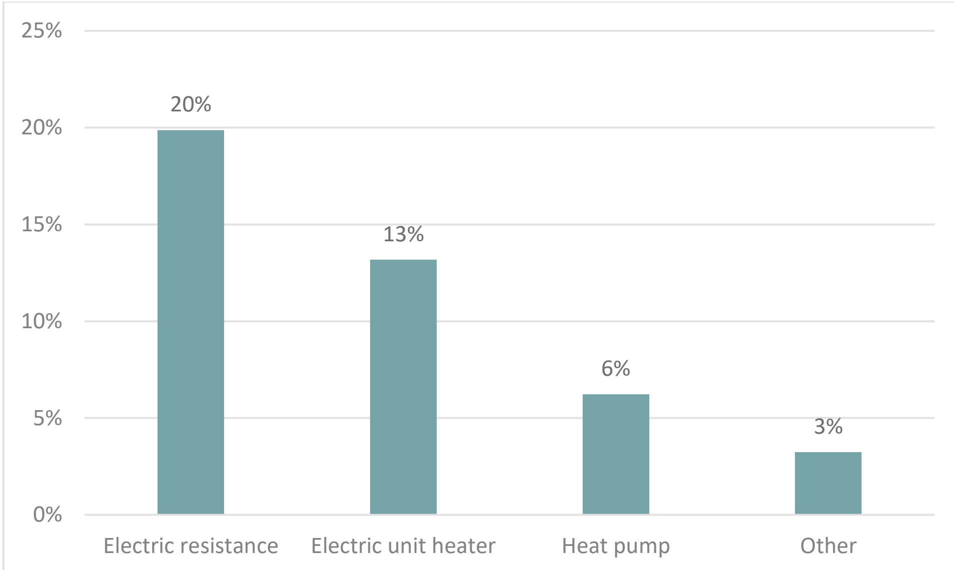


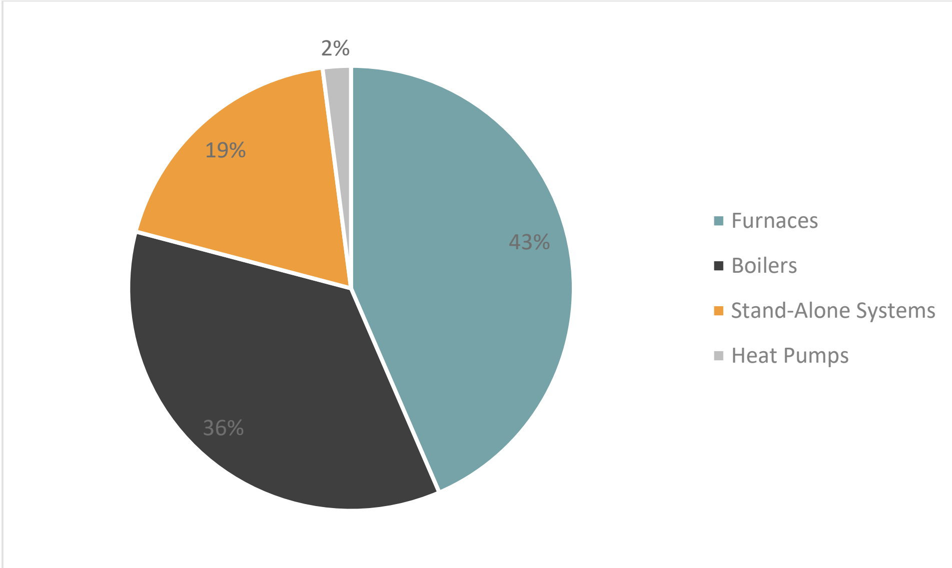
Table 6 shows equipment characteristics for major space heating equipment types, including their average age, capacity, and efficiency.

TABLE 6. HEATING EQUIPMENT CHARACTERISTICS

Equipment Type	Average Age	Average Capacity (Btu/hr)	Average Efficiency
Furnace	12.8	133,818	83% AFUE
Boiler	20.7	781,166	86% AFUE
Heat Pump	9.6	35,634	8.7 HSPF

Furnaces accounted for the largest share (43%) of total heating capacity, slightly more than boilers (36%). Although boilers are less common than furnaces, they tend to have larger heating capacities. Heat pumps currently only account for a small share of total heating capacity in Illinois, but that will likely increase as this technology continues to be adopted. Stand-alone systems make up the remaining 19%. Stand-alone systems include a variety of heating equipment types that are not part of a larger HVAC system, such as space heaters and unit heaters.

FIGURE 4. SHARE OF TOTAL HEATING CAPACITY BY EQUIPMENT TYPE

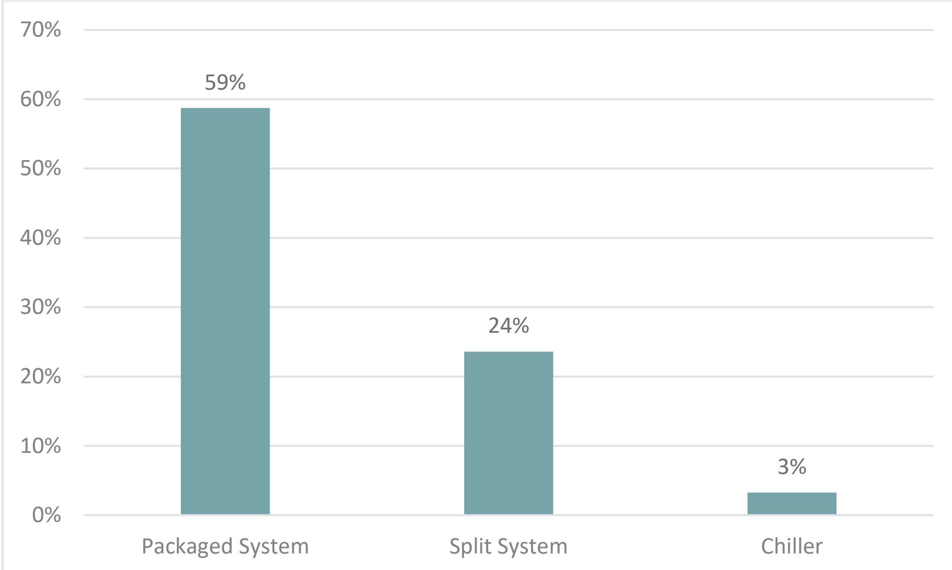


3.3 SPACE COOLING

Eighty-one percent of Illinois C&I facilities have cooling equipment. Of those, 85% have dedicated cooling that serves only their space and is not shared with other spaces. The large majority of facilities (81%) have central air conditioning equipment, while 15% have room, window, or through-wall air conditioning.

Figure 5 shows the penetration of central cooling equipment. Most C&I facilities (59%) have packaged systems, while one-quarter have split systems, and only 3% have chillers.

FIGURE 5. PENETRATION OF CENTRAL COOLING EQUIPMENT (N=1222)



Window/wall AC units are the most common room or window AC equipment, with 10% of facilities reporting having this equipment. Two percent of facilities have ductless mini-split systems and another two percent have portable ACs.

Table 7 shows equipment characteristics for major cooling equipment types, including their average age, capacity, and efficiency. Note that the study team did not have enough observations of split system efficiencies to report.

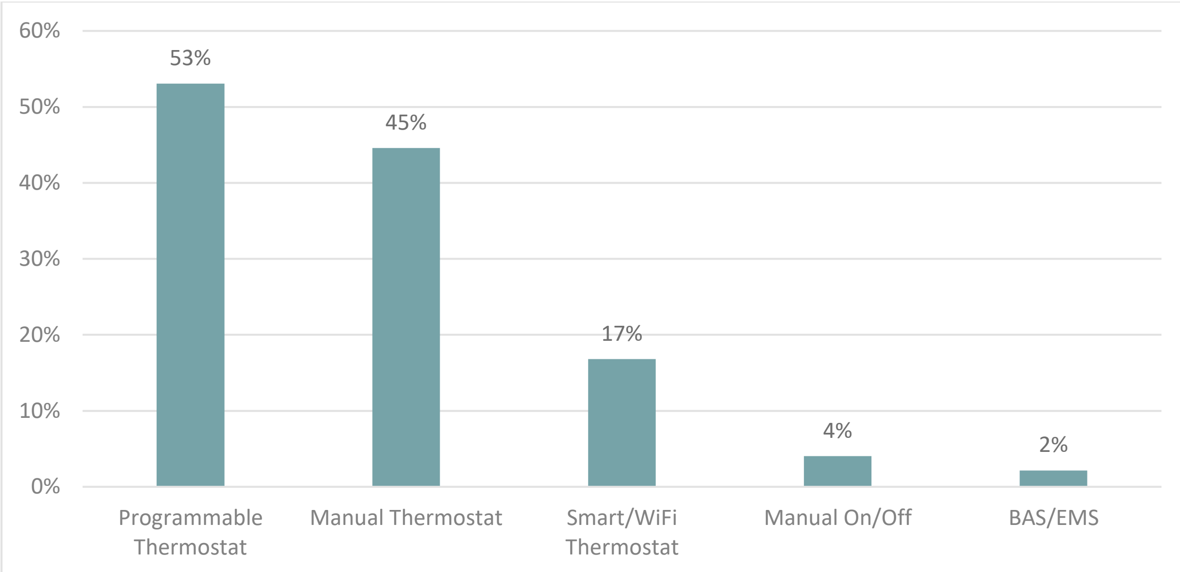
TABLE 7. COOLING EQUIPMENT CHARACTERISTICS

Equipment Type	Average Age	Average Capacity	Average Efficiency
Split System	12.1	3.9 tons	--
Packaged System	10.5	7.8 tons	11.3 EER
Window/Wall AC	15.5	18,863 Btu/hr	11.2 EER

3.4 HVAC CONTROLS

Many C&I facilities have more than one HVAC control type. As shown in Figure 6, slightly more than half of facilities have programmable thermostats and another 45% have manual thermostats. Smaller shares of sites have other HVAC control types.

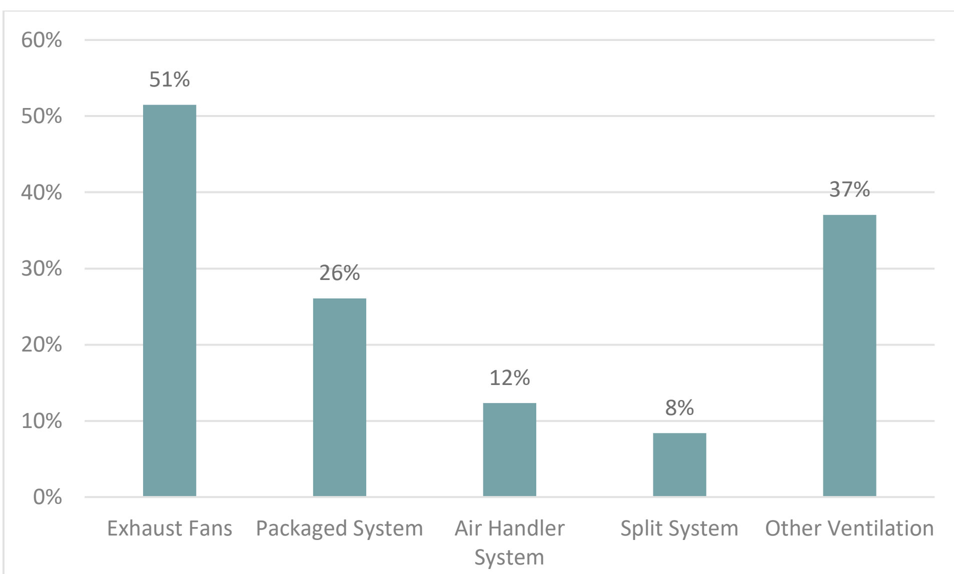
FIGURE 6. PENETRATION OF HVAC CONTROLS (N=355)



3.5 VENTILATION

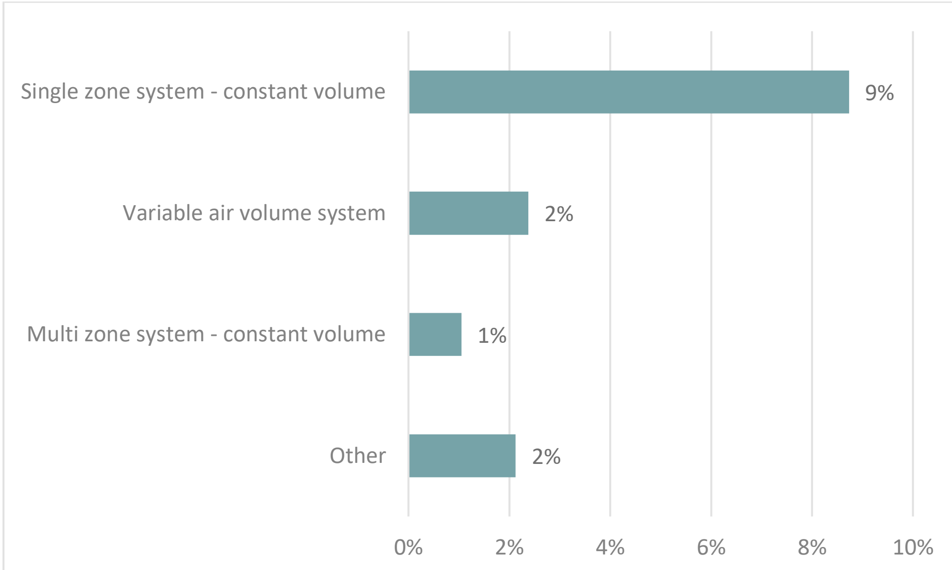
Illinois C&I facilities use a variety of equipment for ventilation. Roughly half (51%) have exhaust fans and 12% have air handler systems. Other facilities use their packaged systems, split systems, or other equipment to ventilate their spaces.

FIGURE 7. PENETRATION OF VENTILATION EQUIPMENT



Among sites with air handlers, constant volume single zone systems were the most common, as shown in Figure 8.

FIGURE 8. PENETRATION OF AIR HANDLER AIR DISTRIBUTION SYSTEMS

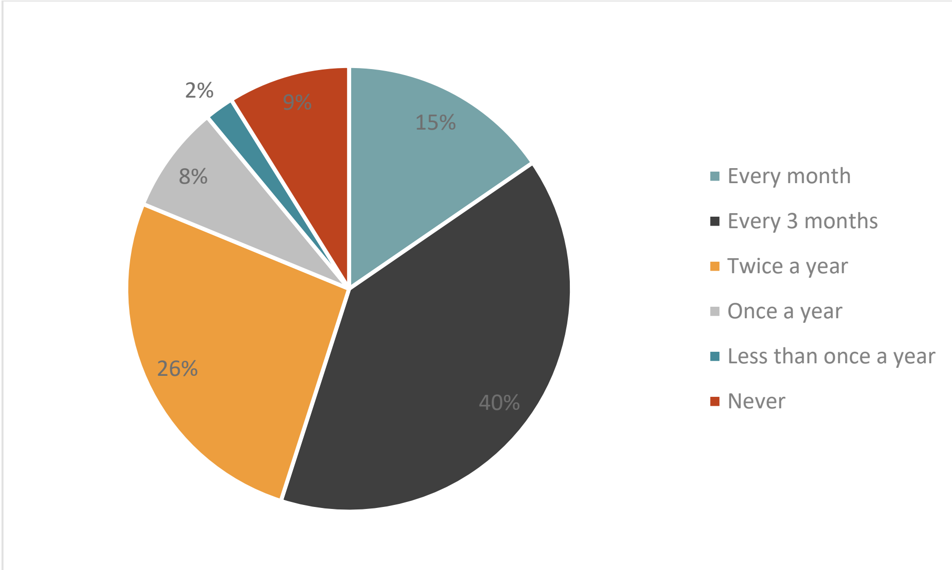


Other notable ventilation findings include:

- Twenty-one percent of Illinois facilities have demand controlled ventilation. This was most common in the food service, lodging/hospitality, and grocery/convenience segments.
- Twenty percent of facilities have ventilation hoods. Of those, 41% have variable fan speed or demand controlled ventilation. Hoods are most common in the food service, lodging/hospitality, education, and grocery/convenience segments.
- Only 13% of facilities have ventilation systems with a heat recovery ventilator (HRV).
- Slightly more than one quarter (27%) of facilities have a Dedicated Outdoor Air System (DOAS)

As shown in Figure 9, more than half of facilities replace the filters in their air circulation or ventilation equipment at least once every three months. Notably, 86% of lodging/hospitality facilities change their filters at least once every three months. Approximately two-thirds of grocery/convenience, food service, and hospitals/health services facilities also replace their filters on this schedule.

FIGURE 9. FILTER REPLACEMENT SCHEDULE FOR VENTILATION EQUIPMENT (N=257)

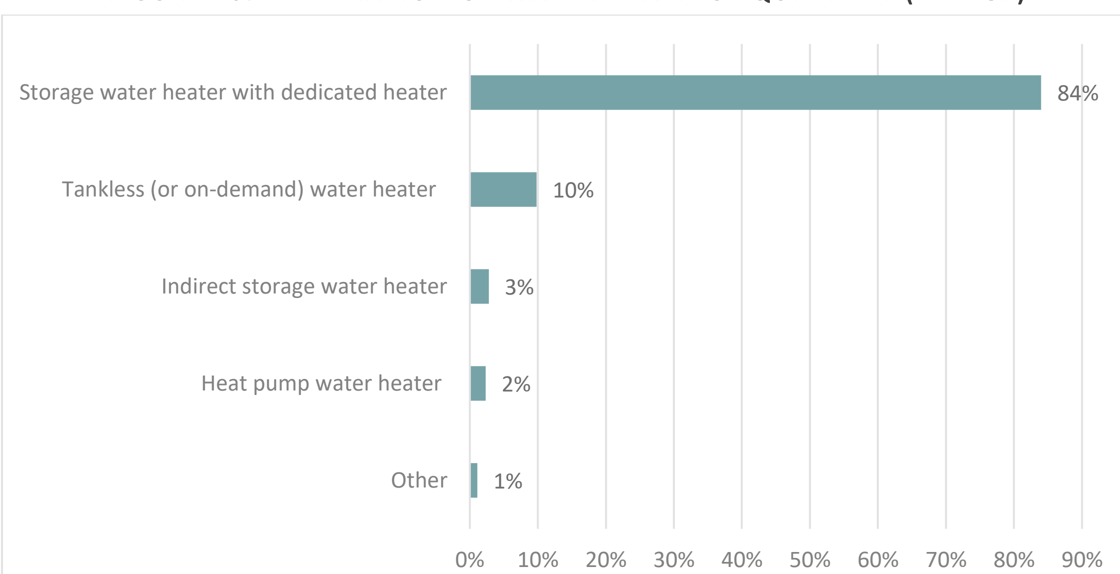


3.6 WATER HEATING AND LAUNDRY

3.6.1 Domestic Water Heaters

Eighty-one percent of Illinois C&I facilities have equipment for water heating. Of those, 80% have dedicated water heating equipment not shared with other spaces. Natural gas was the most common energy source: 60% of facilities have natural gas water heating equipment while 38% have electric water heaters and 1% have propane units. As shown in Figure 10, the vast majority (84%) of facilities have storage water heaters with dedicated (non-heat pump) heaters.

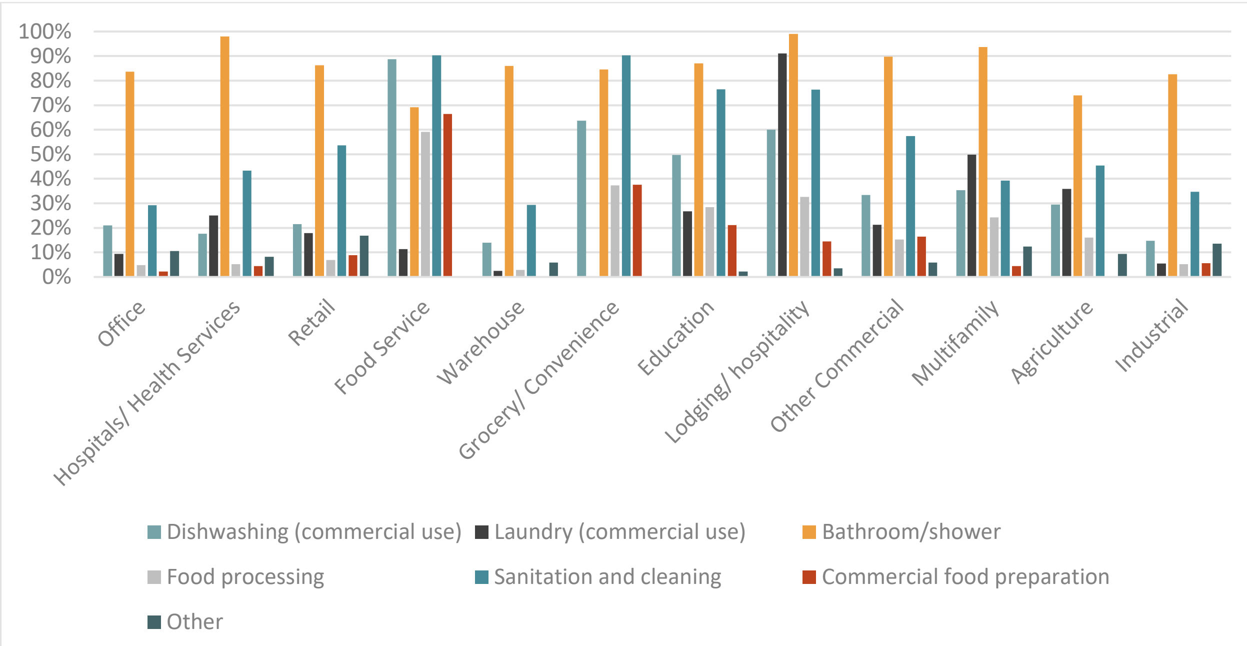
FIGURE 10. PENETRATION OF WATER HEATING EQUIPMENT (N=1187)



Natural gas storage tank water heaters have an average storage capacity of 53.2 gallons while electric versions have a capacity of 27.8 gallons. Tankless water heaters have capacities of 197,689 Btu for natural gas units and 8.9 kW for electric units.

Figure 11 shows the various applications for which C&I facilities use hot water. Most facilities (81%) use hot water for bathrooms and showers, followed by sanitation and cleaning (42%).

FIGURE 11. HOT WATER USE BY SEGMENT (N=2616)



3.6.2 Laundry Equipment

Fourteen percent of Illinois C&I facilities use hot water for commercial laundry. Of the sites with laundry equipment, 80% have a washer, 81% have a dryer, and 22% have a washer/dryer combination unit. Electricity is the most common energy source for dryers, with 58% of facilities using electricity and 40% using natural gas.

Key laundry equipment characteristics include:

- 32% of washers and 22% of dryers are ENERGY STAR rated.
- Twenty-two percent of washers use Xeros beads. However, these were all in the hospital/health services segment, where 92% of washers had Xeros beads.
- The average age of washers and dryers is 7.6 and 7.4 years, respectively.
- Less than 1% of washers are ozone washing machines. These were only found in the lodging/hospitality segment.

3.7 LIGHTING

Due to federal standards, building energy codes, and technology advances, both linear and non-linear LEDs have become broadly adopted in Illinois. Despite this growth in LED lighting, linear fluorescent and other types of lighting are still widely installed in facilities.

3.7.1 Linear Lighting

Figure 12 shows the penetration of linear commercial lighting in C&I facilities. 43 percent of facilities have at least one T8 linear fluorescent bulb installed and 20% have at least one T12. Linear LED retrofits, tubular linear LEDs, and linear LED luminaires have penetrations of 20%, 12%, and 5%, respectively.

FIGURE 12. PENETRATION OF LINEAR COMMERCIAL LIGHTING (N=294)

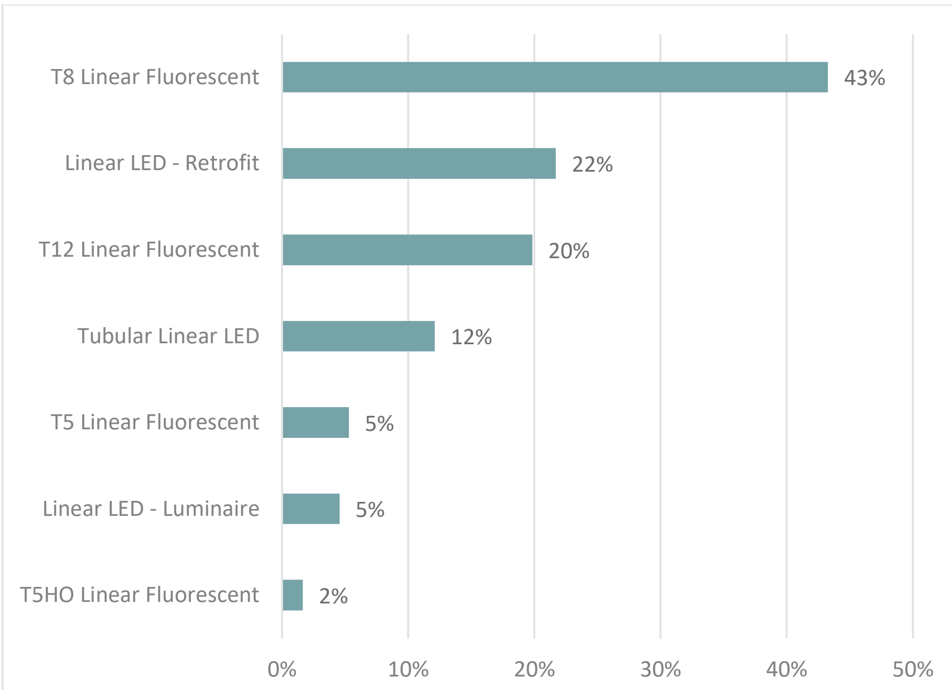
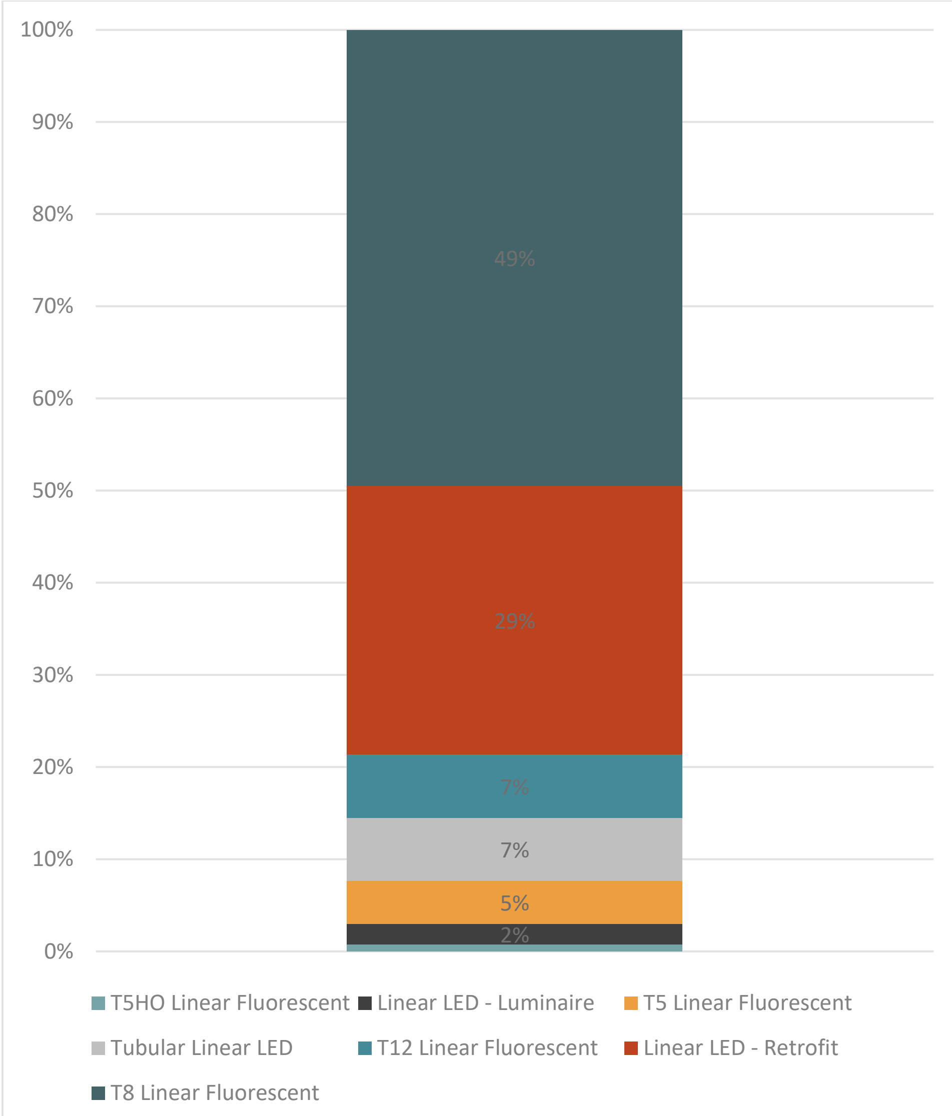


Figure 13 illustrates the socket saturation of linear commercial lighting. C&I facilities in Illinois have 91.4 linear fixtures on average. Among those, nearly half (49%) are T8 linear fluorescent fixtures and 29% are linear LED retrofit fixtures. All types of linear LED fixtures account for 38% of the total, or 35 fixtures per site.

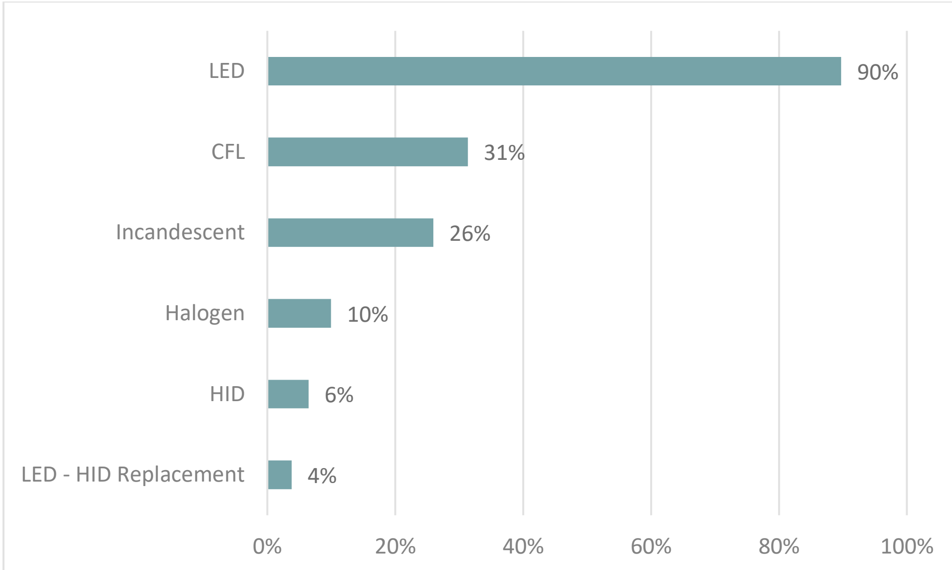
FIGURE 13. SOCKET SATURATION OF LINEAR COMMERCIAL LIGHTING (N=394)



3.7.2 Non-Linear Lighting

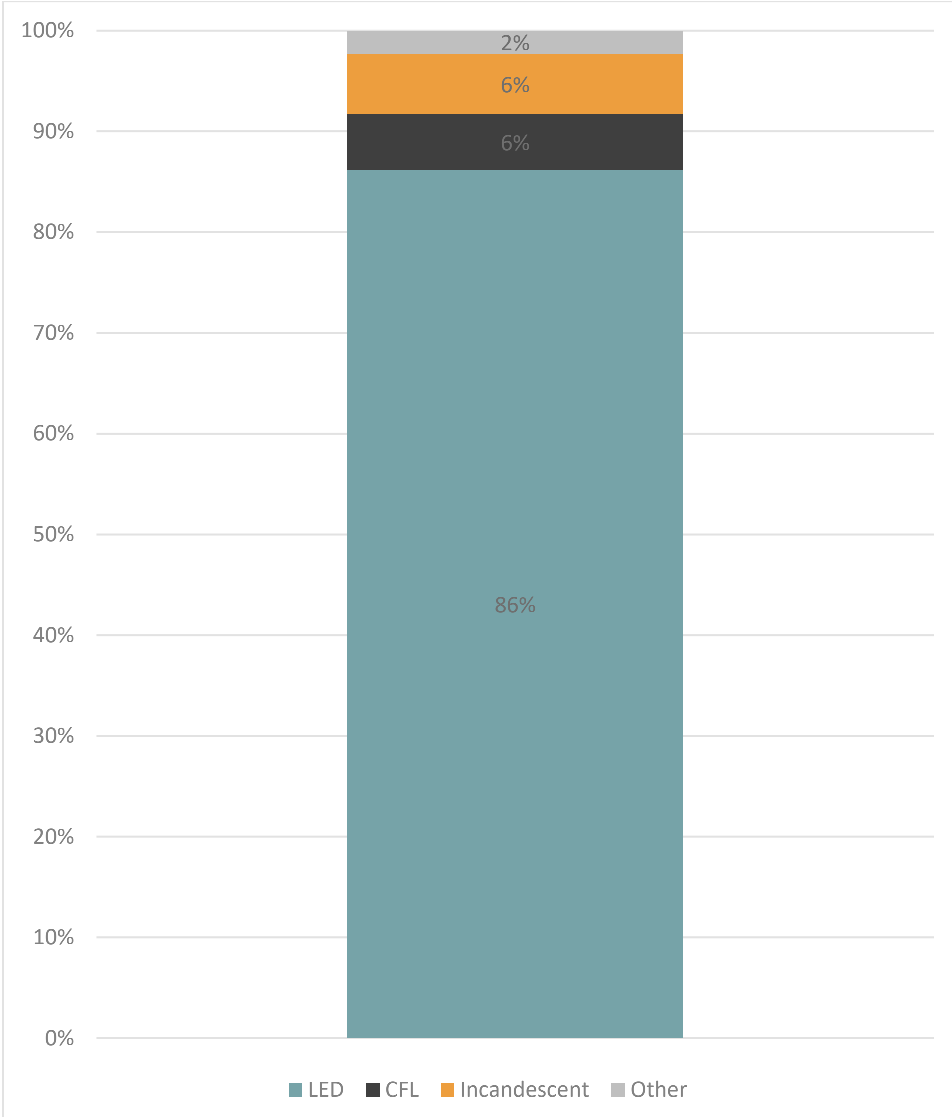
The non-linear lighting market is mostly transformed in the Illinois C&I sector. Ninety percent of facilities have at least one non-linear LED and 4% of facilities have LED – HID replacement fixtures.

FIGURE 14. PENETRATION OF NON-LINEAR COMMERCIAL LIGHTING (N=394)



Although notable shares of facilities have CFLs, incandescent, or halogen bulbs, they represent a very small share of installed bulbs as shown in Figure 15. C&I facilities in Illinois have an average of 99.9 non-linear light fixtures and the vast majority (86%) are LEDs.

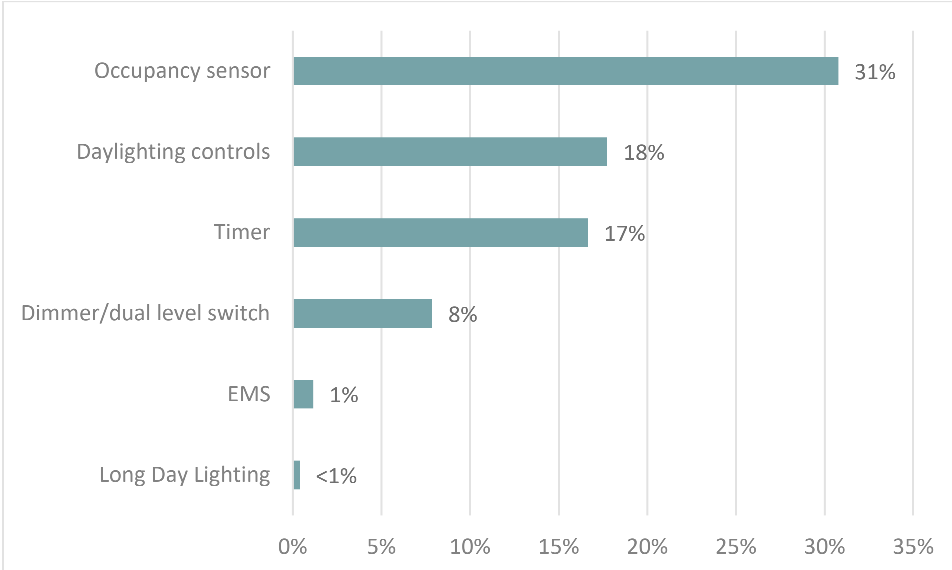
FIGURE 15. SOCKET SATURATION OF NON-LINEAR COMMERCIAL LIGHTING (N=394)



3.7.3 Lighting Controls

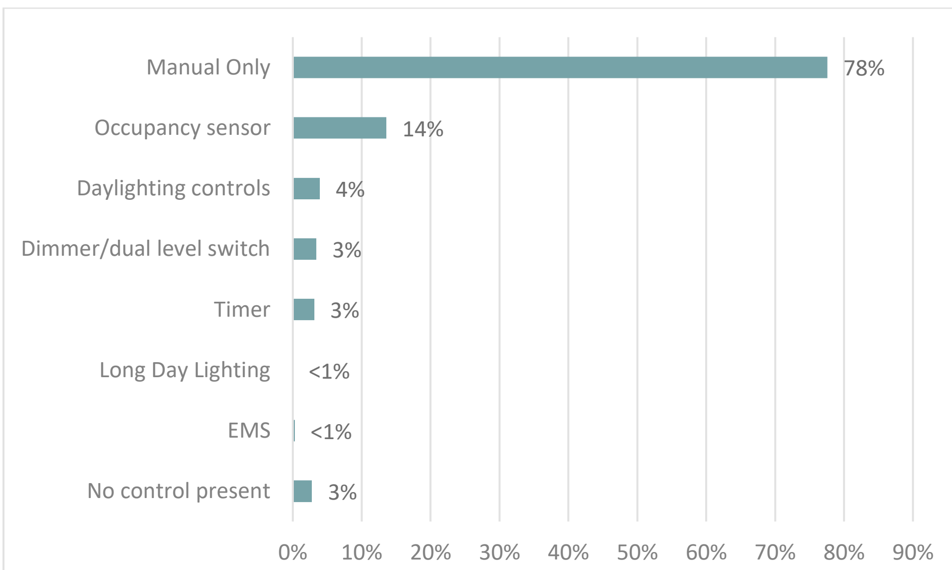
As expected, nearly all (98%) of C&I facilities in Illinois have at least one fixture only controlled by a manual switch. Forty percent have at least one fixture controlled by both a manual and one non-manual control (e.g., occupancy sensor, timer, etc.) and 3% have fixtures with manual and multiple non-manual controls. Twenty one percent of facilities have fixtures that have non-manual control only. Figure 16 shows the penetration of non-manual lighting controls. Nearly one-third of facilities have occupancy sensors and approximately half as many sites have daylighting controls or timers.

FIGURE 16. PENETRATION OF NON-MANUAL LIGHTING CONTROLS



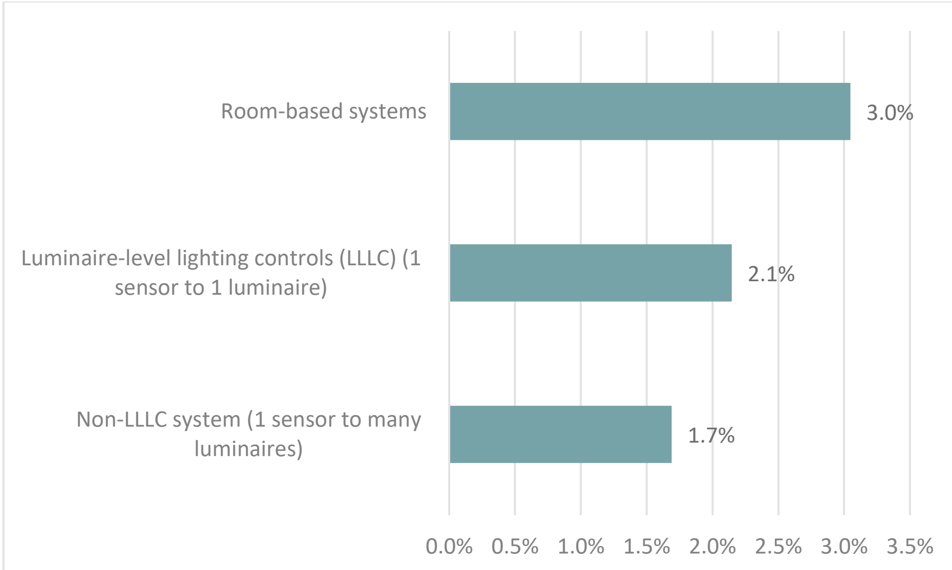
Although significant shares of facilities have non-manual controls, the large majority of light fixtures (78%) have manual controls (Figure 17). Fourteen percent of fixtures are controlled with occupancy sensors.

FIGURE 17. SHARE OF LIGHT FIXTURES CONTROLLED BY CONTROL TYPE



Seven percent of C&I facilities indicated in the survey that they have networked lighting controls. These types of controls can consist of: luminaire-level lighting controls (LLLCs), a system in which every luminaire has its own built-in sensor and controller; non-LLLC systems, in which sensors and controllers are installed remotely from luminaires; and room-based systems, which are pre-packaged sensors and controllers intended for lighting control in small spaces. As shown in Figure 18, the penetration for these controls is still very low.

FIGURE 18. PENETRATION OF NETWORKED LIGHTING CONTROLS BY TYPE (N=933)

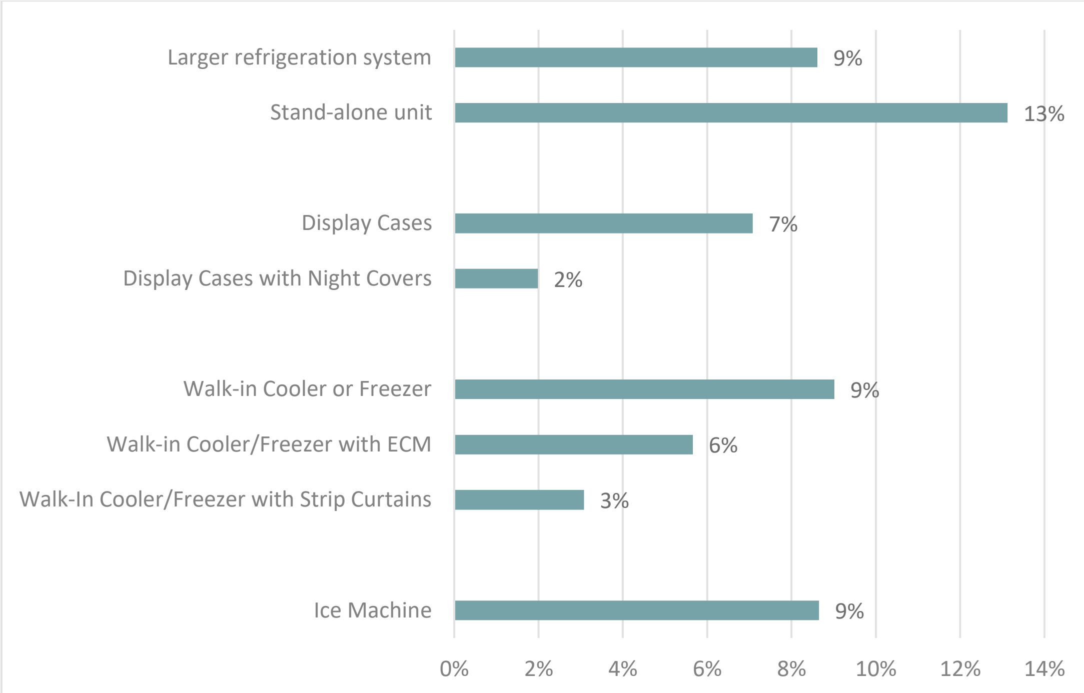


3.8 REFRIGERATION

Sixteen percent of C&I facilities have commercial or industrial refrigeration equipment. Nearly all (92%) of facilities have a residential-style solid door refrigerator or freezer.

Figure 19 shows the penetration of key commercial refrigeration equipment. Nine percent of facilities have a large refrigeration system, which includes large display cases or walk-in coolers where the compressor is separate from the refrigeration equipment, and 14% have stand-alone units, which have self-contained refrigeration not connected to a larger system. As expected, penetration of large commercial refrigeration systems is highest in the grocery/convenience and food service segments.

FIGURE 19. PENETRATION OF COMMERCIAL REFRIGERATION EQUIPMENT (N=1649)



The table below shows the average age of major types of commercial refrigeration equipment. Walk-in coolers and freezers are oldest, on average, with a mean age of 17 years.

TABLE 8. AVERAGE AGE OF COMMERCIAL REFRIGERATION EQUIPMENT

Equipment Type	Average Age
Walk-in Cooler or Freezer	17.2
Refrigerated Cases	12.0
Refrigerated Vending Machines	12.1
Stand-Alone Refrigeration	7.6
Residential-Style Solid Door Refrigerator	11.5

3.9 KITCHEN EQUIPMENT

Ten percent of C&I facilities have commercial kitchen equipment. Of the facilities with this equipment, the most common equipment types are commercial fryers, convection ovens, and dishwashers.

FIGURE 20. PENETRATION OF COMMERCIAL COOKING EQUIPMENT (N=680)

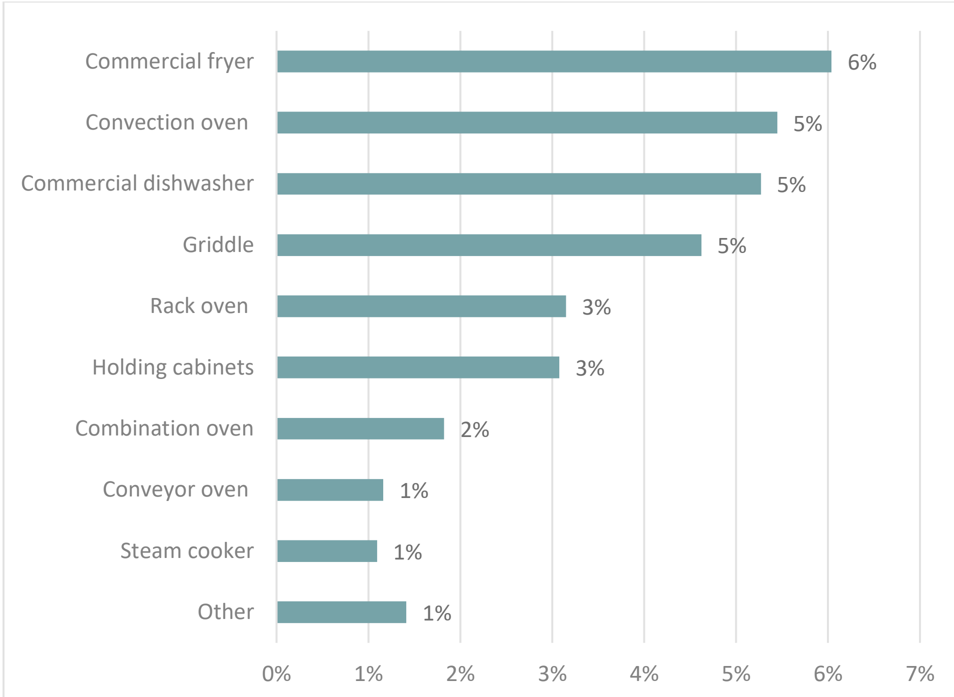
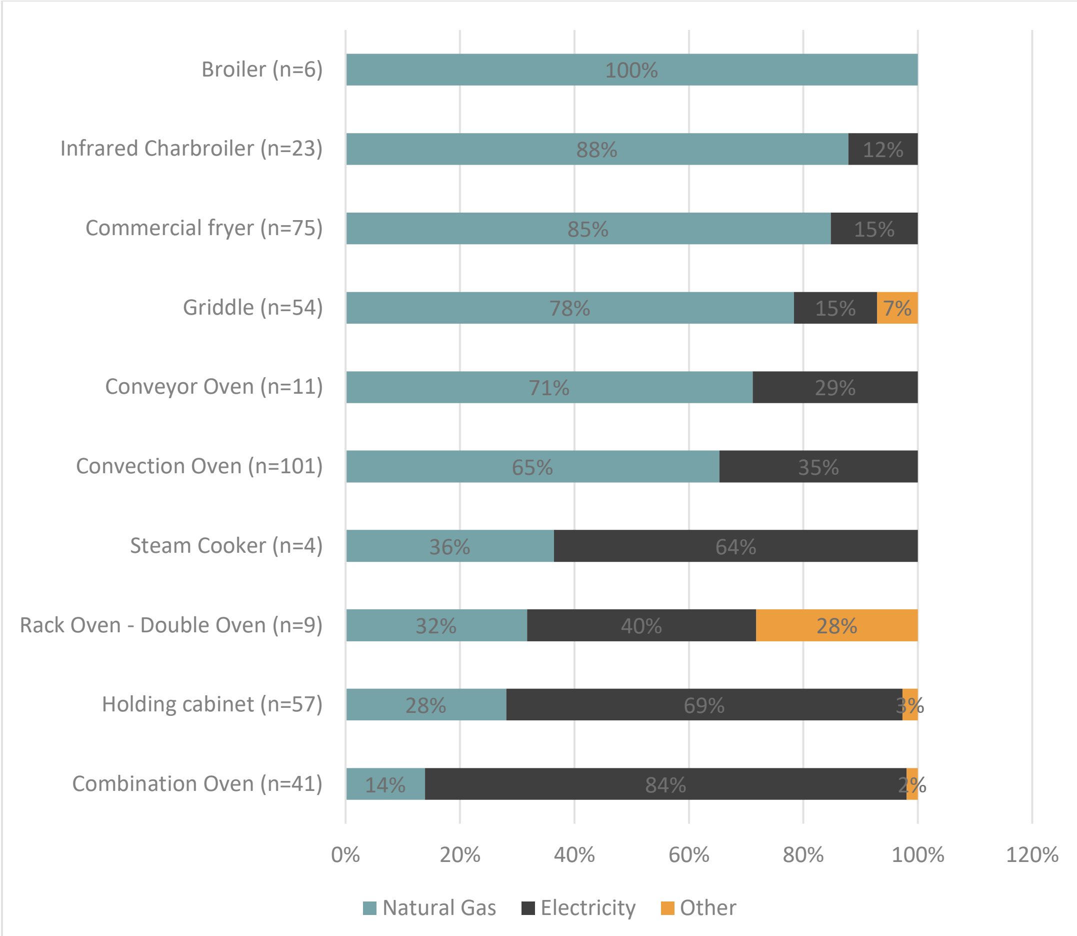


Figure 21 shows the energy source for major types of commercial kitchen equipment. Most equipment uses natural gas, but some types, such as combination ovens and holding cabinets, commonly use electricity.

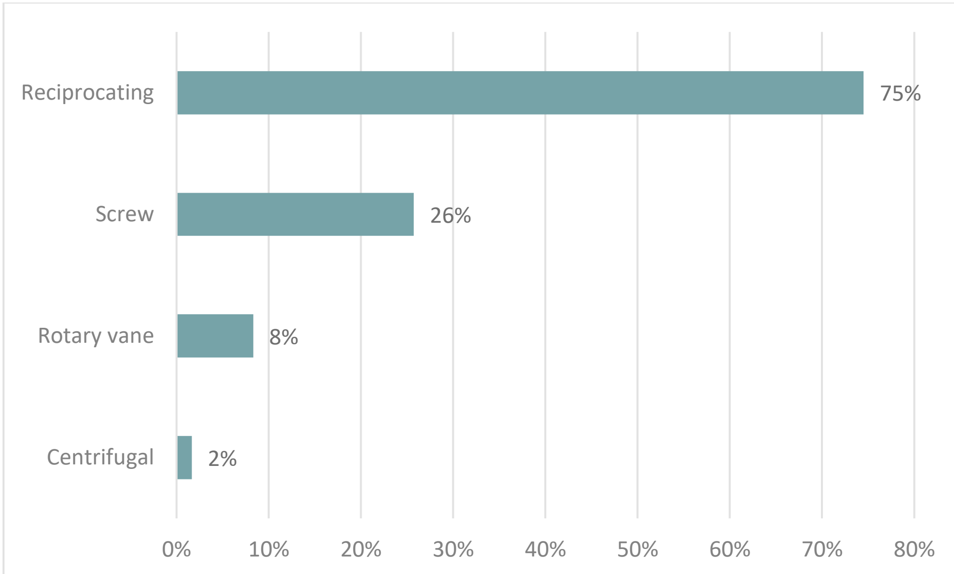
FIGURE 21. ENERGY SOURCE OF COMMERCIAL KITCHEN EQUIPMENT



3.10 COMPRESSED AIR

Five percent of Illinois C&I facilities have compressed air systems. As shown in Figure 22, reciprocating compressed air systems are the most common among facilities.

FIGURE 22. TYPES OF COMPRESSED AIR SYSTEMS (N=60)



The study team found the following:

- Approximately three-quarters (76%) of facilities do not have driers in their compressed air systems.
- Refrigerated dryers are by far the most common (22%) compared to membrane dryers (2%). Of the compressed air systems that have refrigerated dryers, 52% had cycling dryers and 48% and non-cycling dryers.
- Eighteen percent of systems had low pressure drop filters.
- Eleven percent of systems had zero loss condensate drains.
- The team found that 76% of systems had a storage tank receiver.

4 Willingness to Participate

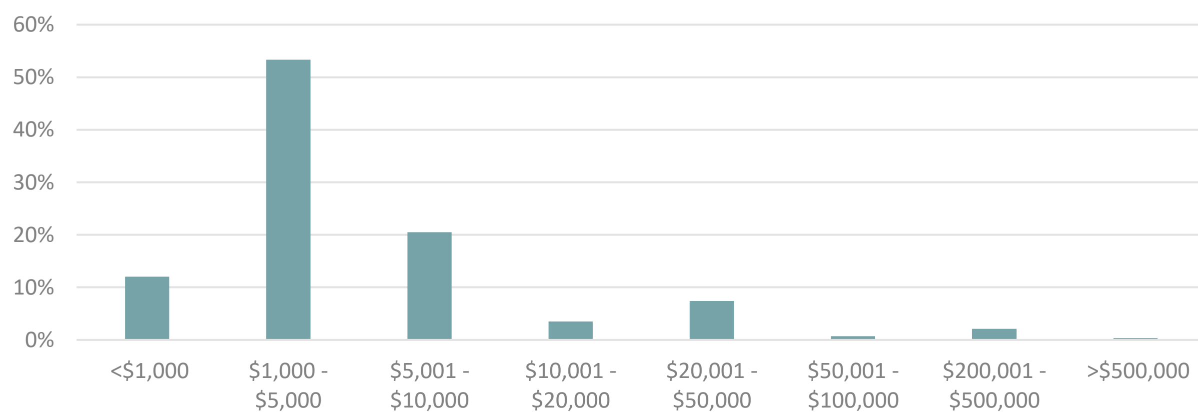
Online survey participants were asked a variety of questions to determine their willingness to participate (WTP) in energy efficiency. These willingness-to-participate questions helped to determine common barriers to prevent participation, incentive levels that would encourage participation, and awareness of certain energy efficiency measures. A total of 288 survey responses inform the results. While the detailed results in the appendix provide breakouts by several categories (electric utility, small vs large consumption categories, and commercial vs industrial), users should be cautious in using these more detailed break-outs due to small counts of respondents in some categories or for specific survey questions.

The WTP combined utility results asked a variety of questions, including background on financial criteria to make energy efficiency choices in equipment. Equipment types include heating and cooling, water heating, and refrigeration. A module focused on advanced lighting controls provides additional information regarding respondent experiences and decisions regarding past or future advanced lighting control opportunities.

4.1 WILLINGNESS TO PARTICIPATE IN ENERGY EFFICIENCY

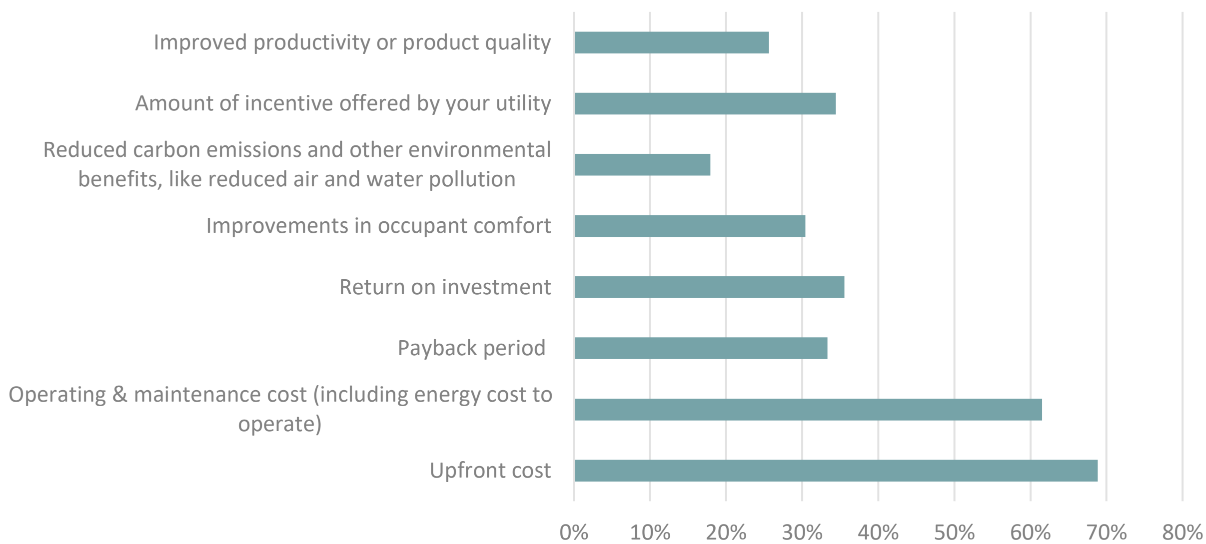
Survey participants were asked to indicate what dollar amount their organization would consider an investment to be a “major” investment. Major investments were defined as those that involve a more rigorous corporate approval process, and/or more careful consideration of costs and benefits. Figure 23 shows the results of this question. The majority of participants (53 percent) answered $1,000 to $5,000.

FIGURE 23. DOLLAR AMOUNTS ORGANIZATIONS CONSIDER TO BE A “MAJOR” INVESTMENT



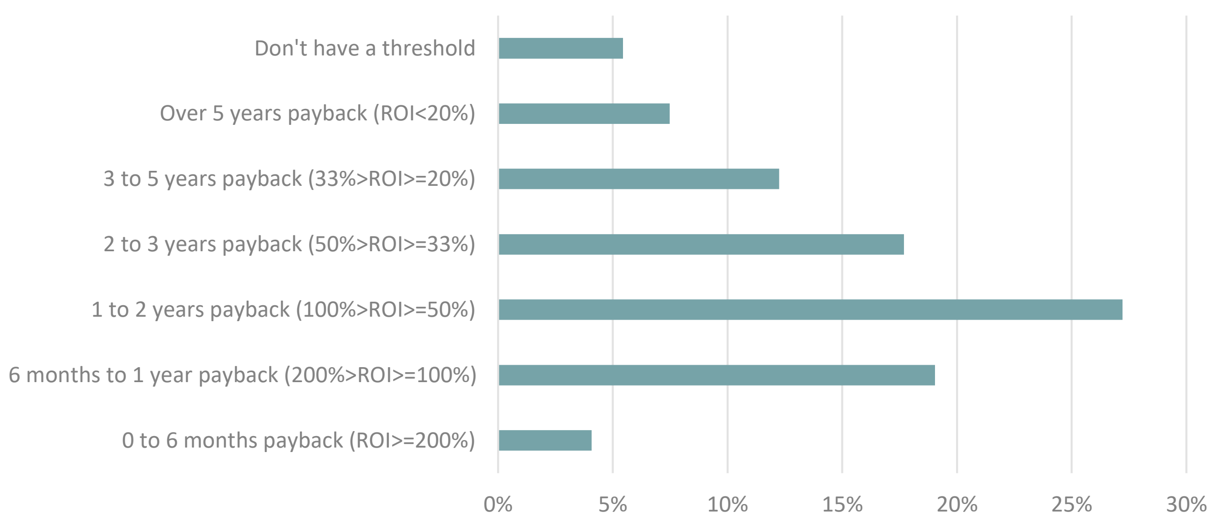
35 percent of survey respondents’ organizations made a major energy-related investment in the past three years. Participants were asked the factors that are most important to their organizations when making a major energy-related investment. Note that participants were allowed to select up to four choices. Results are shown in Figure 24. The two most common responses were upfront cost and operating and maintenance cost.

FIGURE 24. FACTORS THAT ARE MOST IMPORTANT TO ORGANIZATIONS WHEN MAKING A MAJOR ENERGY-RELATED INVESTMENT



For those participants selecting that payback period or return on investment was a deciding factor when making a major energy-related investment, a second question was asked to determine the typical threshold, in terms of the payback period, the organization uses when deciding to proceed with a major energy-related investment. The most common response was a payback period of one to two years, or a return on investment between 50 and 100 percent, shown in Figure 25.

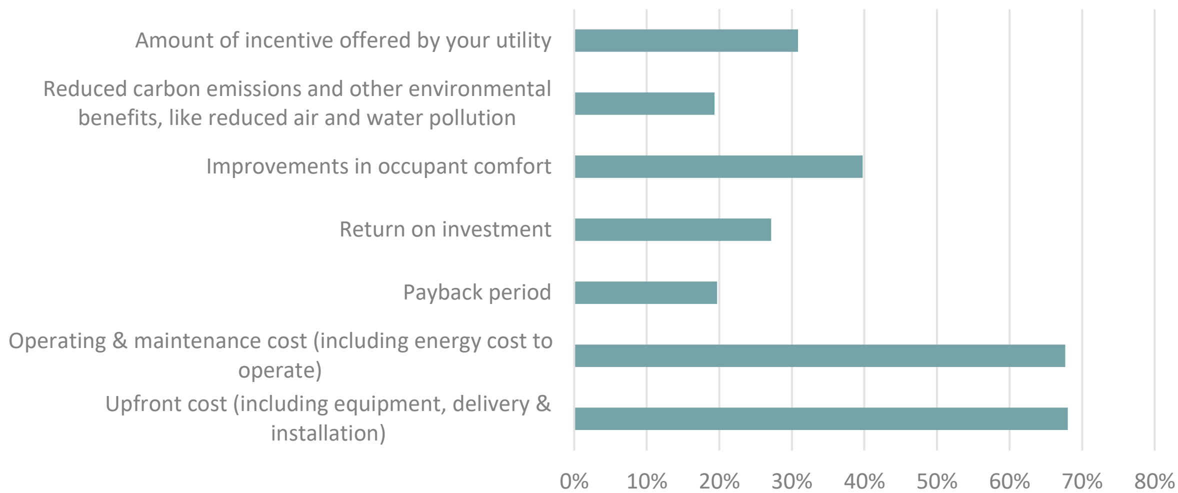
FIGURE 25. TYPICAL PAYBACK PERIOD ORGANIZATIONS USE WHEN DECIDING TO PROCEED WITH A MAJOR ENERGY-RELATED INVESTMENT



53 percent of survey respondents stated that their organization had made a minor energy-related investment in the past three years. Participants were asked the factors that are most important to their organizations when making a minor energy-related investment. Note that participants were allowed to

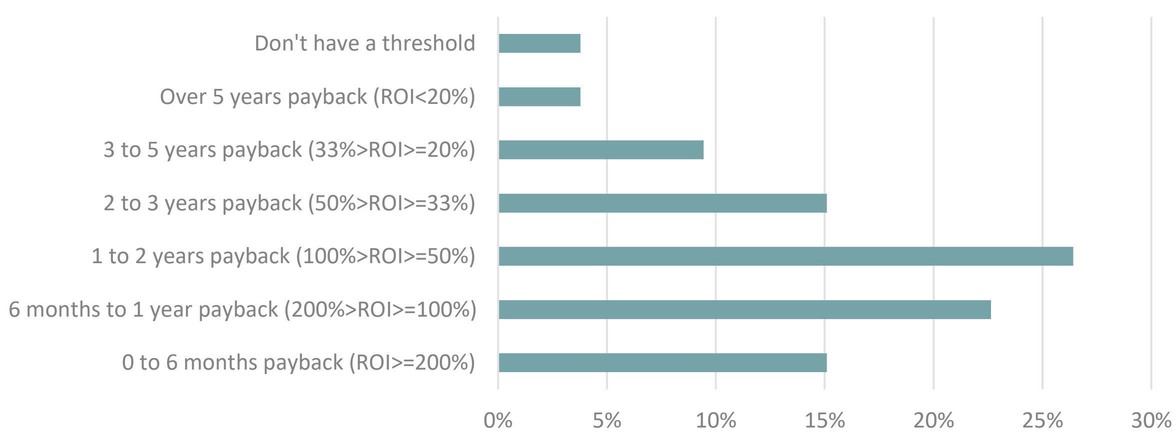
select up to four choices. Results are shown in Figure 26. The two most common responses were upfront cost and operating and maintenance cost.

FIGURE 26. FACTORS THAT ARE MOST IMPORTANT TO ORGANIZATIONS WHEN MAKING A MINOR ENERGY-RELATED INVESTMENT



For those participants selecting that payback period or return on investment was a deciding factor when making a minor energy-related investment, a second question was asked to determine the typical threshold, in terms of the payback period, the organization uses when deciding to proceed with a minor energy-related investment. The most common response was a payback period of one to two years, or a return on investment between 50 and 100 percent, shown in Figure 27.

FIGURE 27. TYPICAL PAYBACK PERIOD ORGANIZATIONS USE WHEN DECIDING TO PROCEED WITH A MINOR ENERGY-RELATED INVESTMENT

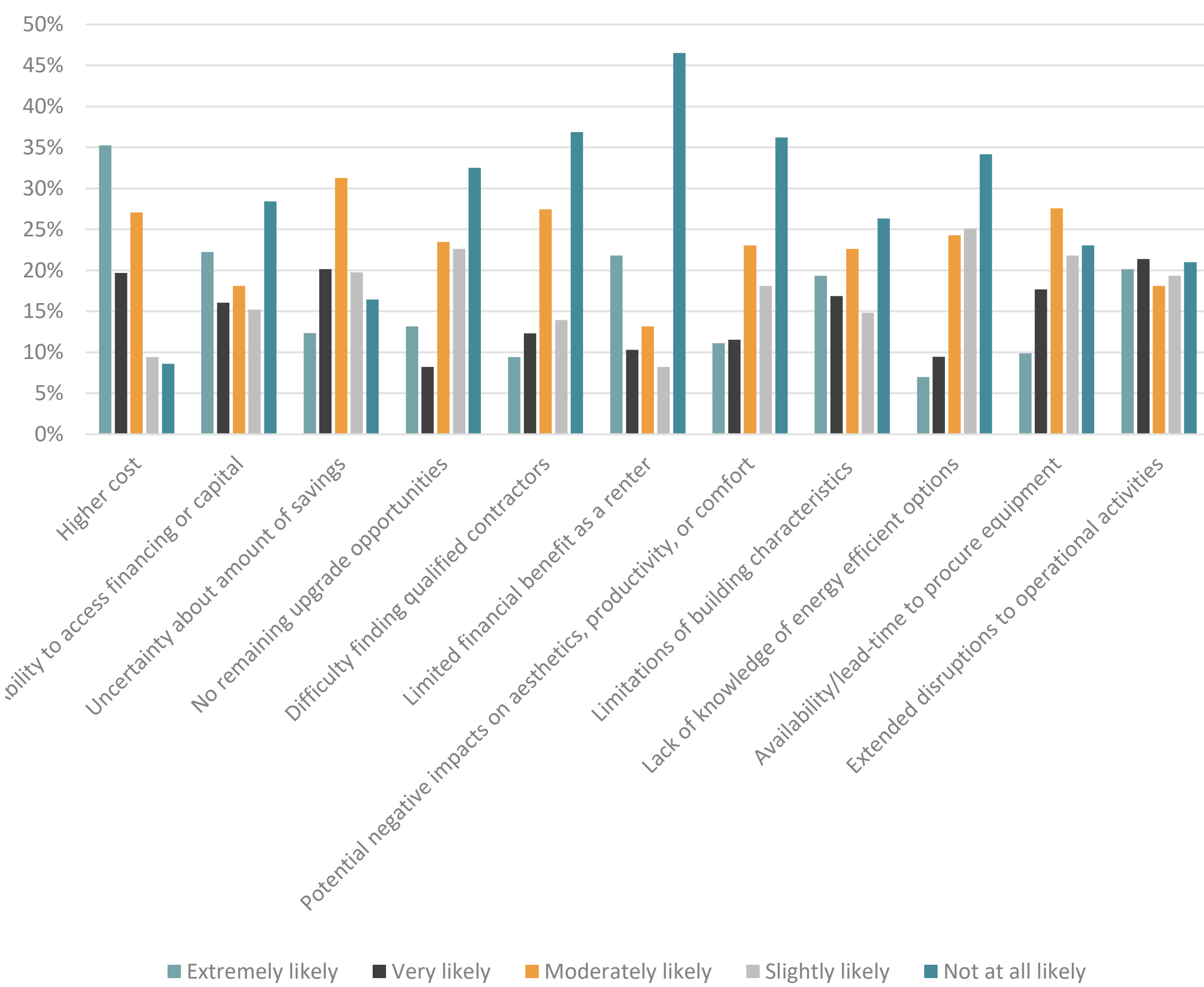


4.2 HEATING AND COOLING

Survey participants were asked the likelihood of several factors preventing them from replacing their broken HVAC equipment with a high-efficiency model. These factors included a higher cost, ability to access financing or capital, uncertainty about the amount of savings, no remaining upgrade opportunities, difficulty finding qualified contractors, limited financial benefit as a renter, potential negative impacts on aesthetics, productivity, or comfort, limitations of building characteristics, lack of knowledge of energy efficient options, ability/lead-time to procure equipment, and extended disruptions to operational activities.

Results are shown in Figure 28. The greatest overall barrier was the higher cost, with 82 percent of participants responding "moderately likely" or higher.

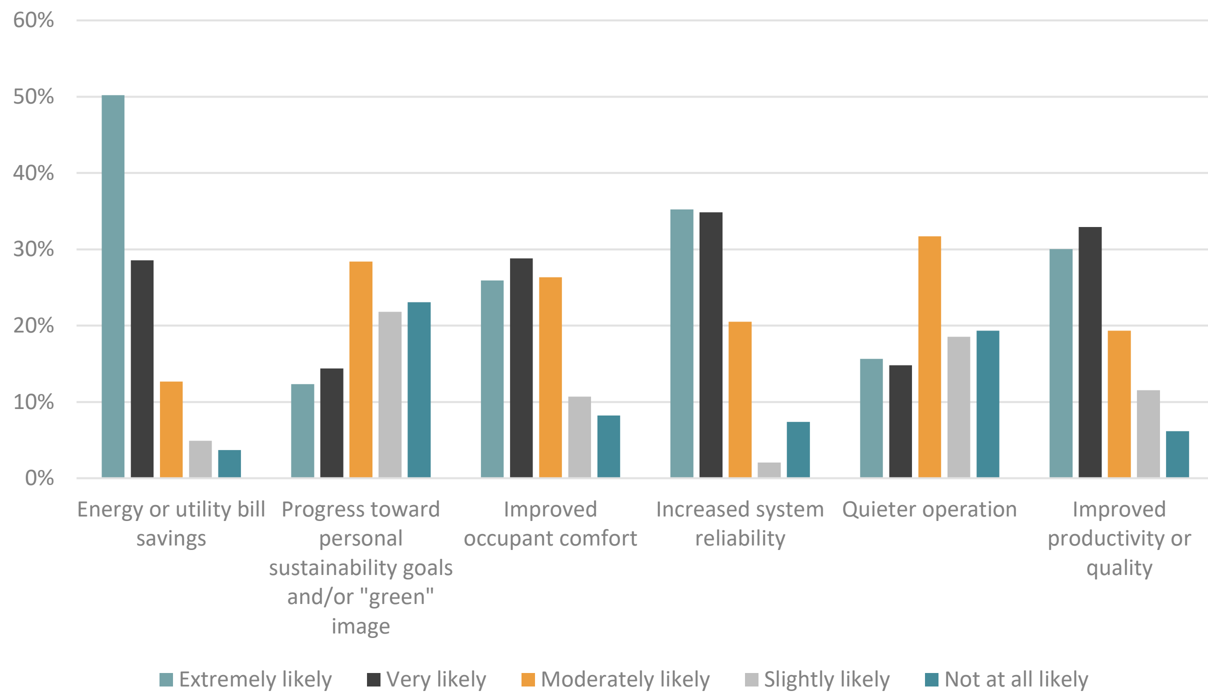
FIGURE 28. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN HVAC EQUIPMENT WITH A HIGH-EFFICIENCY MODEL



Participants were also asked the likelihood of several factors motivating them to replace their broken HVAC system with a high-efficiency model. These factors included energy or utility bill savings, progress toward personal sustainability goals and/or “green” image, improved occupant comfort, increased system reliability, quieter operation, and improved productivity or quality.

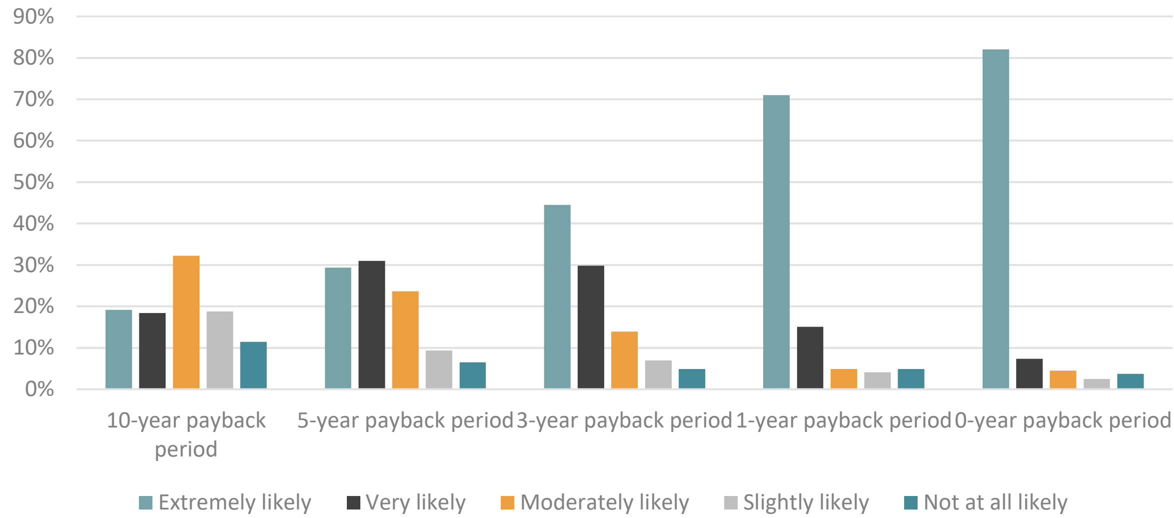
Error! Reference source not found. Figure 29 shows the results of these questions. The factors that were the most likely to motivate survey participants to upgrade HVAC equipment were energy or utility bill savings and increased system reliability, with 91 percent of participants responding “moderately likely” or higher for these choices.

FIGURE 29. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN HVAC EQUIPMENT WITH A HIGH-EFFICIENCY MODEL



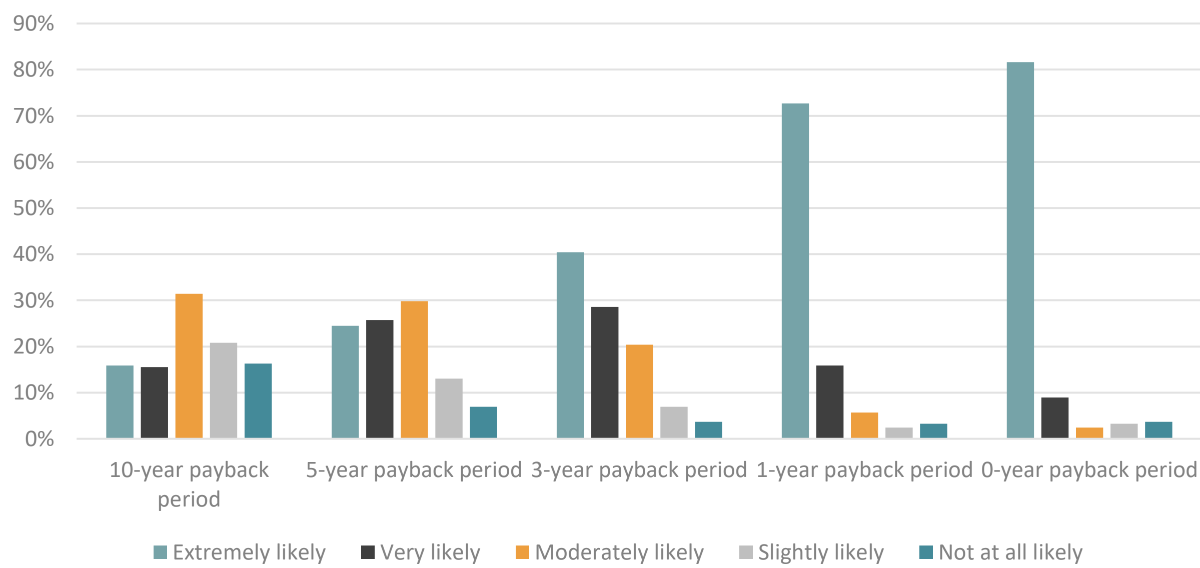
Survey participants were asked how likely they would be to purchase a high-efficiency HVAC system at different incentive levels and payback periods. Payback periods included 10 years (10% ROI), 5 years (20% ROI), 3 years (33% ROI), 1 year (100% ROI), and 0 years (instant ROI). As shown in Figure 30, the likelihood of participating increases as the incentive amount increases. 82 percent of participants responded that they would be extremely likely to purchase a high efficiency model if there was a 0-year payback period.

FIGURE 30. LIKELIHOOD OF PURCHASING A HIGH EFFICIENCY HVAC SYSTEM AT DIFFERENT INCENTIVE LEVELS



Survey participants were asked how likely they would be to purchase a minor high-efficiency HVAC improvement at different incentive levels and payback periods. Payback periods included 10 years (10% ROI), 5 years (20% ROI), 3 years (33% ROI), 1 year (100% ROI), and 0 years (instant ROI). As shown in Figure 31, the likelihood of participating increases as the incentive amount increases. 82 percent of participants responded that they would be extremely likely to purchase a high efficiency model if there was a 0-year payback period.

FIGURE 31. LIKELIHOOD OF PURCHASING A MINOR HIGH EFFICIENCY HVAC IMPROVEMENT AT DIFFERENT INCENTIVE LEVELS

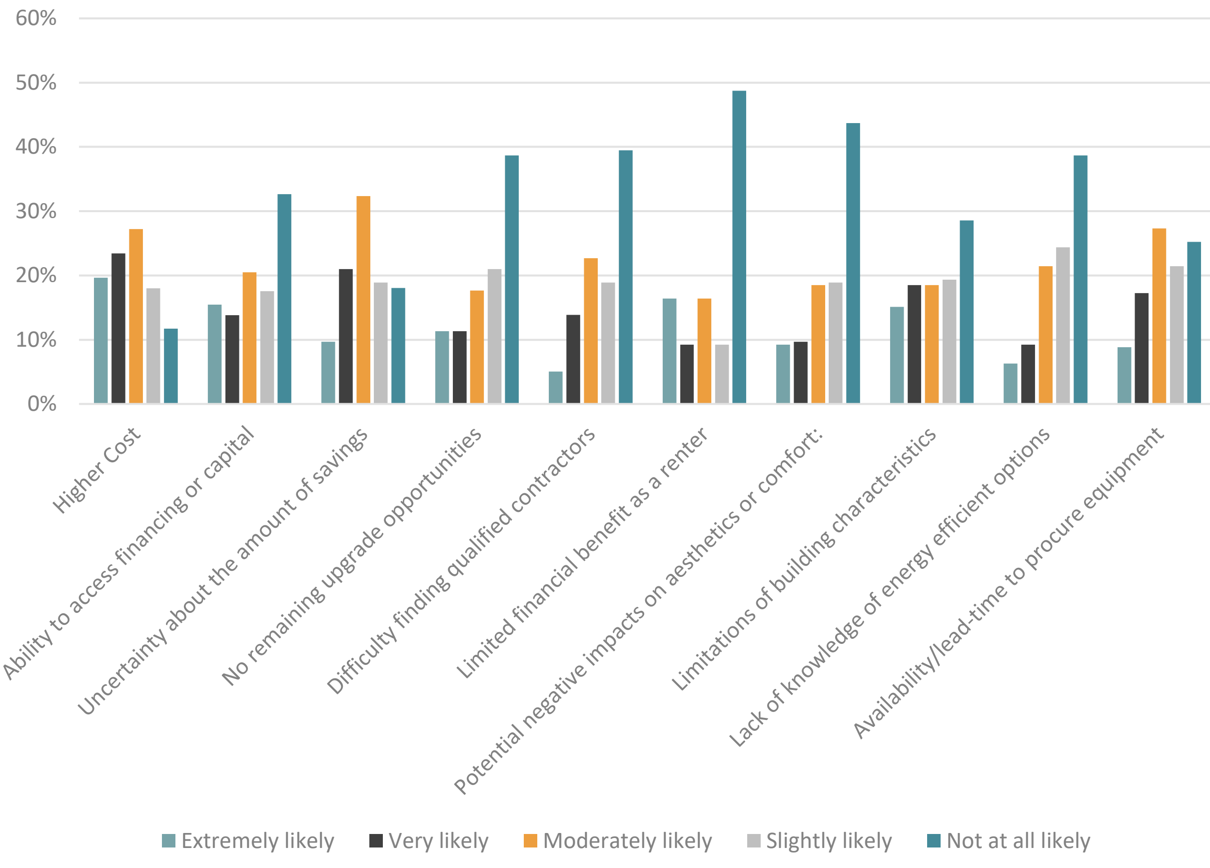


4.3 WATER HEATING

Survey participants were asked the likelihood of several factors preventing them from replacing their broken water heater with a high-efficiency water heater instead of a standard-efficiency water heater. These factors included a higher cost, ability to access financing or capital, uncertainty about the amount of savings, no remaining upgrade opportunities, difficulty finding qualified contractors, limited financial benefit as a renter, potential negative impacts on aesthetics or comfort, limitations of building characteristics, lack of knowledge of energy efficient options, and availability/lead-time to procure equipment.

The greatest overall barrier was the higher cost, with 70 percent of participants responding "moderately likely" or higher, as can be seen in Figure 32.

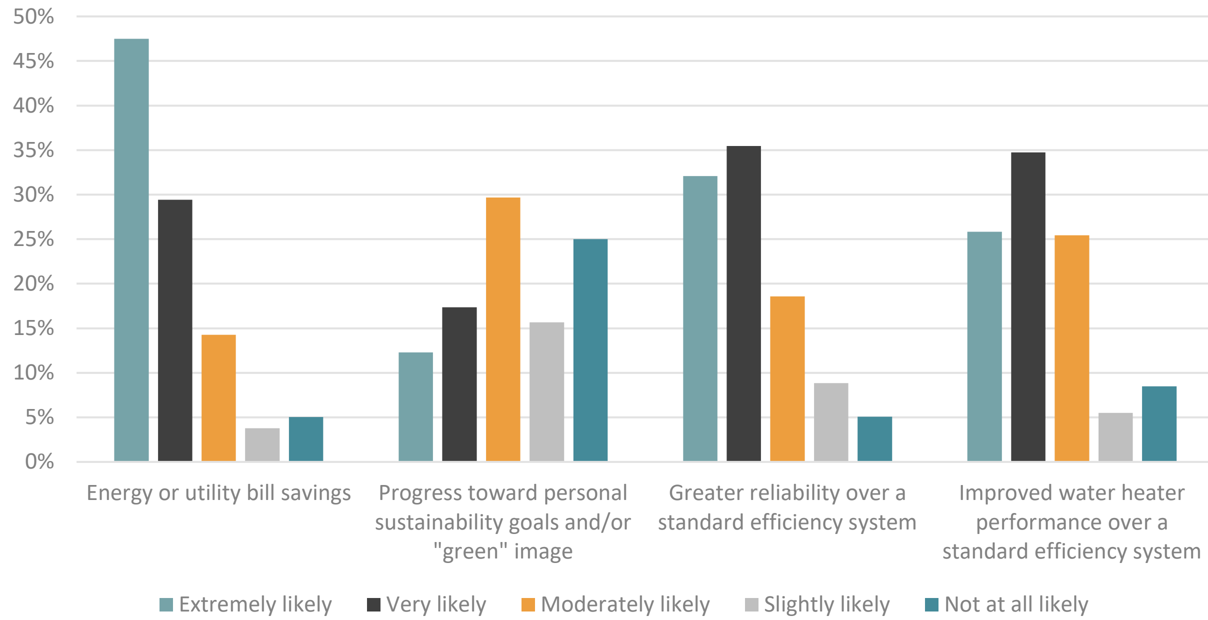
FIGURE 32. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN WATER HEATER WITH A HIGH-EFFICIENCY WATER HEATER



Participants were also asked the likelihood of several factors motivating them to replace their broken water heater with a high-efficiency model. These factors included energy or utility bill savings, progress toward personal sustainability goals and/or "green" image, greater reliability over a standard efficiency system, and improved water heater performance over a standard efficiency system.

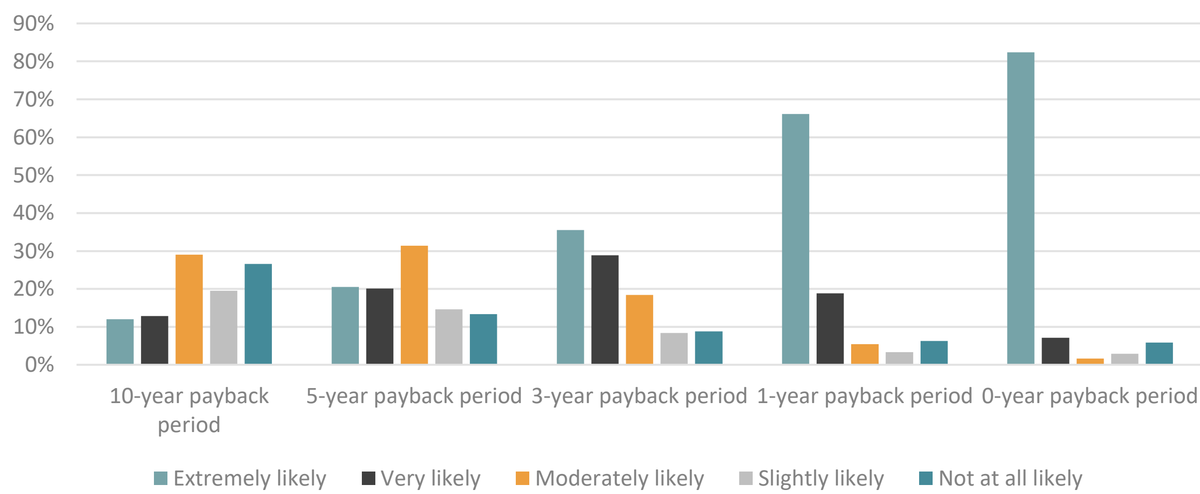
Figure 33 shows how the greatest motivating factor was energy or utility bill savings, with 91 percent of participants responding "moderately likely" or higher.

FIGURE 33. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN WATER HEATER WITH A HIGH-EFFICIENCY MODEL



Survey participants were asked how likely they would be to purchase a high-efficiency water heater at different incentive levels and payback periods. Payback periods included 10 years (10% ROI), 5 years (20% ROI), 3 years (33% ROI), 1 year (100% ROI), and 0 years (instant ROI). As shown in Figure 34, the likelihood of participating increases as the incentive amount increases. 82 percent of participants responded that they would be extremely likely to purchase a high efficiency model if there was a 0-year payback period.

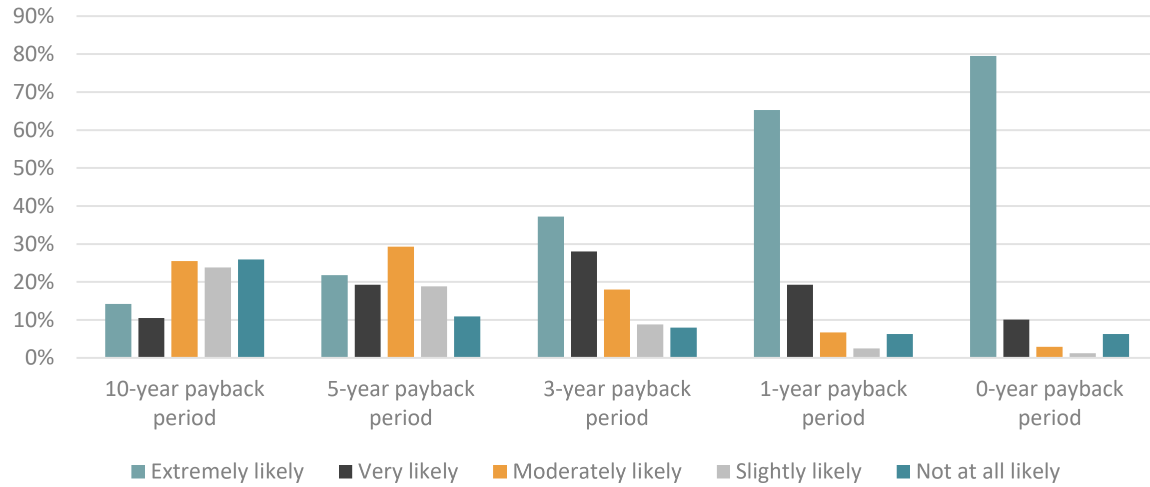
FIGURE 34. LIKELIHOOD OF PURCHASING A HIGH EFFICIENCY WATER HEATER AT DIFFERENT INCENTIVE LEVELS



Survey participants were asked how likely they would be to purchase a minor high-efficiency water heating improvement at different incentive levels and payback periods. Payback periods included 10 years (10% ROI), 5 years (20% ROI), 3 years (33% ROI), 1 year (100% ROI), and 0 years (instant ROI). As shown in

Figure 35, the likelihood of participating increases as the incentive amount increases. 79 percent of participants responded that they would be extremely likely to purchase a high efficiency model if there was a 0-year payback period.

FIGURE 35. LIKELIHOOD OF PURCHASING A MINOR HIGH EFFICIENCY WATER HEATING IMPROVEMENT AT DIFFERENT INCENTIVE LEVELS

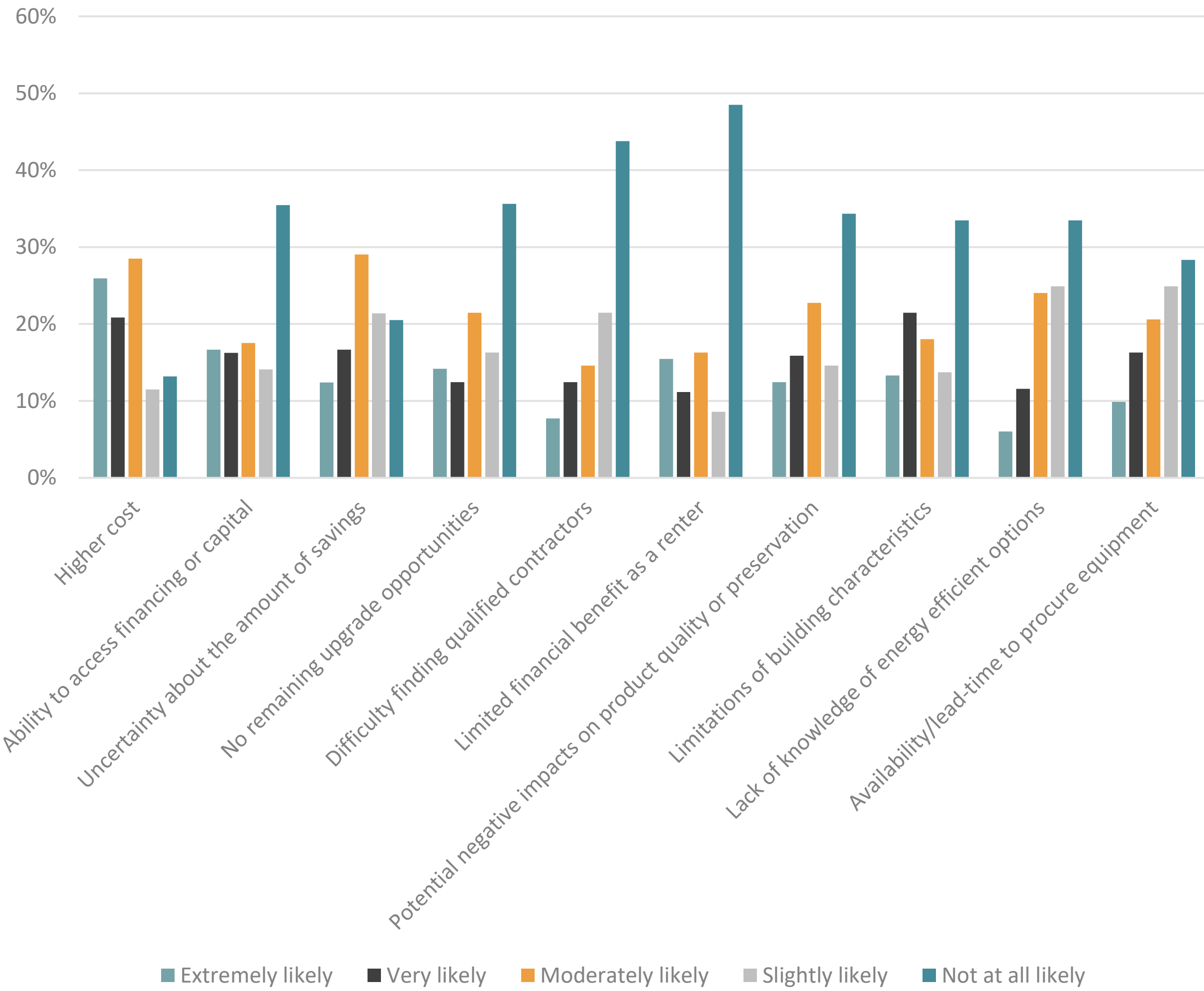


4.4 REFRIGERATION

Survey participants were asked the likelihood of several factors preventing them from replacing their broken refrigeration equipment with a high-efficiency refrigerator instead of a standard-efficiency refrigerator. These factors included a higher cost, ability to access financing or capital, uncertainty about the amount of savings, no remaining upgrade opportunities, difficulty finding qualified contractors, limited financial benefit as a renter, potential negative impacts on product quality or preservation, limitations of building characteristics, lack of knowledge of energy efficient options, and availability/lead-time to procure equipment.

The greatest overall barrier was the higher cost, with 75 percent of participants responding “moderately likely” or higher, as can be seen in Figure 36.

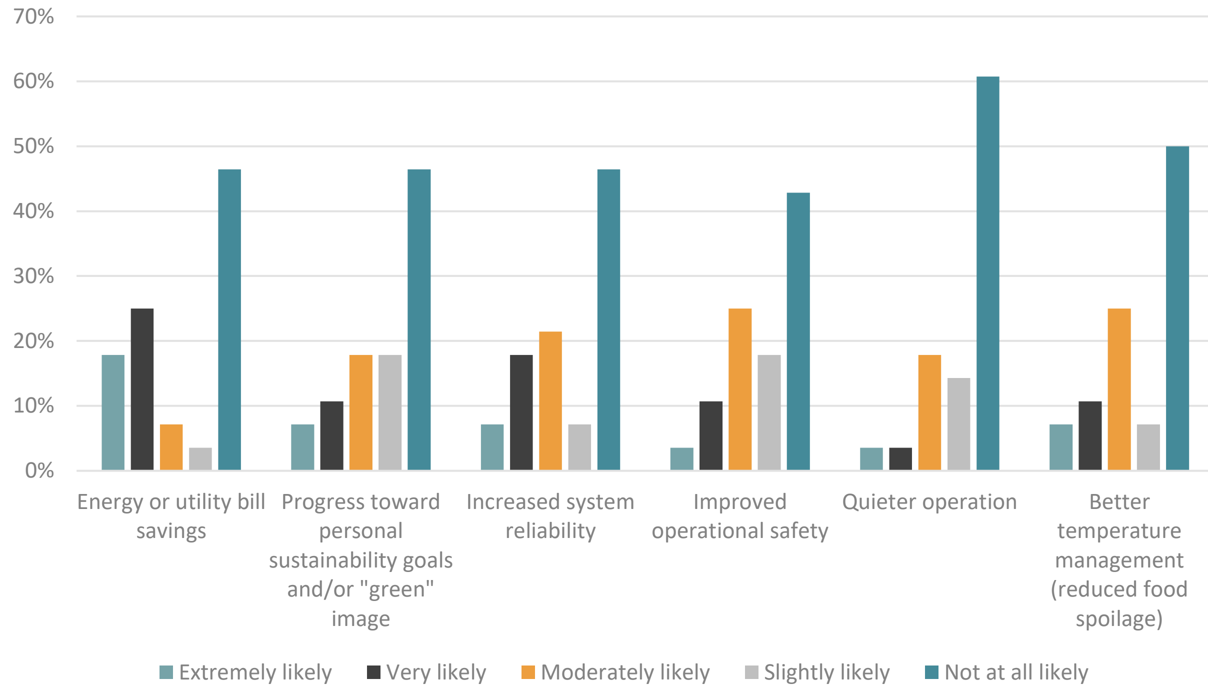
FIGURE 36. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN REFRIGERATION EQUIPMENT WITH A HIGH-EFFICIENCY VERSION



Participants were also asked the likelihood of several factors motivating them to replace their broken refrigeration equipment with a high-efficiency model. These factors included energy or utility bill savings, progress toward personal sustainability goals and/or "green" image, greater reliability over a standard efficiency system, and improved water heater performance over a standard efficiency system.

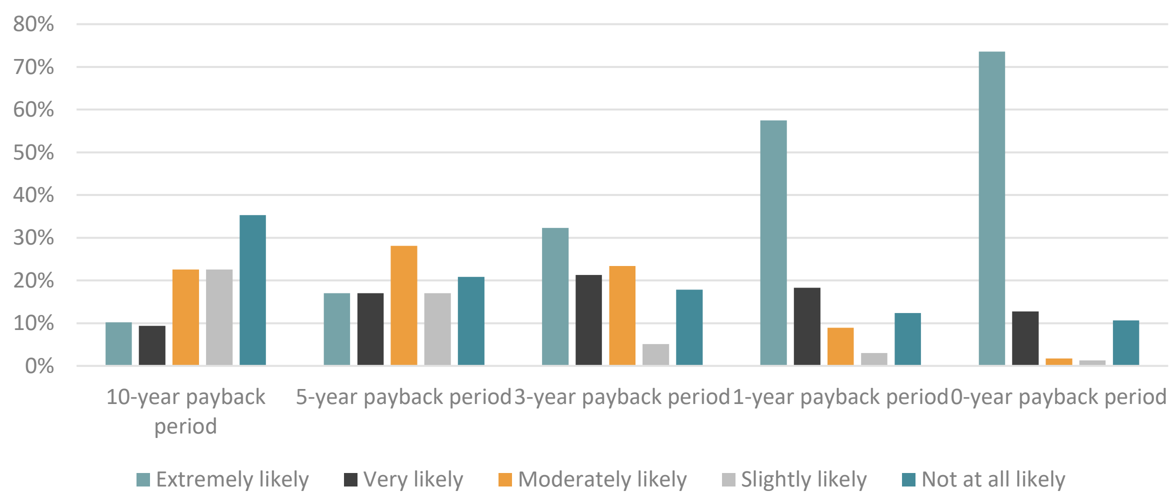
Figure 37 shows how the greatest motivating factor was energy or utility bill savings, with 50 percent of participants responding "moderately likely" or higher.

FIGURE 37. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN REFRIGERATION EQUIPMENT WITH A HIGH-EFFICIENCY VERSION



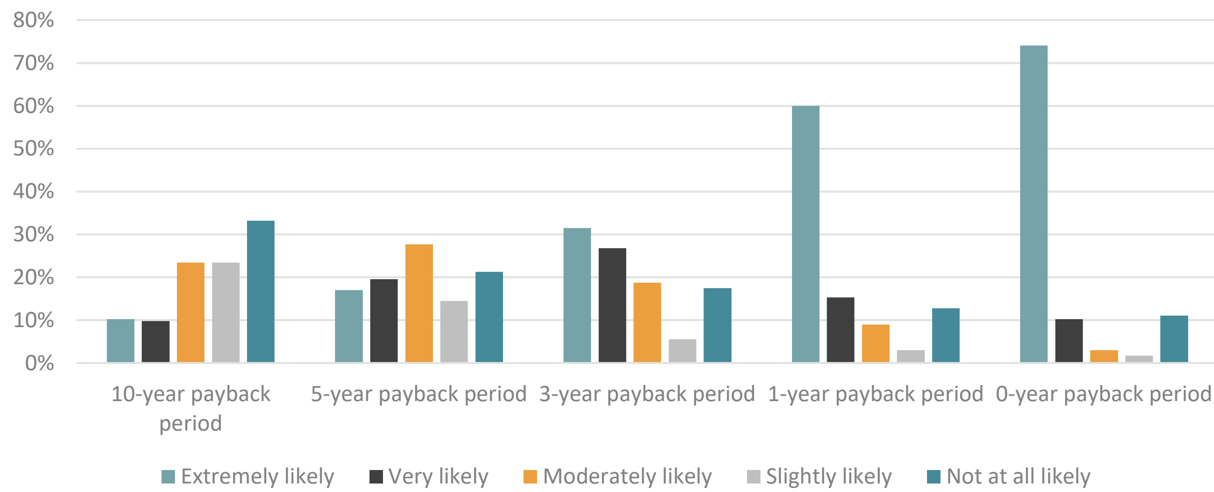
Survey participants were asked how likely they would be to purchase a high-efficiency refrigerator at different incentive levels and payback periods. Payback periods included 10 years (10% ROI), 5 years (20% ROI), 3 years (33% ROI), 1 year (100% ROI), and 0 years (instant ROI). As shown in Figure 38, the likelihood of participating increases as the incentive amount increases. 74 percent of participants responded that they would be extremely likely to purchase a high efficiency model if there was a 0-year payback period.

FIGURE 38. LIKELIHOOD OF PURCHASING HIGH EFFICIENCY REFRIGERATOR AT DIFFERENT INCENTIVE LEVELS



Survey participants were asked how likely they would be to purchase a minor high-efficiency refrigeration equipment improvement at different incentive levels and payback periods. Payback periods included 10 years (10% ROI), 5 years (20% ROI), 3 years (33% ROI), 1 year (100% ROI), and 0 years (instant ROI). As shown in Figure 39, the likelihood of participating increases as the incentive amount increases. 74 percent of participants responded that they would be extremely likely to purchase a high efficiency model if there was a 0-year payback period.

FIGURE 39. LIKELIHOOD OF PURCHASING MINOR HIGH EFFICIENCY REFRIGERATION EQUIPMENT IMPROVEMENT AT DIFFERENT INCENTIVE LEVELS



4.5 ADVANCED LIGHTING CONTROLS

The survey explained what different types of lighting controls were and asked participants if they were familiar with these types of control before the survey. The percentage of survey participants who were aware versus not aware of each type of lighting control are shown in Figure 40. The majority of respondents were aware of basic and stand-alone sensor controls. Only about half of respondents were aware of luminaire-level lighting and networked lighting controls.

FIGURE 40. AWARENESS OF TYPES OF LIGHTING CONTROLS

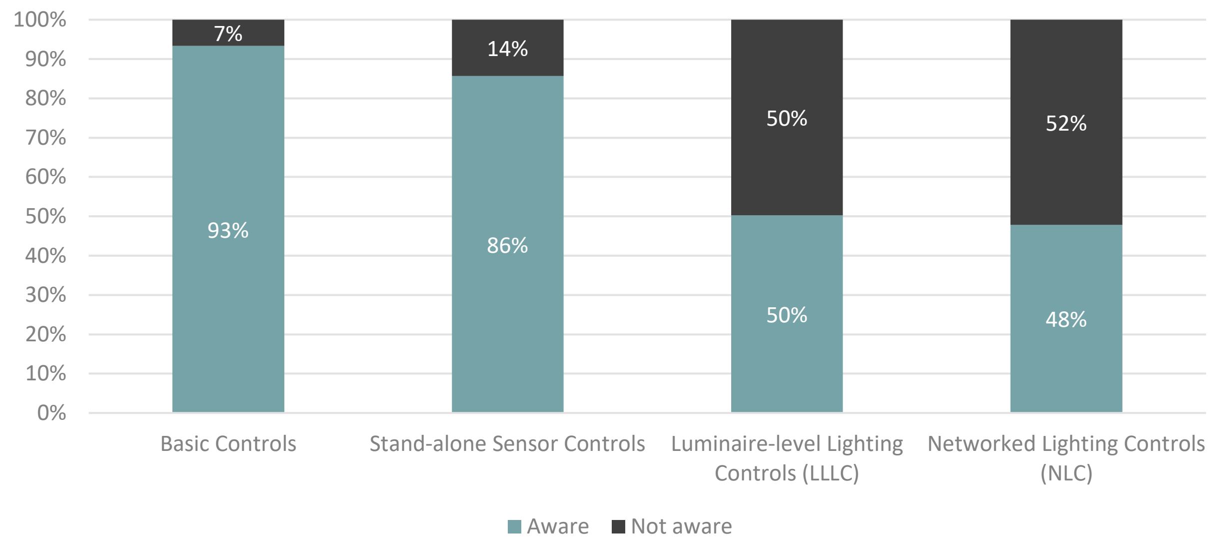
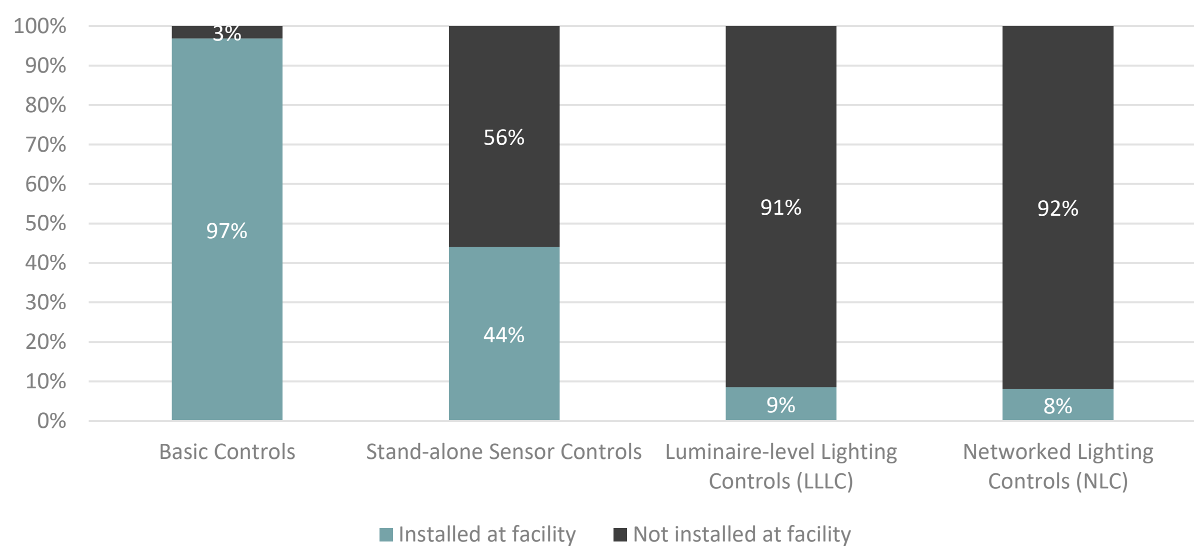


Figure 41 shows that the basic controls are already installed at 97 percent of survey participants' facilities. The majority of respondents do not have luminaire-level lighting and networked lighting controls at their facilities.

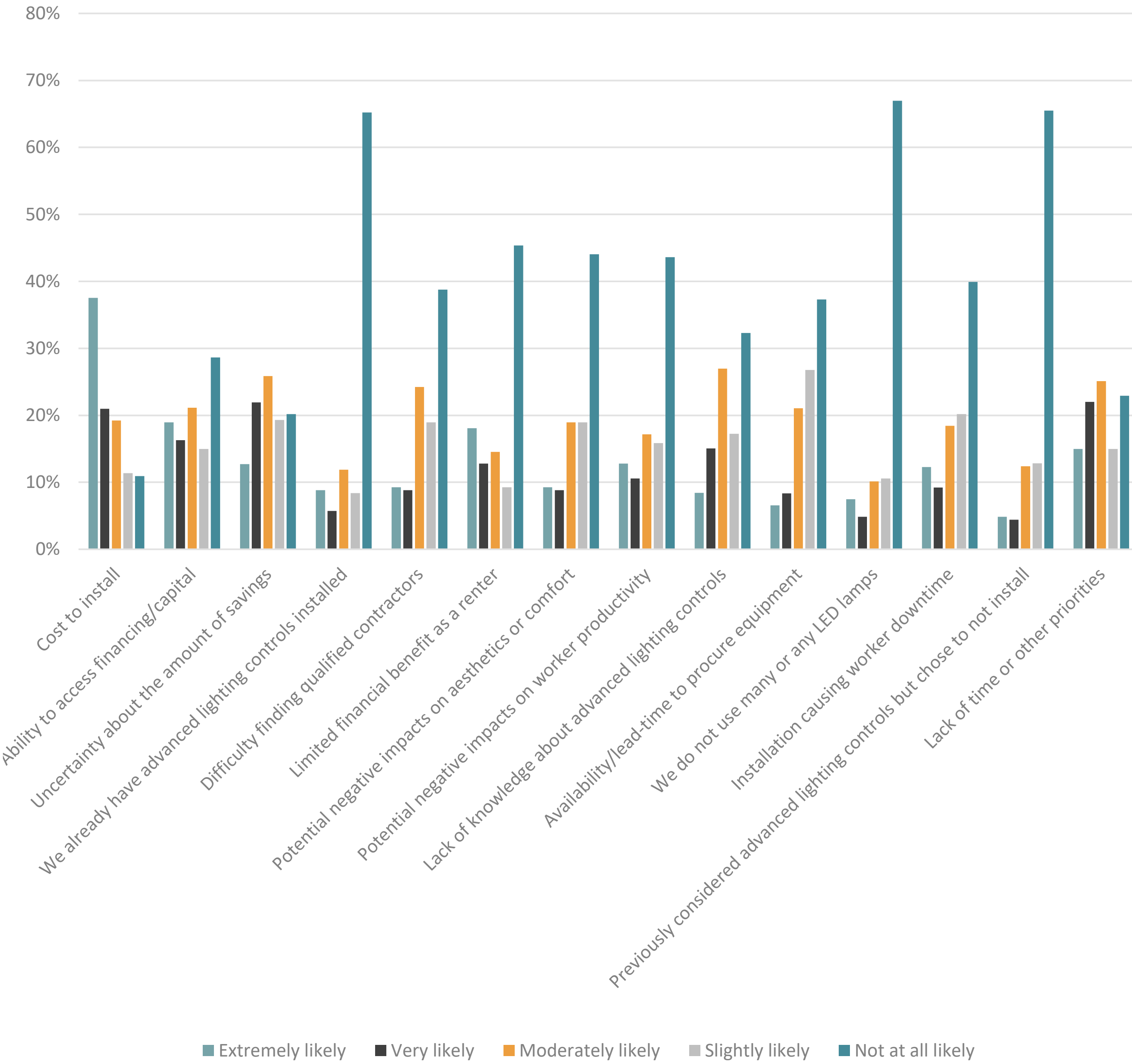
FIGURE 41. TYPES OF LIGHTING CONTROLS ALREADY INSTALLED AT SURVEY PARTICIPANTS' FACILITY



Survey participants were asked the likelihood of several factors preventing them from installing advanced lighting controls. These factors included a cost to install, ability to access financing or capital, uncertainty about the amount of savings, no remaining upgrade opportunities, difficulty finding qualified contractors, limited financial benefit as a renter, potential negative impacts on product quality or preservation, limitations of building characteristics, lack of knowledge of energy efficient options, and availability/lead-time to procure equipment.

The greatest overall barrier was the cost to install, with 78 percent of participants responding "moderately likely" or higher, as can be seen in Figure 42.

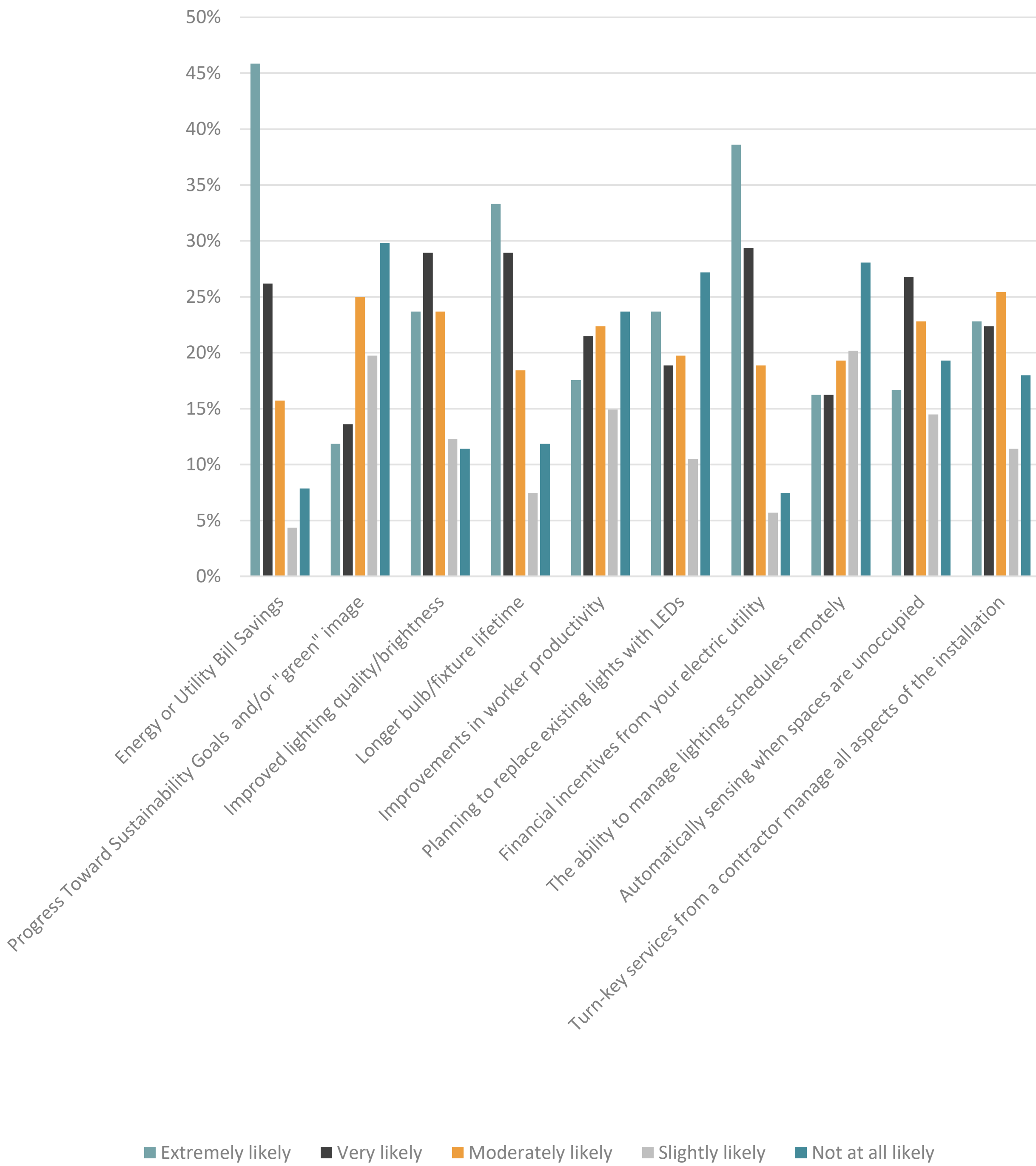
FIGURE 42. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM INSTALLING ADVANCED LIGHTING CONTROLS



Participants were also asked the likelihood of several factors motivating them to install advanced lighting controls. These factors included energy or utility bill savings, progress toward personal sustainability goals and/or "green" image, improved lighting quality/brightness, longer bulb/fixture lifetime, improvements in worker productivity, planning to replace existing lights with LEDs, financial incentives from electric utility, ability to manage lighting schedules remotely, automatically sensing when spaces are unoccupied, and turn-key services from a contractor manage all aspects of the installation (including permitting, incentives, and other paperwork).

Figure 43 shows how the greatest motivating factor was energy or utility bill savings, with 88 percent of participants responding “moderately likely” or higher.

FIGURE 43. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO INSTALL ADVANCED LIGHTING CONTROLS



Appendix A. Willingness to Participate Detailed Responses

TABLE A-1. DOLLAR AMOUNTS ORGANIZATIONS CONSIDER TO BE A "MAJOR" INVESTMENT

F1/Q2: Please indicate at what dollar amount your organization would consider an investment to be a "major" investment. Major investments are those that involve a more rigorous corporate approval process, and/or more careful consideration of costs and benefits.										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
<$1,000	34	12%	14%	11%	8%	14%	5%	13%	10%	9%
$1,000 - $5,000	151	53%	60%	50%	53%	58%	33%	55%	39%	65%
$5,001 - $10,000	58	20%	17%	22%	20%	19%	25%	19%	24%	26%
$10,001 - $20,000	10	4%	1%	5%	5%	3%	5%	3%	10%	0%
$20,001 - $50,000	21	7%	5%	8%	8%	4%	20%	7%	15%	0%
$50,001 - $100,000	2	1%	0%	1%	1%	0%	4%	1%	0%	0%
$200,001 - $500,000	6	2%	2%	2%	3%	1%	7%	2%	2%	0%
>$500,000	1	0%	0%	1%	1%	0%	0%	0%	0%	0%
Total	**283**		**92**	**191**	**122**	**228**	**55**	**219**	**41**	**23**
Average	**$17,011**		**$10,142**	**$20,320**	**$26,587**	**$12,236**	**$36,809**	**$18,001**	**$18,400**	**$5,113**

TABLE A-2. FACTORS THAT ARE MOST IMPORTANT TO ORGANIZATIONS WHEN MAKING A MAJOR ENERGY-RELATED INVESTMENT

F2/Q3: When making a major energy-related investment, which of the following factors are most important to your organization? Please select up to four.										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Upfront cost	188	69%	80%	64%	72%	68%	74%	68%	76%	64%
Operating & maintenance cost (including energy cost to operate)	168	62%	65%	60%	64%	62%	58%	61%	71%	55%
Payback period	91	33%	38%	31%	30%	34%	30%	33%	32%	36%
Return on investment	97	36%	42%	33%	37%	34%	43%	34%	37%	45%
Improvements in occupant comfort	83	30%	20%	35%	34%	30%	32%	31%	29%	32%
Reduced carbon emissions and other environmental benefits, like reduced air and water pollution	49	18%	12%	21%	19%	18%	19%	18%	21%	14%
Amount of incentive offered by your utility	94	34%	38%	33%	32%	34%	38%	35%	32%	36%
Improved productivity or product quality	70	26%	22%	27%	30%	24%	34%	26%	29%	18%
Other factors	3	1%	1%	1%	2%	1%	0%	1%	0%	0%
Don't know	10	4%	3%	4%	3%	5%	0%	3%	5%	5%
Total Respondents	***273***		***89***	***184***	***118***	***220***	***53***	***213***	***38***	***22***

F2/Q3: When making a major energy-related investment, which of the following factors are most important to your organization? Please select up to four.										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Other Factors (specify):										
Longevity	*1*		*100%*	*0%*	*0%*	*50%*	*NR*	*50%*	*NR*	*NR*
All of the Above	*1*		*0%*	*100%*	*100%*	*50%*	*NR*	*50%*	*NR*	*NR*
Other Subtotal	***2***		***1***	***1***	***1***	***2***	***0***	***2***	***0***	***0***

TABLE A-3. TYPICAL PAYBACK PERIOD ORGANIZATIONS USE WHEN DECIDING TO PROCEED WITH A MAJOR ENERGY-RELATED INVESTMENT

F3/Q4: What is the typical threshold, in terms of the payback period, your organization uses when deciding to proceed with a major energy-related investment? [ASK IF F2 = 3 OR 4]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
0 to 6 months payback (ROI>=200%)	6	4%	5%	3%	3%	5%	0%	5%	0%	0%
6 months to 1 year payback (200%>ROI>=100%)	28	19%	17%	20%	25%	19%	19%	19%	24%	14%
1 to 2 years payback (100%>ROI>=50%)	40	27%	31%	25%	27%	26%	32%	28%	19%	36%
2 to 3 years payback (50%>ROI>=33%)	26	18%	21%	16%	12%	19%	13%	14%	24%	36%
3 to 5 years payback (33%>ROI>=20%)	18	12%	10%	13%	13%	10%	19%	14%	5%	7%
Over 5 years payback (ROI<20%)	11	7%	7%	8%	8%	7%	10%	7%	10%	7%

F3/Q4: What is the typical threshold, in terms of the payback period, your organization uses when deciding to proceed with a major energy-related investment? [ASK IF F2 = 3 OR 4] Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Don't have a threshold	8	5%	7%	4%	5%	7%	0%	5%	10%	0%
Don't know	10	7%	2%	10%	7%	7%	6%	7%	10%	0%
Total	**147**		**58**	**89**	**60**	**116**	**31**	**112**	**21**	**14**

TABLE A-4. PERCENTAGE OF ORGANIZATIONS THAT HAVE MADE A MAJOR ENERGY-RELATED INVESTMENT IN PAST 3 YEARS

F4/Q5: Has your organization made a major energy-related investment in the past three years? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Yes	97	35%	40%	33%	36%	31%	53%	35%	33%	41%
No	169	62%	56%	64%	62%	65%	47%	62%	67%	50%
Don't know	8	3%	3%	3%	2%	4%	0%	3%	0%	9%
Total	**274**		**89**	**185**	**118**	**221**	**53**	**213**	**39**	**22**

TABLE A-5. FACTORS THAT ARE MOST IMPORTANT TO ORGANIZATIONS WHEN MAKING A MINOR ENERGY-RELATED INVESTMENT

F5/Q6: When choosing to make a minor energy-related investment, which of the following factors are most

important to your organization? **Please select up to four.**			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Upfront cost (including equipment, delivery & installation)	183	68%	72%	66%	69%	68%	68%	67%	68%	73%
Operating & maintenance cost (including energy cost to operate)	182	68%	70%	66%	66%	67%	70%	66%	79%	68%
Payback period	53	20%	27%	16%	17%	19%	23%	19%	21%	27%
Return on investment	73	27%	27%	27%	28%	28%	23%	26%	32%	27%
Improvements in occupant comfort	107	40%	35%	42%	47%	39%	43%	40%	42%	32%
Reduced carbon emissions and other environmental benefits, like reduced air and water pollution	52	19%	18%	20%	20%	20%	17%	21%	16%	14%
Amount of incentive offered by your utility	83	31%	31%	31%	28%	32%	26%	32%	24%	36%
Other factors (Specify)	3	1%	0%	2%	1%	1%	0%	1%	0%	0%
Don't know	11	4%	3%	4%	3%	5%	0%	4%	3%	5%
***Total Respondents**	**269**		**88**	**181**	**115**	**216**	**53**	**209**	**38**	**22**
Other Factors (specify):										
Potential savings from lowered energy use	*1*		*NR*	*50%*	*NR*	*50%*	*NR*	*50%*	*NR*	*NR*
Do not have decision-making authority for this	*1*		*NR*	*50%*	*NR*	*50%*	*NR*	*50%*	*NR*	*NR*
Other Subtotal	***2***		***0***	***2***	***0***	***2***	***0***	***2***	***0***	***0***

TABLE A-6. TYPICAL PAYBACK PERIOD ORGANIZATIONS USE WHEN DECIDING TO PROCEED WITH A MINOR ENERGY-RELATED INVESTMENT

F6/Q7: What is the typical threshold, in terms of the payback period or return on investment (ROI), your organization uses

when deciding to proceed with a minor energy-related investment? [ASK IF F5 = 3] Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
0 to 6 months payback (ROI>=200%)	8	15%	13%	17%	25%	17%	8%	15%	0%	33%
6 months to 1 year payback (200%>ROI>=100%)	12	23%	17%	28%	30%	22%	25%	21%	25%	33%
1 to 2 years payback (100%>ROI>=50%)	14	26%	42%	14%	10%	29%	17%	28%	25%	17%
2 to 3 years payback (50%>ROI>=33%)	8	15%	8%	21%	15%	15%	17%	15%	25%	0%
3 to 5 years payback (33%>ROI>=20%)	5	9%	13%	7%	5%	7%	17%	10%	13%	0%
Over 5 years payback (ROI<20%)	2	4%	0%	7%	10%	2%	8%	5%	0%	0%
Other (Specify)	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Don't have a threshold	2	4%	4%	3%	0%	5%	0%	3%	0%	17%
Don't know	2	4%	4%	3%	5%	2%	8%	3%	13%	0%
Total	**53**		**24**	**29**	**20**	**41**	**12**	**39**	**8**	**6**

TABLE A-7. PERCENTAGE OF ORGANIZATIONS THAT HAVE MADE A MINOR ENERGY-RELATED INVESTMENT IN PAST 3 YEARS

F7/Q8: Has your organization made a minor energy-related investment in the past three (3) years? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Yes	28	53%	54%	52%	45%	49%	67%	49%	88%	33%

No	23	43%	38%	48%	55%	46%	33%	46%	13%	67%
Don't know	2	4%	8%	0%	0%	5%	0%	5%	0%	0%
Total	**53**		**24**	**29**	**20**	**41**	**12**	**39**	**8**	**6**

TABLE A-8. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN HVAC EQUIPMENT WITH A HIGH-EFFICIENCY MODEL

HV1/Q9: How likely is it that the following factors will prevent your organization from replacing broken HVAC equipment with a high-efficiency model as opposed to a standard-efficiency model? (Such as your air conditioning system, furnace, boilers, heat pump or other primary heating or cooling equipment.)										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Higher cost:										
Extremely likely	86	35%	29%	38%	35%	38%	27%	36%	34%	29%
Very likely	48	20%	23%	18%	20%	19%	21%	19%	17%	33%
Moderately likely	66	27%	26%	28%	29%	26%	31%	26%	34%	24%
Slightly likely	23	9%	9%	10%	7%	9%	12%	10%	9%	5%
Not at all likely	21	9%	13%	7%	9%	8%	10%	9%	6%	10%
Total	**244**		**78**	**166**	**107**	**192**	**52**	**188**	**35**	**21**
Our ability to access financing or capital:										
Extremely likely	54	22%	15%	25%	25%	23%	21%	24%	9%	29%
Very likely	39	16%	17%	16%	14%	16%	17%	16%	11%	29%
Moderately likely	44	18%	15%	19%	18%	17%	21%	19%	20%	5%
Slightly likely	37	15%	21%	13%	12%	16%	12%	14%	20%	19%
Not at all likely	69	28%	32%	27%	30%	28%	29%	27%	40%	19%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
Uncertainty about the amount of savings:										
Extremely likely	30	12%	8%	15%	11%	13%	10%	12%	6%	29%
Very likely	49	20%	18%	21%	20%	20%	21%	20%	26%	10%
Moderately likely	76	31%	35%	30%	33%	33%	25%	32%	26%	38%

HV1/Q9: How likely is it that the following factors will prevent your organization from replacing broken HVAC equipment with a high-efficiency model as opposed to a standard-efficiency model? (Such as your air conditioning system, furnace, boilers, heat pump or other primary heating or cooling equipment.) Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Slightly likely	48	20%	27%	16%	13%	19%	23%	19%	23%	19%
Not at all likely	40	16%	13%	18%	23%	15%	21%	17%	20%	5%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
No remaining upgrade opportunities:										
Extremely likely	32	13%	12%	14%	14%	15%	8%	12%	11%	24%
Very likely	20	8%	8%	8%	10%	8%	10%	9%	3%	10%
Moderately likely	57	23%	26%	22%	19%	24%	23%	25%	14%	24%
Slightly likely	55	23%	23%	22%	24%	21%	27%	22%	29%	19%
Not at all likely	79	33%	32%	33%	33%	32%	33%	32%	43%	24%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
Difficulty finding qualified contractors:										
Extremely likely	23	9%	8%	10%	9%	10%	8%	9%	9%	19%
Very likely	30	12%	13%	12%	11%	14%	8%	12%	14%	10%
Moderately likely	67	27%	31%	26%	25%	26%	35%	27%	26%	33%
Slightly likely	34	14%	6%	17%	16%	15%	10%	14%	14%	14%
Not at all likely	90	37%	42%	34%	38%	36%	40%	38%	37%	24%
Total	**244**		**78**	**166**	**107**	**192**	**52**	**188**	**35**	**21**
Limited financial benefit as a renter:										
Extremely likely	53	22%	17%	24%	18%	24%	15%	22%	17%	24%
Very likely	25	10%	13%	9%	9%	12%	4%	11%	0%	19%
Moderately likely	32	13%	13%	13%	10%	14%	12%	14%	3%	19%
Slightly likely	20	8%	13%	6%	5%	9%	4%	7%	14%	10%
Not at all likely	113	47%	45%	47%	58%	41%	65%	45%	66%	29%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**

HV1/Q9: How likely is it that the following factors will prevent your organization from replacing broken HVAC equipment with a high-efficiency model as opposed to a standard-efficiency model? (Such as your air conditioning system, furnace, boilers, heat pump or other primary heating or cooling equipment.)										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Potential negative impacts on aesthetics, productivity, or comfort:										
Extremely likely	27	11%	6%	13%	13%	12%	10%	9%	14%	24%
Very likely	28	12%	13%	11%	8%	12%	12%	11%	9%	24%
Moderately likely	56	23%	26%	22%	19%	23%	25%	25%	11%	29%
Slightly likely	44	18%	21%	17%	17%	17%	21%	19%	20%	5%
Not at all likely	88	36%	35%	37%	42%	37%	33%	36%	46%	19%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
Limitations of building characteristics (e.g., no space to add equipment):										
Extremely likely	47	19%	10%	24%	23%	19%	19%	20%	17%	14%
Very likely	41	17%	23%	14%	13%	16%	21%	14%	14%	43%
Moderately likely	55	23%	19%	24%	22%	23%	23%	22%	20%	29%
Slightly likely	36	15%	18%	13%	14%	14%	17%	17%	9%	5%
Not at all likely	64	26%	29%	25%	28%	28%	19%	26%	40%	10%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
Lack of knowledge of energy efficient options:										
Extremely likely	17	7%	8%	7%	6%	6%	10%	7%	3%	14%
Very likely	23	9%	12%	8%	6%	11%	4%	9%	11%	10%
Moderately likely	59	24%	23%	25%	27%	25%	21%	26%	14%	24%
Slightly likely	61	25%	27%	24%	25%	24%	29%	26%	23%	24%
Not at all likely	83	34%	31%	36%	36%	34%	37%	32%	49%	29%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
Availability/lead-time to procure equipment:										
Extremely likely	24	10%	4%	13%	10%	9%	12%	10%	6%	14%

HV1/Q9: How likely is it that the following factors will prevent your organization from replacing broken HVAC equipment with a high-efficiency model as opposed to a standard-efficiency model? (Such as your air conditioning system, furnace, boilers, heat pump or other primary heating or cooling equipment.)			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Very likely	43	18%	18%	18%	14%	17%	21%	17%	17%	24%
Moderately likely	67	28%	27%	28%	34%	26%	33%	27%	31%	24%
Slightly likely	53	22%	24%	21%	18%	21%	25%	22%	26%	14%
Not at all likely	56	23%	27%	21%	24%	27%	10%	24%	20%	24%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
Extended disruptions to operational activities:										
Extremely likely	49	20%	8%	26%	20%	19%	25%	21%	17%	19%
Very likely	52	21%	24%	20%	23%	20%	25%	22%	20%	14%
Moderately likely	44	18%	23%	16%	17%	17%	23%	18%	14%	29%
Slightly likely	47	19%	21%	19%	16%	20%	17%	18%	26%	19%
Not at all likely	51	21%	24%	19%	25%	24%	10%	21%	23%	19%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**

TABLE A-9. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN HVAC EQUIPMENT WITH A HIGH-EFFICIENCY MODEL

HV4/Q12: How likely is it that the following factors would motivate you to replace your broken HVAC system with a high-efficiency model?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Energy or utility bill savings:										
Extremely likely	123	50%	47%	51%	61%	49%	54%	52%	51%	33%
Very likely	70	29%	33%	26%	21%	27%	35%	27%	29%	43%
Moderately likely	31	13%	14%	12%	7%	15%	6%	14%	11%	5%

HV4/Q12: How likely is it that the following factors would motivate you to replace your broken HVAC system with a high-efficiency model?										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Slightly likely	12	5%	3%	6%	6%	5%	6%	4%	6%	14%
Not at all likely	9	4%	3%	4%	4%	5%	0%	4%	3%	5%
Total	**245**		**78**	**167**	**108**	**193**	**52**	**189**	**35**	**21**
Progress toward personal sustainability goals and/or "green" image:										
Extremely likely	30	12%	12%	13%	13%	10%	19%	13%	9%	10%
Very likely	35	14%	15%	14%	14%	15%	13%	14%	14%	19%
Moderately likely	69	28%	21%	32%	27%	27%	35%	26%	29%	48%
Slightly likely	53	22%	22%	22%	25%	23%	19%	22%	29%	10%
Not at all likely	56	23%	31%	19%	20%	26%	13%	25%	20%	14%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
Improved occupant comfort:										
Extremely likely	63	26%	26%	26%	26%	23%	38%	28%	11%	33%
Very likely	70	29%	24%	31%	32%	28%	33%	29%	34%	19%
Moderately likely	64	26%	29%	25%	21%	29%	17%	25%	31%	29%
Slightly likely	26	11%	10%	11%	12%	12%	6%	10%	14%	14%
Not at all likely	20	8%	10%	7%	8%	9%	6%	9%	9%	5%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
Increased system reliability:										
Extremely likely	86	35%	28%	39%	40%	33%	44%	35%	37%	38%
Very likely	85	35%	42%	31%	33%	35%	33%	36%	26%	43%
Moderately likely	50	20%	22%	20%	18%	22%	15%	20%	29%	10%
Slightly likely	5	2%	3%	2%	1%	2%	2%	2%	0%	5%
Not at all likely	18	7%	5%	8%	8%	8%	6%	7%	9%	5%
Total	**244**		**78**	**166**	**107**	**192**	**52**	**188**	**35**	**21**
Quieter operation:										

HV4/Q12: How likely is it that the following factors would motivate you to replace your broken HVAC system with a high-efficiency model?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Extremely likely	38	16%	9%	19%	17%	15%	17%	15%	14%	24%
Very likely	36	15%	14%	15%	15%	14%	17%	16%	14%	5%
Moderately likely	77	32%	40%	28%	27%	32%	29%	32%	29%	38%
Slightly likely	45	19%	15%	20%	21%	17%	23%	18%	20%	19%
Not at all likely	47	19%	22%	18%	20%	21%	13%	19%	23%	14%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**
Improved productivity or quality:										
Extremely likely	73	30%	28%	31%	32%	27%	40%	29%	31%	33%
Very likely	80	33%	29%	35%	37%	32%	35%	34%	37%	14%
Moderately likely	47	19%	23%	18%	14%	20%	17%	19%	14%	33%
Slightly likely	28	12%	10%	12%	10%	13%	8%	12%	9%	14%
Not at all likely	15	6%	9%	5%	7%	8%	0%	6%	9%	5%
Total	**243**		**78**	**165**	**106**	**191**	**52**	**187**	**35**	**21**

TABLE A-10. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC IF INCENTIVE CREATES 10-YEAR PAYBACK PERIOD

HV7a/Q15a: How likely would your organization be to replace the failed equipment with a high efficiency HVAC system if the incentive creates a payback period of 10 years (10% ROI)?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Extremely likely	47	19%	22%	18%	19%	16%	31%	18%	20%	29%
Very likely	45	18%	18%	19%	25%	19%	18%	21%	9%	14%

HV7a/Q15a: How likely would your organization be to replace the failed equipment with a high efficiency HVAC system if the incentive creates a payback period of 10 years (10% ROI)?

Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Moderately likely	79	32%	33%	32%	35%	33%	29%	32%	40%	19%
Slightly likely	46	19%	21%	18%	14%	19%	18%	17%	26%	24%
Not at all likely	28	11%	6%	14%	8%	13%	4%	12%	6%	14%
Total	**245**		**78**	**167**	**106**	**194**	**51**	**189**	**35**	**21**

TABLE A-11. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC IF INCENTIVE CREATES 5-YEAR PAYBACK PERIOD

HV7b/Q15b: How likely would your organization be to replace the failed equipment with a high efficiency HVAC system if the incentive creates a payback period of 5 years (20% ROI)?

[ASK IF HV7a < Extremely Likely]

Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	25	13%	20%	9%	13%	15%	3%	14%	7%	7%
Very likely	76	38%	34%	40%	45%	33%	63%	40%	39%	20%
Moderately likely	58	29%	31%	28%	30%	31%	23%	25%	43%	53%
Slightly likely	23	12%	7%	14%	6%	12%	9%	13%	4%	13%
Not at all likely	16	8%	8%	8%	6%	9%	3%	8%	7%	7%
Total	**198**		**61**	**137**	**86**	**163**	**35**	**155**	**28**	**15**

TABLE A-12. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC IF INCENTIVE CREATES 3-YEAR PAYBACK PERIOD

HV7c/Q15c: How likely would your organization be to replace the failed equipment with a high efficiency HVAC system if the incentive creates a payback period of 3 years (33% ROI)? [ASK IF HV7b < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	37	21%	20%	22%	24%	19%	29%	24%	12%	14%
Very likely	73	42%	49%	40%	43%	39%	56%	38%	58%	50%
Moderately likely	34	20%	18%	20%	20%	23%	6%	20%	15%	29%
Slightly likely	17	10%	8%	10%	8%	11%	6%	11%	12%	0%
Not at all likely	12	7%	4%	8%	5%	8%	3%	8%	4%	7%
Total	**173**		**49**	**124**	**75**	**139**	**34**	**133**	**26**	**14**

TABLE A-13. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC IF INCENTIVE CREATES 1-YEAR PAYBACK PERIOD

HV7d/Q15d: How likely would your organization be to replace the failed equipment with a high efficiency HVAC system if the incentive creates a payback period of 1 year (100% ROI)? [ASK IF HV7c < Extremely Likely] Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	65	48%	49%	47%	46%	43%	71%	44%	57%	67%
Very likely	37	27%	31%	26%	28%	29%	17%	28%	30%	17%
Moderately likely	12	9%	5%	10%	14%	9%	8%	11%	4%	0%
Slightly likely	10	7%	8%	7%	5%	9%	0%	8%	4%	8%
Not at all likely	12	9%	8%	9%	7%	10%	4%	10%	4%	8%
Total	**136**		**39**	**97**	**57**	**112**	**24**	**101**	**23**	**12**

TABLE A-14. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY HVAC IF INCENTIVE CREATES 0-YEAR PAYBACK PERIOD

HV7e/Q15e: How likely would your organization be to replace the failed equipment with a high efficiency HVAC system if the incentive creates a payback period of 0 years (instant ROI)? [ASK IF HV7d < Extremely Likely] Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	27	38%	35%	39%	42%	41%	14%	35%	60%	25%
Very likely	18	25%	35%	22%	23%	23%	43%	28%	10%	25%
Moderately likely	11	15%	15%	16%	16%	14%	29%	14%	20%	25%
Slightly likely	6	8%	5%	10%	6%	9%	0%	11%	0%	0%
Not at all likely	9	13%	10%	14%	13%	13%	14%	12%	10%	25%
Total	**71**		**20**	**51**	**31**	**64**	**7**	**57**	**10**	**4**

TABLE A-15. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY HVAC IMPROVEMENT IF INCENTIVE CREATES 10-YEAR PAYBACK PERIOD

HV9a/Q17a: Now, please consider your decision making for a minor investment to improve your HVAC efficiency. How likely would your organization be to install the HVAC system efficiency improvement if the incentive creates a payback period of 10 years (10% ROI)?										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	39	16%	17%	16%	17%	13%	25%	15%	17%	24%
Very likely	38	16%	22%	13%	10%	17%	10%	16%	9%	19%
Moderately likely	77	31%	38%	28%	35%	31%	31%	33%	29%	19%
Slightly likely	51	21%	15%	23%	23%	22%	18%	20%	29%	19%
Not at all likely	40	16%	8%	20%	15%	16%	16%	16%	17%	19%
Total	**245**		**78**	**167**	**106**	**194**	**51**	**189**	**35**	**21**

TABLE A-16. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY HVAC IMPROVEMENT IF INCENTIVE CREATES 5-YEAR PAYBACK PERIOD

HV9b/Q17b: How likely would your organization be to install the HVAC system efficiency improvement if the incentive creates a payback period of 5 years (20% ROI)?										
[ASK IF HV9a < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF

Extremely likely	21	10%	11%	10%	9%	12%	3%	12%	7%	0%
Very likely	63	31%	35%	28%	34%	27%	47%	33%	14%	38%
Moderately likely	73	35%	38%	34%	38%	36%	32%	32%	55%	31%
Slightly likely	32	16%	9%	18%	15%	16%	13%	15%	17%	19%
Not at all likely	17	8%	6%	9%	5%	9%	5%	8%	7%	13%
Total	**206**		**65**	**141**	**88**	**168**	**38**	**161**	**29**	**16**

TABLE A-17. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY HVAC IMPROVEMENT IF INCENTIVE CREATES 3-YEAR PAYBACK PERIOD

HV9c/Q17c: How likely would your organization be to install the HVAC system efficiency improvement if the incentive creates a payback period of 3 years (33% ROI)? [ASK IF HV9b < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	39	21%	21%	21%	25%	20%	27%	25%	4%	19%
Very likely	70	38%	45%	35%	38%	37%	41%	33%	63%	38%
Moderately likely	50	27%	24%	28%	29%	28%	24%	27%	26%	31%
Slightly likely	17	9%	7%	10%	5%	11%	3%	11%	4%	6%
Not at all likely	9	5%	3%	6%	4%	5%	5%	5%	4%	6%
Total	**185**		**58**	**127**	**80**	**148**	**37**	**142**	**27**	**16**

TABLE A-18. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY HVAC IMPROVEMENT IF INCENTIVE CREATES 1-YEAR PAYBACK PERIOD

HV9d/Q17d: How likely would your organization be to install the HVAC system efficiency improvement if the incentive creates a payback period of 1 year (100% ROI)? [ASK IF HV9c < Extremely Likely]											
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	79	54%	59%	52%	50%	52%	63%	52%	69%	38%
Very likely	39	27%	30%	25%	32%	27%	26%	25%	23%	46%
Moderately likely	14	10%	4%	12%	10%	10%	7%	12%	4%	0%
Slightly likely	6	4%	2%	5%	3%	5%	0%	5%	0%	8%
Not at all likely	8	5%	4%	6%	5%	6%	4%	6%	4%	8%
Total	**146**		**46**	**100**	**60**	**119**	**27**	**107**	**26**	**13**

TABLE A-19. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY HVAC IMPROVEMENT IF INCENTIVE CREATES 0-YEAR PAYBACK PERIOD

HV9e/Q17e: How likely would your organization be to install the HVAC system efficiency improvement if the incentive creates a payback period of 0 years (instant ROI)? [ASK IF HV9d < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	22	33%	26%	35%	43%	35%	20%	29%	50%	38%
Very likely	22	33%	37%	31%	33%	28%	60%	33%	38%	25%
Moderately likely	6	9%	5%	10%	10%	9%	10%	12%	0%	0%
Slightly likely	8	12%	21%	8%	3%	14%	0%	12%	0%	25%
Not at all likely	9	13%	11%	15%	10%	14%	10%	14%	13%	13%
Total	**67**		**19**	**48**	**30**	**57**	**10**	**51**	**8**	**8**

TABLE A-20. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN WATER HEATING EQUIPMENT WITH A HIGH-EFFICIENCY MODEL

WH1/Q19: How likely is it that the following factors will prevent your organization from replacing broken water heating equipment with a high-efficiency model as opposed to a standard-efficiency model?										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Higher Cost:										
Extremely likely	47	20%	19%	20%	15%	21%	14%	19%	14%	33%
Very likely	56	23%	22%	24%	24%	25%	18%	26%	14%	14%
Moderately likely	65	27%	27%	27%	35%	27%	27%	26%	34%	24%
Slightly likely	43	18%	19%	17%	13%	15%	29%	17%	20%	19%
Not at all likely	28	12%	12%	12%	13%	12%	12%	11%	17%	10%
Total	**239**		**77**	**162**	**104**	**188**	**51**	**183**	**35**	**21**
Our ability to access financing or capital:										
Extremely likely	37	15%	18%	14%	13%	16%	12%	16%	9%	24%
Very likely	33	14%	13%	14%	14%	15%	8%	13%	9%	29%
Moderately likely	49	21%	16%	23%	23%	18%	29%	24%	9%	10%
Slightly likely	42	18%	19%	17%	13%	19%	12%	16%	23%	19%
Not at all likely	78	33%	34%	32%	37%	31%	39%	31%	51%	19%
Total	**239**		**77**	**162**	**104**	**188**	**51**	**183**	**35**	**21**
Uncertainty about the amount of savings:										
Extremely likely	23	10%	6%	11%	9%	9%	12%	9%	6%	19%
Very likely	50	21%	27%	18%	18%	22%	18%	21%	14%	33%
Moderately likely	77	32%	32%	32%	31%	32%	33%	35%	29%	14%
Slightly likely	45	19%	22%	17%	18%	20%	16%	16%	26%	29%
Not at all likely	43	18%	12%	21%	23%	17%	22%	18%	26%	5%
Total	**238**		**77**	**161**	**103**	**187**	**51**	**182**	**35**	**21**
No remaining upgrade opportunities:										
Extremely likely	27	11%	6%	14%	11%	11%	14%	10%	9%	24%
Very likely	27	11%	10%	12%	9%	12%	8%	12%	14%	5%

WH1/Q19: How likely is it that the following factors will prevent your organization from replacing broken water heating equipment with a high-efficiency model as opposed to a standard-efficiency model? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Moderately likely	42	18%	19%	17%	21%	18%	16%	20%	6%	19%
Slightly likely	50	21%	25%	19%	17%	22%	18%	21%	14%	33%
Not at all likely	92	39%	39%	39%	43%	37%	45%	37%	57%	19%
Total	**238**		**77**	**161**	**103**	**187**	**51**	**182**	**35**	**21**
Difficulty finding qualified contractors:										
Extremely likely	12	5%	6%	4%	5%	4%	8%	4%	3%	14%
Very likely	33	14%	10%	16%	14%	16%	8%	15%	11%	10%
Moderately likely	54	23%	22%	23%	23%	24%	18%	23%	14%	38%
Slightly likely	45	19%	21%	18%	15%	17%	25%	19%	23%	14%
Not at all likely	94	39%	40%	39%	44%	39%	41%	40%	49%	24%
Total	**238**		**77**	**161**	**103**	**187**	**51**	**182**	**35**	**21**
Limited financial benefit as a renter:										
Extremely likely	39	16%	14%	17%	11%	19%	6%	18%	6%	24%
Very likely	22	9%	9%	9%	9%	10%	6%	8%	11%	19%
Moderately likely	39	16%	14%	17%	15%	19%	8%	19%	3%	14%
Slightly likely	22	9%	13%	7%	6%	9%	10%	8%	9%	19%
Not at all likely	116	49%	49%	48%	60%	43%	71%	47%	71%	24%
Total	**238**		**77**	**161**	**103**	**187**	**51**	**182**	**35**	**21**
Potential negative impacts on aesthetics or comfort:										
Extremely likely	22	9%	5%	11%	12%	9%	10%	8%	11%	19%
Very likely	23	10%	10%	9%	10%	10%	10%	11%	3%	10%
Moderately likely	44	18%	21%	17%	16%	19%	18%	20%	9%	24%
Slightly likely	45	19%	27%	15%	13%	19%	20%	20%	20%	10%
Not at all likely	104	44%	36%	47%	50%	44%	43%	42%	57%	38%
Total	**238**		**77**	**161**	**103**	**187**	**51**	**182**	**35**	**21**

WH1/Q19: How likely is it that the following factors will prevent your organization from replacing broken water heating equipment with a high-efficiency model as opposed to a standard-efficiency model? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Limitations of building characteristics (e.g., no space to add equipment):										
Extremely likely	36	15%	16%	15%	12%	16%	14%	15%	9%	24%
Very likely	44	18%	17%	19%	16%	18%	20%	20%	11%	19%
Moderately likely	44	18%	18%	19%	21%	18%	20%	20%	11%	19%
Slightly likely	46	19%	17%	20%	19%	20%	18%	19%	23%	14%
Not at all likely	68	29%	32%	27%	32%	28%	29%	26%	46%	24%
Total	**238**		**77**	**161**	**103**	**187**	**51**	**182**	**35**	**21**
Lack of knowledge of energy efficient options:										
Extremely likely	15	6%	6%	6%	4%	6%	6%	6%	0%	19%
Very likely	22	9%	10%	9%	8%	11%	2%	8%	9%	19%
Moderately likely	51	21%	23%	20%	21%	22%	18%	25%	6%	19%
Slightly likely	58	24%	27%	23%	26%	23%	29%	25%	29%	14%
Not at all likely	92	39%	32%	42%	41%	37%	45%	36%	57%	29%
Total	**238**		**77**	**161**	**103**	**187**	**51**	**182**	**35**	**21**
Availability/lead-time to procure equipment:										
Extremely likely	21	9%	8%	9%	8%	7%	14%	9%	6%	14%
Very likely	41	17%	13%	19%	20%	14%	29%	16%	26%	14%
Moderately likely	65	27%	26%	28%	27%	29%	20%	28%	23%	29%
Slightly likely	51	21%	23%	20%	18%	21%	22%	22%	17%	24%
Not at all likely	60	25%	30%	23%	26%	28%	16%	25%	29%	19%
Total	**238**		**77**	**161**	**103**	**187**	**51**	**182**	**35**	**21**

TABLE A-21. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN WATER HEATING EQUIPMENT WITH A HIGH-EFFICIENCY MODEL

WH4/Q22: How likely is it that the following factors would motivate you to replace your broken water heater with a high-efficiency model? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Energy or utility bill savings:										
Extremely likely	113	47%	55%	44%	47%	48%	45%	51%	31%	45%
Very likely	70	29%	31%	29%	28%	30%	25%	27%	37%	35%
Moderately likely	34	14%	10%	16%	14%	12%	24%	13%	20%	15%
Slightly likely	9	4%	3%	4%	5%	3%	6%	3%	6%	5%
Not at all likely	12	5%	1%	7%	6%	6%	0%	5%	6%	0%
Total	**238**		**77**	**161**	**104**	**187**	**51**	**183**	**35**	**20**
Progress toward personal sustainability goals and/or "green" image:										
Extremely likely	29	12%	12%	13%	16%	12%	14%	12%	17%	5%
Very likely	41	17%	18%	17%	13%	17%	20%	19%	6%	25%
Moderately likely	70	30%	29%	30%	29%	30%	27%	27%	31%	55%
Slightly likely	37	16%	12%	18%	16%	13%	25%	16%	20%	5%
Not at all likely	59	25%	30%	23%	26%	28%	14%	27%	26%	10%
Total	**236**		**77**	**159**	**102**	**185**	**51**	**181**	**35**	**20**
Greater reliability over a standard efficiency system:										
Extremely likely	76	32%	31%	33%	29%	28%	47%	34%	20%	35%
Very likely	84	35%	39%	34%	35%	38%	27%	35%	34%	45%
Moderately likely	44	19%	21%	18%	18%	18%	20%	18%	23%	15%
Slightly likely	21	9%	8%	9%	12%	10%	6%	8%	17%	5%
Not at all likely	12	5%	1%	7%	6%	6%	0%	5%	6%	0%
Total	**237**		**77**	**160**	**103**	**186**	**51**	**182**	**35**	**20**
Improved water heater performance over a standard efficiency system:										
Extremely likely	61	26%	25%	26%	24%	22%	41%	27%	20%	30%
Very likely	82	35%	39%	33%	33%	37%	25%	35%	29%	45%

WH4/Q22: How likely is it that the following factors would motivate you to replace your broken water heater with a high-efficiency model? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Moderately likely	60	25%	22%	27%	28%	24%	29%	24%	34%	25%
Slightly likely	13	6%	9%	4%	5%	6%	4%	5%	11%	0%
Not at all likely	20	8%	5%	10%	10%	11%	0%	10%	6%	0%
Total	**236**		**77**	**159**	**102**	**185**	**51**	**181**	**35**	**20**

TABLE A-22. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER IF INCENTIVE CREATES 10-YEAR PAYBACK PERIOD

WH7a/Q25a: How likely would your organization be to replace the failed equipment with a high efficiency water heater if the incentive creates a payback period of 10 years (10% ROI)? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	29	12%	12%	12%	11%	11%	18%	9%	14%	33%
Very likely	31	13%	17%	11%	15%	13%	12%	15%	3%	10%
Moderately likely	70	29%	36%	26%	28%	28%	33%	32%	26%	10%
Slightly likely	47	20%	17%	21%	20%	20%	18%	17%	26%	29%
Not at all likely	64	27%	19%	30%	26%	28%	20%	26%	31%	19%
Total	**241**		**78**	**163**	**104**	**190**	**51**	**185**	**35**	**21**

TABLE A-23. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER IF INCENTIVE CREATES 5-YEAR PAYBACK PERIOD

WH7b/Q25b: How likely would your organization be to replace the failed

equipment with a high efficiency water heater if the incentive creates a payback period of 5 years (20% ROI)?										
[ASK IF WH7a < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	20	10%	12%	8%	9%	11%	5%	11%	3%	7%
Very likely	48	23%	31%	19%	23%	20%	33%	27%	10%	7%
Moderately likely	75	36%	31%	38%	41%	35%	38%	33%	47%	50%
Slightly likely	35	17%	13%	18%	15%	18%	12%	16%	20%	21%
Not at all likely	32	15%	13%	16%	13%	16%	12%	14%	20%	14%
Total	**210**		**68**	**142**	**93**	**168**	**42**	**166**	**30**	**14**

TABLE A-24. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER IF INCENTIVE CREATES 3-YEAR PAYBACK PERIOD

WH7c/Q25c: How likely would your organization be to replace the failed equipment with a high efficiency water heater if the incentive creates a payback period of 3 years (33% ROI)?										
[ASK IF WH7b < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	36	19%	22%	18%	19%	17%	28%	22%	7%	8%
Very likely	69	36%	38%	35%	38%	37%	33%	34%	41%	46%
Moderately likely	44	23%	23%	23%	25%	22%	28%	22%	28%	23%
Slightly likely	20	11%	5%	13%	8%	12%	5%	10%	10%	15%
Not at all likely	21	11%	12%	11%	11%	12%	8%	11%	14%	8%
Total	**190**		**60**	**130**	**85**	**150**	**40**	**148**	**29**	**13**

TABLE A-25. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER IF INCENTIVE CREATES 1-YEAR PAYBACK PERIOD

WH7d/Q25d: How likely would your organization be to replace the failed equipment with a high efficiency water heater if the incentive creates a payback period of 1 year (100% ROI)? [ASK IF WH7c < Extremely Likely]											
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	73	47%	53%	45%	39%	46%	52%	47%	48%	50%
Very likely	45	29%	28%	30%	35%	28%	34%	30%	22%	33%
Moderately likely	13	8%	11%	7%	13%	9%	7%	7%	19%	0%
Slightly likely	8	5%	2%	7%	3%	6%	3%	5%	4%	8%
Not at all likely	15	10%	6%	11%	10%	11%	3%	10%	7%	8%
Total	**154**		**47**	**107**	**69**	**125**	**29**	**115**	**27**	**12**

TABLE A-26. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY WATER HEATER IF INCENTIVE CREATES 0-YEAR PAYBACK PERIOD

WH7e/Q25e: How likely would your organization be to replace the failed equipment with a high efficiency water heater if the incentive creates a payback period of 0 years (instant ROI)? [ASK IF WH7d < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	39	48%	55%	46%	55%	49%	43%	44%	57%	67%
Very likely	17	21%	23%	20%	21%	19%	29%	23%	21%	0%
Moderately likely	4	5%	5%	5%	5%	4%	7%	7%	0%	0%

Slightly likely	7	9%	5%	10%	5%	7%	14%	8%	7%	17%
Not at all likely	14	17%	14%	19%	14%	19%	7%	18%	14%	17%
Total	**81**		**22**	**59**	**42**	**67**	**14**	**61**	**14**	**6**

TABLE A-27. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING A MINOR HIGH-EFFICIENCY WATER HEATER IMPROVEMENT IF INCENTIVE CREATES 10-YEAR PAYBACK PERIOD

WH9a/Q27a: Now, please consider your decision making for a minor investment to improve your water heater efficiency. Your utility offers an incentive to offset this cost. How likely would your organization be to purchase and install the water heating efficiency improvement if the incentive creates a payback period of 10 years (10% ROI)?										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	34	14%	13%	15%	13%	13%	18%	13%	14%	29%
Very likely	25	10%	14%	9%	10%	11%	10%	13%	0%	10%
Moderately likely	61	26%	30%	23%	26%	24%	31%	26%	26%	19%
Slightly likely	57	24%	21%	25%	27%	23%	25%	21%	34%	29%
Not at all likely	62	26%	22%	28%	24%	29%	16%	27%	26%	14%

Total	**239**	**77**	**162**	**104**	**188**	**51**	**183**	**35**	**21**

TABLE A-28. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING A MINOR HIGH-EFFICIENCY WATER HEATER IMPROVEMENT IF INCENTIVE CREATES 5-YEAR PAYBACK PERIOD

WH9b/Q27b: How likely would your organization be to purchase and install the water heating efficiency improvement if the incentive creates a payback period of 5 years (20% ROI)? [ASK IF WH9a < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	18	9%	13%	7%	6%	9%	10%	11%	3%	0%
Very likely	46	22%	27%	20%	21%	21%	26%	24%	7%	33%
Moderately likely	70	34%	31%	36%	40%	33%	38%	33%	37%	40%
Slightly likely	45	22%	16%	25%	22%	22%	21%	19%	40%	13%
Not at all likely	26	13%	12%	13%	11%	15%	5%	13%	13%	13%
Total	**205**		**67**	**138**	**90**	**163**	**42**	**160**	**30**	**15**

TABLE A-29. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING A MINOR HIGH-EFFICIENCY WATER HEATER IMPROVEMENT IF INCENTIVE CREATES 3-YEAR PAYBACK PERIOD

WH9c/Q27c: How likely would your organization be to purchase and install the water heating efficiency improvement if the incentive creates a payback period of 3 years (33% ROI)? [ASK IF WH9b < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	37	20%	19%	20%	22%	19%	24%	22%	3%	27%
Very likely	67	36%	40%	34%	35%	36%	37%	36%	38%	27%
Moderately likely	43	23%	22%	23%	24%	21%	29%	21%	31%	27%
Slightly likely	21	11%	9%	12%	9%	12%	8%	10%	17%	13%

Not at all likely	19	10%	10%	10%	9%	12%	3%	10%	10%	7%
Total	**187**		**58**	**129**	**85**	**149**	**38**	**143**	**29**	**15**

TABLE A-30. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING A MINOR HIGH-EFFICIENCY WATER HEATER IMPROVEMENT IF INCENTIVE CREATES 1-YEAR PAYBACK PERIOD

WH9d/Q27d: How likely would your organization be to purchase and install the water heating efficiency improvement if the incentive creates a payback period of 1 years (100% ROI)? [ASK IF WH9c < Extremely Likely]			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Extremely likely	67	45%	49%	43%	38%	43%	52%	48%	39%	27%
Very likely	46	31%	28%	32%	33%	30%	34%	29%	29%	55%
Moderately likely	16	11%	11%	11%	17%	11%	10%	8%	25%	0%
Slightly likely	6	4%	4%	4%	3%	5%	0%	5%	0%	9%
Not at all likely	15	10%	9%	11%	9%	12%	3%	11%	7%	9%
Total	**150**		**47**	**103**	**66**	**121**	**29**	**111**	**28**	**11**

TABLE A-31. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING A MINOR HIGH-EFFICIENCY WATER HEATER IMPROVEMENT IF INCENTIVE CREATES 0-YEAR PAYBACK PERIOD

WH9e/Q27e: How likely would your organization be to purchase and install the water heating efficiency improvement if the incentive creates a payback period of 0 years (instant ROI)? [ASK IF WH9d < Extremely Likely]											
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	34	41%	42%	41%	49%	43%	29%	36%	47%	63%
Very likely	24	29%	38%	25%	22%	25%	50%	33%	24%	13%
Moderately likely	7	8%	4%	10%	12%	7%	14%	7%	18%	0%
Slightly likely	3	4%	0%	5%	2%	4%	0%	3%	0%	13%
Not at all likely	15	18%	17%	19%	15%	20%	7%	21%	12%	13%
Total	**83**		**24**	**59**	**41**	**69**	**14**	**58**	**17**	**8**

TABLE A-32. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM REPLACING BROKEN REFRIGERATION EQUIPMENT WITH A HIGH-EFFICIENCY MODEL

RF1/Q29: How likely is it that the following factors will prevent your organization from replacing broken refrigeration equipment with a high-efficiency version as opposed to a standard-efficiency version?										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Higher cost:										
Extremely likely	61	26%	24%	27%	28%	27%	22%	27%	21%	29%
Very likely	49	21%	20%	21%	17%	22%	16%	21%	21%	24%
Moderately likely	67	29%	29%	28%	31%	26%	39%	28%	32%	24%
Slightly likely	27	11%	13%	11%	10%	12%	10%	12%	9%	14%
Not at all likely	31	13%	13%	13%	15%	13%	12%	13%	18%	10%
Total	**235**		**75**	**160**	**101**	**186**	**49**	**180**	**34**	**21**
Our ability to access financing or capital:										
Extremely likely	39	17%	13%	18%	20%	17%	14%	17%	12%	24%
Very likely	38	16%	23%	13%	15%	17%	12%	17%	15%	14%
Moderately likely	41	18%	13%	19%	15%	16%	22%	17%	9%	38%

RF1/Q29: How likely is it that the following factors will prevent your organization from replacing broken refrigeration equipment with a high-efficiency version as opposed to a standard-efficiency version? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Slightly likely	33	14%	9%	16%	15%	14%	16%	15%	15%	5%
Not at all likely	83	35%	41%	33%	35%	36%	35%	35%	50%	19%
Total	**234**		**75**	**159**	**100**	**185**	**49**	**179**	**34**	**21**
Uncertainty about the amount of savings:										
Extremely likely	29	12%	12%	13%	13%	12%	12%	11%	12%	29%
Very likely	39	17%	12%	19%	16%	16%	18%	16%	15%	24%
Moderately likely	68	29%	35%	26%	26%	28%	33%	30%	21%	33%
Slightly likely	50	21%	28%	18%	18%	23%	16%	23%	21%	10%
Not at all likely	48	21%	13%	24%	27%	21%	20%	20%	32%	5%
Total	**234**		**75**	**159**	**100**	**185**	**49**	**179**	**34**	**21**
No remaining upgrade opportunities:										
Extremely likely	33	14%	11%	16%	17%	13%	18%	11%	21%	29%
Very likely	29	12%	15%	11%	10%	11%	16%	12%	12%	19%
Moderately likely	50	21%	28%	18%	17%	24%	12%	22%	9%	33%
Slightly likely	38	16%	12%	18%	20%	16%	16%	17%	15%	10%
Not at all likely	83	36%	35%	36%	35%	35%	37%	37%	44%	10%
Total	**233**		**75**	**158**	**99**	**184**	**49**	**178**	**34**	**21**
Difficulty finding qualified contractors:										
Extremely likely	18	8%	11%	6%	7%	8%	8%	7%	6%	14%
Very likely	29	12%	15%	11%	10%	13%	10%	12%	6%	24%
Moderately likely	34	15%	8%	18%	14%	14%	16%	15%	9%	19%
Slightly likely	50	21%	24%	20%	21%	21%	22%	19%	32%	24%
Not at all likely	102	44%	43%	44%	47%	44%	43%	46%	47%	19%
Total	**233**		**75**	**158**	**99**	**184**	**49**	**178**	**34**	**21**
Limited financial benefit as a renter:										
Extremely likely	36	15%	9%	18%	18%	17%	10%	15%	18%	14%

RF1/Q29: How likely is it that the following factors will prevent your organization from replacing broken refrigeration equipment with a high-efficiency version as opposed to a standard-efficiency version? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Very likely	26	11%	11%	11%	6%	13%	6%	11%	6%	24%
Moderately likely	38	16%	17%	16%	16%	19%	6%	16%	9%	33%
Slightly likely	20	9%	12%	7%	3%	9%	8%	8%	12%	5%
Not at all likely	113	48%	51%	47%	57%	43%	69%	50%	56%	24%
Total	**233**		**75**	**158**	**99**	**184**	**49**	**178**	**34**	**21**
Potential negative impacts on product quality or preservation:										
Extremely likely	29	12%	8%	15%	13%	12%	14%	13%	9%	14%
Very likely	37	16%	16%	16%	17%	16%	16%	13%	26%	19%
Moderately likely	53	23%	24%	22%	14%	20%	33%	25%	6%	29%
Slightly likely	34	15%	17%	13%	14%	13%	20%	15%	15%	14%
Not at all likely	80	34%	35%	34%	41%	39%	16%	34%	44%	24%
Total	**233**		**75**	**158**	**99**	**184**	**49**	**178**	**34**	**21**
Limitations of building characteristics (e.g., no space to add equipment):										
Extremely likely	31	13%	7%	16%	18%	13%	14%	12%	12%	24%
Very likely	50	21%	21%	22%	19%	21%	22%	21%	21%	24%
Moderately likely	42	18%	17%	18%	16%	19%	14%	20%	3%	24%
Slightly likely	32	14%	17%	12%	15%	13%	16%	13%	21%	5%
Not at all likely	78	33%	37%	32%	31%	34%	33%	33%	44%	24%
Total	**233**		**75**	**158**	**99**	**184**	**49**	**178**	**34**	**21**
Lack of knowledge of energy efficient options:										
Extremely likely	14	6%	4%	7%	8%	5%	8%	6%	6%	10%
Very likely	27	12%	13%	11%	8%	13%	6%	10%	12%	24%
Moderately likely	56	24%	20%	26%	21%	23%	27%	26%	15%	24%
Slightly likely	58	25%	33%	21%	21%	25%	24%	26%	18%	29%
Not at all likely	78	33%	29%	35%	41%	33%	35%	33%	50%	14%

RF1/Q29: How likely is it that the following factors will prevent your organization from replacing broken refrigeration equipment with a high-efficiency version as opposed to a standard-efficiency version?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Total	**233**		**75**	**158**	**99**	**184**	**49**	**178**	**34**	**21**
Availability/lead-time to procure equipment:										
Extremely likely	23	10%	1%	14%	8%	8%	16%	9%	12%	14%
Very likely	38	16%	20%	15%	12%	15%	22%	16%	12%	29%
Moderately likely	48	21%	20%	21%	23%	20%	22%	22%	15%	19%
Slightly likely	58	25%	24%	25%	26%	26%	22%	25%	29%	19%
Not at all likely	66	28%	35%	25%	30%	32%	16%	29%	32%	19%
Total	**233**		**75**	**158**	**99**	**184**	**49**	**178**	**34**	**21**

TABLE A-33. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO REPLACE BROKEN REFRIGERATION EQUIPMENT WITH A HIGH-EFFICIENCY MODEL

RF4/Q32: How likely is it that the following factors would motivate you to replace your broken refrigeration equipment with a high-efficiency model?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Energy or utility bill savings:										
Extremely likely	5	18%	14%	19%	23%	17%	25%	13%	22%	33%
Very likely	7	25%	43%	19%	23%	25%	25%	31%	22%	0%
Moderately likely	2	7%	0%	10%	0%	8%	0%	6%	0%	33%
Slightly likely	1	4%	14%	0%	0%	4%	0%	6%	0%	0%
Not at all likely	13	46%	29%	52%	54%	46%	50%	44%	56%	33%
Total	**28**		**7**	**21**	**13**	**24**	**4**	**16**	**9**	**3**
Progress toward personal sustainability goals and/or "green" image:										
Extremely likely	2	7%	0%	10%	8%	8%	0%	6%	11%	0%
Very likely	3	11%	29%	5%	15%	8%	25%	13%	11%	0%

RF4/Q32: How likely is it that the following factors would motivate you to replace your broken refrigeration equipment with a high-efficiency model?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Moderately likely	5	18%	14%	19%	8%	21%	0%	19%	11%	33%
Slightly likely	5	18%	0%	24%	31%	17%	25%	13%	22%	33%
Not at all likely	13	46%	57%	43%	38%	46%	50%	50%	44%	33%
Total	**28**		**7**	**21**	**13**	**24**	**4**	**16**	**9**	**3**
Increased system reliability:										
Extremely likely	2	7%	14%	5%	8%	8%	0%	13%	0%	0%
Very likely	5	18%	29%	14%	23%	13%	50%	19%	22%	0%
Moderately likely	6	21%	14%	24%	15%	25%	0%	19%	22%	33%
Slightly likely	2	7%	0%	10%	8%	8%	0%	0%	11%	33%
Not at all likely	13	46%	43%	48%	46%	46%	50%	50%	44%	33%
Total	**28**		**7**	**21**	**13**	**24**	**4**	**16**	**9**	**3**
Improved operational safety:										
Extremely likely	1	4%	0%	5%	8%	0%	25%	0%	11%	0%
Very likely	3	11%	29%	5%	8%	13%	0%	13%	11%	0%
Moderately likely	7	25%	14%	29%	23%	25%	25%	31%	11%	33%
Slightly likely	5	18%	14%	19%	23%	21%	0%	13%	22%	33%
Not at all likely	12	43%	43%	43%	38%	42%	50%	44%	44%	33%
Total	**28**		**7**	**21**	**13**	**24**	**4**	**16**	**9**	**3**
Quieter operation:										
Extremely likely	1	4%	14%	0%	0%	4%	0%	6%	0%	0%
Very likely	1	4%	0%	5%	8%	4%	0%	6%	0%	0%
Moderately likely	5	18%	29%	14%	8%	21%	0%	25%	0%	33%
Slightly likely	4	14%	0%	19%	23%	17%	0%	6%	33%	0%
Not at all likely	17	61%	57%	62%	62%	54%	100%	56%	67%	67%
Total	**28**		**7**	**21**	**13**	**24**	**4**	**16**	**9**	**3**

RF4/Q32: How likely is it that the following factors would motivate you to replace your broken refrigeration equipment with a high-efficiency model?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	**Count**	**%**								
Better temperature management (reduced food spoilage):										
Extremely likely	2	7%	14%	5%	8%	8%	0%	13%	0%	0%
Very likely	3	11%	29%	5%	8%	13%	0%	19%	0%	0%
Moderately likely	7	25%	14%	29%	15%	25%	25%	19%	22%	67%
Slightly likely	2	7%	0%	10%	15%	0%	50%	0%	22%	0%
Not at all likely	14	50%	43%	52%	54%	54%	25%	50%	56%	33%
Total	**28**		**7**	**21**	**13**	**24**	**4**	**16**	**9**	**3**

TABLE A-34. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY REFRIGERATOR IF INCENTIVE CREATES 10-YEAR PAYBACK PERIOD

RF7a/Q35a: First, please consider your decision making for a major investment. A high-efficiency water heater would cost 20% more. Your utility offers an incentive to offset this higher cost. How likely would your organization be to replace the failed equipment with a high efficiency refrigerator if the incentive creates a payback period of 10 years (10% ROI)?											
Answer	**Count**	**%**	**Ameren**	**ComEd**	**Nicor Gas**	**Small Usage**	**Large Usage**	**Com.**	**Ind.**	**MF**
Extremely likely	24	10%	11%	10%	8%	10%	10%	9%	9%	19%
Very likely	22	9%	11%	9%	10%	9%	12%	10%	6%	10%
Moderately likely	53	23%	25%	21%	24%	22%	27%	23%	18%	24%
Slightly likely	53	23%	25%	21%	20%	22%	24%	23%	18%	29%
Not at all likely	83	35%	28%	39%	39%	38%	27%	34%	50%	19%
Total	**235**		**75**	**160**	**101**	**186**	**49**	**180**	**34**	**21**

TABLE A-35. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY REFRIGERATOR IF INCENTIVE CREATES 5-YEAR PAYBACK PERIOD

RF7b/Q35b: How likely would your organization be to replace the failed equipment with a high efficiency refrigerator if the incentive creates a payback period of 5 years (20% ROI)? [ASK IF RF7a < Extremely Likely]										
Answer	**Count**	**%**	**Ameren**	**ComEd**	**Nicor Gas**	**Small Usage**	**Large Usage**	**Com.**	**Ind.**	**MF**
Extremely likely	16	8%	10%	6%	5%	8%	5%	9%	3%	0%
Very likely	40	19%	21%	18%	22%	16%	30%	20%	10%	29%
Moderately likely	66	31%	31%	31%	29%	31%	34%	31%	26%	41%
Slightly likely	40	19%	16%	20%	18%	20%	14%	19%	23%	12%
Not at all likely	49	23%	21%	24%	26%	25%	18%	21%	39%	18%
Total	**211**		**67**	**144**	**93**	**167**	**44**	**163**	**31**	**17**

TABLE A-36. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY REFRIGERATOR IF INCENTIVE CREATES 3-YEAR PAYBACK PERIOD

RF7c/Q35c: How likely would your organization be to replace the failed equipment with a high efficiency refrigerator if the incentive creates a payback period of 3 years (33% ROI)? [ASK IF RF7b < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	36	18%	17%	19%	22%	16%	26%	20%	10%	18%
Very likely	50	26%	28%	24%	24%	24%	31%	25%	23%	35%
Moderately likely	55	28%	30%	27%	25%	29%	26%	30%	23%	18%
Slightly likely	12	6%	5%	7%	6%	7%	2%	5%	7%	12%
Not at all likely	42	22%	20%	22%	24%	24%	14%	19%	37%	18%
Total	**195**		**60**	**135**	**88**	**153**	**42**	**148**	**30**	**17**

TABLE A-37. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY REFRIGERATOR IF INCENTIVE CREATES 1-YEAR PAYBACK PERIOD

RF7d/Q35d: How likely would your organization be to replace the failed equipment with a high efficiency refrigerator if the incentive creates a payback period of 1 year (100% ROI)? [ASK IF RF7c < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	59	37%	36%	38%	32%	35%	45%	40%	26%	36%
Very likely	43	27%	32%	25%	26%	26%	32%	27%	22%	36%
Moderately likely	21	13%	14%	13%	17%	15%	6%	14%	19%	0%

Slightly likely	7	4%	2%	6%	4%	5%	0%	3%	4%	14%
Not at all likely	29	18%	16%	19%	20%	19%	16%	16%	30%	14%
Total	**159**		**50**	**109**	**69**	**128**	**31**	**118**	**27**	**14**

TABLE A-38. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING HIGH-EFFICIENCY REFRIGERATOR IF INCENTIVE CREATES 0-YEAR PAYBACK PERIOD

RF7e/Q35e: How likely would your organization be to replace the failed equipment with a high efficiency refrigerator if the incentive creates a payback period of 0 years (instant ROI)? [ASK IF RF7d < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	38	38%	41%	37%	43%	39%	35%	45%	25%	11%
Very likely	30	30%	28%	31%	23%	29%	35%	25%	35%	56%
Moderately likely	4	4%	3%	4%	6%	2%	12%	4%	5%	0%
Slightly likely	3	3%	3%	3%	2%	4%	0%	3%	0%	11%
Not at all likely	25	25%	25%	25%	26%	27%	18%	23%	35%	22%
Total	**100**		**32**	**68**	**47**	**83**	**17**	**71**	**20**	**9**

TABLE A-39. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY REFRIGERATION EQUIPMENT IMPROVEMENT IF INCENTIVE CREATES 10-YEAR PAYBACK PERIOD

RF9a/Q37a: Now, please consider your decision making for a minor investment to improve your refrigeration efficiency. Your utility offers an incentive to offset the cost. How likely would your organization be to replace the failed equipment with a high efficiency refrigerator or refrigeration equipment under the following circumstances. The incentive creates a payback period of 10 years (10% ROI).										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	24	10%	11%	10%	10%	10%	12%	10%	6%	19%

Very likely	23	10%	16%	7%	6%	10%	8%	11%	3%	14%
Moderately likely	55	23%	25%	23%	26%	22%	31%	23%	21%	29%
Slightly likely	55	23%	19%	26%	24%	23%	24%	23%	26%	19%
Not at all likely	78	33%	29%	35%	35%	35%	24%	33%	44%	19%
Total	**235**		**75**	**160**	**101**	**186**	**49**	**180**	**34**	**21**

TABLE A-40. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY REFRIGERATION EQUIPMENT IMPROVEMENT IF INCENTIVE CREATES 5-YEAR PAYBACK PERIOD

RF9b/Q37b: How likely would your organization be to replace the failed equipment with a high efficiency refrigerator or refrigeration equipment if the incentive creates a payback period of 5 years (20% ROI)? [ASK IF RF9a < Extremely Likely] Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	16	8%	10%	6%	5%	7%	9%	9%	6%	0%
Very likely	46	22%	28%	19%	20%	21%	26%	23%	9%	35%
Moderately likely	65	31%	30%	31%	31%	31%	30%	31%	28%	35%
Slightly likely	34	16%	10%	19%	18%	16%	16%	17%	19%	6%
Not at all likely	50	24%	21%	25%	26%	25%	19%	21%	38%	24%
Total	**211**		**67**	**144**	**91**	**168**	**43**	**162**	**32**	**17**

TABLE A-41. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY REFRIGERATION EQUIPMENT IMPROVEMENT IF INCENTIVE CREATES 3-YEAR PAYBACK PERIOD

RF9c/Q37c: How likely would your organization be to replace the failed equipment with a high efficiency refrigerator or refrigeration equipment if the incentive creates a payback period of 3 years (33% ROI)? [ASK IF RF9b < Extremely Likely] Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF

Extremely likely	34	17%	17%	18%	20%	17%	18%	19%	7%	24%
Very likely	63	32%	42%	28%	26%	31%	36%	32%	30%	41%
Moderately likely	44	23%	18%	24%	24%	22%	23%	24%	23%	6%
Slightly likely	13	7%	5%	7%	8%	6%	8%	7%	7%	6%
Not at all likely	41	21%	18%	22%	22%	22%	15%	18%	33%	24%
Total	**195**		**60**	**135**	**86**	**156**	**39**	**148**	**30**	**17**

TABLE A-42. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY REFRIGERATION EQUIPMENT IMPROVEMENT IF INCENTIVE CREATES 1-YEAR PAYBACK PERIOD

RF9d/Q37d: How likely would your organization be to replace the failed equipment with a high efficiency refrigerator or refrigeration equipment if the incentive creates a payback period of 1 year (100% ROI)? [ASK IF RF9c < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	67	42%	42%	41%	35%	40%	50%	46%	29%	31%
Very likely	36	22%	26%	21%	23%	22%	22%	22%	25%	23%
Moderately likely	21	13%	10%	14%	17%	13%	13%	12%	14%	23%
Slightly likely	7	4%	6%	4%	1%	5%	3%	5%	0%	8%
Not at all likely	30	19%	16%	20%	23%	20%	13%	16%	32%	15%
Total	**161**		**50**	**111**	**69**	**129**	**32**	**120**	**28**	**13**

TABLE A-43. LIKELIHOOD OF SURVEY PARTICIPANTS PURCHASING MINOR HIGH-EFFICIENCY REFRIGERATION EQUIPMENT IMPROVEMENT IF INCENTIVE CREATES 0-YEAR PAYBACK PERIOD

RF9e/Q37e: How likely would your organization be to replace the failed equipment with a high efficiency refrigerator or refrigeration equipment if the incentive creates a payback period of 0 years (instant ROI)? [ASK IF RF9d < Extremely Likely]										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Extremely likely	33	35%	31%	37%	40%	36%	31%	38%	30%	22%
Very likely	24	26%	31%	23%	18%	24%	31%	28%	15%	33%
Moderately likely	7	7%	10%	6%	9%	5%	19%	8%	10%	0%

Slightly likely	4	4%	3%	5%	2%	4%	6%	2%	5%	22%
Not at all likely	26	28%	24%	29%	31%	31%	13%	25%	40%	22%
Total	**94**		**29**	**65**	**45**	**78**	**16**	**65**	**20**	**9**

TABLE A-44. AWARENESS OF TYPES OF LIGHTING CONTROLS

LC1/Q39: Prior to this survey, were you familiar with these different types of lighting controls?										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Basic Controls:										
Yes	211	91%	92%	90%	90%	89%	96%	91%	88%	95%
No	15	6%	8%	6%	5%	8%	2%	6%	12%	5%
Don't know	7	3%	0%	4%	5%	3%	2%	4%	0%	0%
Total	**233**		**74**	**159**	**101**	**184**	**49**	**179**	**34**	**20**
Stand-alone Sensor Controls:										
Yes	191	82%	83%	81%	84%	79%	90%	79%	91%	85%
No	32	14%	15%	13%	11%	15%	8%	14%	9%	15%
Don't know	11	5%	3%	6%	5%	5%	2%	6%	0%	0%
Total	**234**		**75**	**159**	**101**	**185**	**49**	**180**	**34**	**20**
Luminaire-level Lighting Controls (LLLC):										
Yes	107	46%	41%	48%	50%	41%	63%	42%	65%	45%
No	106	45%	53%	42%	40%	50%	27%	47%	35%	50%
Don't know	21	9%	5%	11%	10%	9%	10%	11%	0%	5%
Total	**234**		**75**	**159**	**101**	**185**	**49**	**180**	**34**	**20**
Networked Lighting Controls (NLC):										
Yes	100	43%	41%	44%	50%	39%	59%	41%	62%	30%
No	109	47%	50%	45%	40%	52%	29%	47%	35%	60%
Don't know	24	10%	9%	11%	11%	10%	12%	12%	3%	10%

Total	**233**		**74**	**159**	**101**	**184**	**49**	**179**	**34**	**20**

TABLE A-45. TYPES OF LIGHTING CONTROLS ALREADY INSTALLED AT FACILITIES

LC2/Q40: What kinds of lighting controls do you have installed at your facility? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Basic Controls:										
Yes	214	92%	95%	91%	92%	90%	98%	91%	94%	95%
No	7	3%	4%	3%	2%	4%	0%	3%	6%	0%
Don't know	12	5%	1%	7%	6%	6%	2%	6%	0%	5%
Total	**233**		**75**	**158**	**100**	**184**	**49**	**179**	**34**	**20**
Stand-alone Sensor Controls:										
Yes	97	42%	35%	45%	48%	36%	65%	41%	41%	50%
No	123	53%	64%	48%	45%	58%	33%	53%	59%	45%
Don't know	12	5%	1%	7%	6%	6%	2%	6%	0%	5%
Total	**232**		**75**	**157**	**99**	**183**	**49**	**178**	**34**	**20**
Luminaire-level Lighting Controls (LLLC):										
Yes	18	8%	9%	7%	11%	5%	18%	7%	9%	10%
No	193	83%	87%	82%	77%	85%	76%	83%	82%	85%
Don't know	21	9%	4%	11%	12%	10%	6%	10%	9%	5%
Total	**232**		**75**	**157**	**99**	**183**	**49**	**178**	**34**	**20**
Networked Lighting Controls (NLC):										
Yes	17	7%	7%	8%	12%	4%	20%	8%	6%	0%
No	193	83%	89%	80%	77%	86%	73%	82%	85%	90%
Don't know	22	9%	4%	12%	11%	10%	6%	10%	9%	10%
Total	**232**		**75**	**157**	**99**	**183**	**49**	**178**	**34**	**20**

TABLE A-46. LIKELIHOOD OF CERTAIN BARRIERS PREVENTING SURVEY PARTICIPANTS FROM INSTALLING ADVANCED LIGHTING CONTROLS

LC3/Q41: How likely is it that the following factors will prevent your organization from installing these advanced lighting controls?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Cost to install:										
Extremely likely	86	38%	39%	37%	45%	37%	40%	39%	26%	40%
Very likely	48	21%	18%	22%	21%	23%	13%	19%	32%	20%
Moderately likely	44	19%	22%	18%	14%	19%	19%	19%	15%	30%
Slightly likely	26	11%	10%	12%	8%	9%	19%	13%	9%	5%
Not at all likely	25	11%	11%	11%	11%	11%	10%	10%	18%	5%
Total	**229**		**72**	**157**	**99**	**181**	**48**	**175**	**34**	**20**
Our ability to access financing or capital:										
Extremely likely	43	19%	20%	19%	23%	20%	17%	20%	9%	25%
Very likely	37	16%	13%	18%	20%	18%	10%	17%	15%	10%
Moderately likely	48	21%	25%	19%	14%	19%	29%	21%	12%	40%
Slightly likely	34	15%	14%	15%	15%	16%	13%	16%	15%	5%
Not at all likely	65	29%	28%	29%	28%	28%	31%	26%	48%	20%
Total	**227**		**71**	**156**	**97**	**179**	**48**	**174**	**33**	**20**
Uncertainty about the amount of savings:										
Extremely likely	29	13%	13%	13%	14%	14%	8%	11%	15%	20%
Very likely	50	22%	22%	22%	20%	24%	13%	18%	24%	50%
Moderately likely	59	26%	25%	26%	28%	26%	27%	28%	21%	20%
Slightly likely	44	19%	19%	19%	19%	16%	31%	22%	18%	0%
Not at all likely	46	20%	21%	20%	18%	20%	21%	21%	24%	10%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
We already have advanced lighting controls installed:										
Extremely likely	20	9%	10%	8%	13%	8%	13%	9%	9%	5%

LC3/Q41: How likely is it that the following factors will prevent your organization from installing these advanced lighting controls?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Very likely	13	6%	4%	6%	6%	7%	2%	5%	0%	20%
Moderately likely	27	12%	11%	12%	11%	11%	17%	13%	12%	5%
Slightly likely	19	8%	8%	8%	6%	8%	10%	8%	9%	15%
Not at all likely	148	65%	66%	65%	63%	67%	58%	65%	71%	55%
Total	**227**		**71**	**156**	**98**	**179**	**48**	**173**	**34**	**20**
Difficulty finding qualified contractors:										
Extremely likely	21	9%	10%	9%	8%	10%	6%	6%	9%	35%
Very likely	20	9%	8%	9%	4%	9%	6%	9%	6%	15%
Moderately likely	55	24%	24%	24%	26%	26%	17%	27%	15%	15%
Slightly likely	43	19%	14%	21%	25%	16%	29%	19%	24%	10%
Not at all likely	88	39%	44%	37%	37%	38%	42%	39%	45%	25%
Total	**227**		**71**	**156**	**97**	**179**	**48**	**174**	**33**	**20**
Limited financial benefit as a renter:										
Extremely likely	41	18%	14%	20%	22%	20%	10%	19%	15%	15%
Very likely	29	13%	13%	13%	4%	16%	2%	13%	3%	30%
Moderately likely	33	15%	20%	12%	11%	15%	15%	14%	12%	25%
Slightly likely	21	9%	11%	8%	6%	11%	4%	9%	9%	10%
Not at all likely	103	45%	42%	47%	57%	39%	69%	45%	61%	20%
Total	**227**		**71**	**156**	**97**	**179**	**48**	**174**	**33**	**20**
Potential negative impacts on aesthetics or comfort:										
Extremely likely	21	9%	6%	11%	11%	8%	15%	9%	12%	10%
Very likely	20	9%	4%	11%	9%	10%	4%	10%	0%	15%
Moderately likely	43	19%	21%	18%	16%	18%	23%	19%	21%	15%
Slightly likely	43	19%	21%	18%	16%	18%	23%	20%	9%	30%
Not at all likely	100	44%	48%	42%	46%	46%	35%	43%	58%	30%
Total	**227**		**71**	**156**	**97**	**179**	**48**	**174**	**33**	**20**

LC3/Q41: How likely is it that the following factors will prevent your organization from installing these advanced lighting controls? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Potential negative impacts on worker productivity:										
Extremely likely	29	13%	10%	14%	15%	14%	8%	11%	15%	20%
Very likely	24	11%	10%	11%	9%	13%	2%	9%	12%	25%
Moderately likely	39	17%	18%	17%	15%	17%	17%	20%	9%	5%
Slightly likely	36	16%	14%	17%	19%	15%	21%	18%	12%	5%
Not at all likely	99	44%	48%	42%	41%	41%	52%	42%	52%	45%
Total	**227**		**71**	**156**	**97**	**179**	**48**	**174**	**33**	**20**
Lack of knowledge about advanced lighting controls:										
Extremely likely	19	8%	11%	7%	7%	9%	6%	9%	6%	10%
Very likely	34	15%	14%	16%	12%	17%	6%	14%	12%	25%
Moderately likely	61	27%	31%	25%	24%	26%	30%	28%	15%	35%
Slightly likely	39	17%	14%	19%	20%	16%	21%	16%	24%	15%
Not at all likely	73	32%	31%	33%	37%	31%	36%	32%	42%	15%
Total	**226**		**72**	**154**	**97**	**179**	**47**	**173**	**33**	**20**
Availability/lead-time to procure equipment:										
Extremely likely	15	7%	4%	8%	8%	5%	13%	7%	6%	5%
Very likely	19	8%	8%	8%	5%	10%	2%	7%	6%	20%
Moderately likely	48	21%	17%	23%	21%	22%	17%	24%	9%	20%
Slightly likely	61	27%	29%	26%	23%	24%	35%	25%	35%	30%
Not at all likely	85	37%	42%	35%	42%	38%	33%	37%	44%	25%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
We do not use many or any LED lamps:										
Extremely likely	17	7%	10%	6%	7%	8%	6%	9%	3%	5%
Very likely	11	5%	4%	5%	4%	6%	2%	5%	0%	10%
Moderately likely	23	10%	7%	12%	10%	11%	6%	8%	18%	15%
Slightly likely	24	11%	13%	10%	10%	12%	6%	10%	6%	25%

LC3/Q41: How likely is it that the following factors will prevent your organization from installing these advanced lighting controls?			Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Answer	Count	%								
Not at all likely	152	67%	66%	67%	68%	64%	79%	68%	73%	45%
Total	**227**		**71**	**156**	**97**	**179**	**48**	**174**	**33**	**20**
Installation causing worker downtime:										
Extremely likely	28	12%	8%	14%	13%	12%	15%	10%	18%	25%
Very likely	21	9%	8%	10%	11%	11%	4%	9%	9%	10%
Moderately likely	42	18%	17%	19%	15%	18%	21%	20%	15%	15%
Slightly likely	46	20%	24%	19%	19%	21%	19%	22%	21%	5%
Not at all likely	91	40%	43%	38%	41%	39%	42%	40%	38%	45%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
We previously considered advanced lighting controls but chose to not have them installed:										
Extremely likely	11	5%	3%	6%	8%	5%	4%	5%	3%	5%
Very likely	10	4%	3%	5%	3%	5%	2%	5%	0%	10%
Moderately likely	28	12%	14%	12%	10%	11%	17%	12%	12%	20%
Slightly likely	29	13%	16%	12%	8%	13%	10%	12%	21%	10%
Not at all likely	148	65%	64%	66%	70%	65%	67%	67%	64%	55%
Total	**226**		**70**	**156**	**97**	**178**	**48**	**173**	**33**	**20**
Lack of time or other priorities:										
Extremely likely	34	15%	13%	16%	16%	15%	17%	14%	15%	25%
Very likely	50	22%	15%	25%	30%	23%	17%	21%	30%	20%
Moderately likely	57	25%	31%	22%	19%	25%	27%	28%	12%	25%
Slightly likely	34	15%	20%	13%	9%	13%	21%	15%	15%	15%
Not at all likely	52	23%	21%	24%	26%	24%	19%	23%	27%	15%
Total	**227**		**71**	**156**	**98**	**179**	**48**	**174**	**33**	**20**

TABLE A-47. LIKELIHOOD OF CERTAIN FACTORS MOTIVATING SURVEY PARTICIPANTS TO INSTALL ADVANCED LIGHTING CONTROLS

LC6/Q44: How likely is it that the following factors would motivate you to have advanced lighting controls installed in your facility? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Energy or Utility Bill Savings:										
Extremely likely	105	46%	53%	43%	41%	46%	44%	50%	24%	50%
Very likely	60	26%	24%	27%	27%	27%	25%	23%	38%	35%
Moderately likely	36	16%	11%	18%	19%	14%	23%	17%	15%	10%
Slightly likely	10	4%	6%	4%	3%	4%	6%	3%	9%	5%
Not at all likely	18	8%	7%	8%	9%	9%	2%	7%	15%	0%
Total	**229**		**72**	**157**	**99**	**181**	**48**	**175**	**34**	**20**
Progress Toward Sustainability Goals:										
Extremely likely	34	15%	17%	14%	16%	15%	15%	15%	12%	20%
Very likely	37	16%	18%	15%	13%	16%	19%	16%	12%	30%
Moderately likely	51	22%	21%	23%	26%	22%	25%	25%	18%	10%
Slightly likely	35	15%	8%	19%	16%	14%	21%	13%	26%	15%
Not at all likely	71	31%	36%	29%	29%	34%	21%	32%	32%	25%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
Progress Toward Sustainability Goals and/or "green" image:										
Extremely likely	27	12%	14%	11%	12%	12%	13%	13%	12%	5%
Very likely	31	14%	18%	12%	13%	13%	17%	14%	9%	15%
Moderately likely	57	25%	18%	28%	29%	25%	25%	25%	21%	35%
Slightly likely	45	20%	11%	24%	20%	18%	25%	17%	26%	30%
Not at all likely	68	30%	39%	26%	26%	32%	21%	31%	32%	15%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
Improved lighting quality/brightness:										
Extremely likely	54	24%	24%	24%	27%	24%	23%	24%	24%	20%
Very likely	66	29%	36%	26%	23%	29%	27%	30%	24%	30%
Moderately likely	54	24%	21%	25%	27%	25%	19%	24%	24%	25%
Slightly likely	28	12%	11%	13%	12%	8%	29%	13%	15%	5%

LC6/Q44: How likely is it that the following factors would motivate you to have advanced lighting controls installed in your facility? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Not at all likely	26	11%	8%	13%	11%	14%	2%	10%	15%	20%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
Longer bulb/fixture lifetime:										
Extremely likely	76	33%	29%	35%	37%	33%	35%	33%	32%	40%
Very likely	66	29%	28%	29%	23%	29%	29%	31%	21%	25%
Moderately likely	42	18%	28%	14%	15%	19%	17%	18%	18%	25%
Slightly likely	17	7%	4%	9%	11%	6%	13%	7%	12%	5%
Not at all likely	27	12%	11%	12%	13%	13%	6%	11%	18%	5%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
Improvements in worker productivity:										
Extremely likely	40	18%	18%	17%	17%	18%	15%	17%	18%	20%
Very likely	49	21%	21%	22%	16%	20%	27%	20%	24%	30%
Moderately likely	51	22%	25%	21%	27%	22%	23%	22%	26%	15%
Slightly likely	34	15%	15%	15%	16%	13%	21%	18%	9%	0%
Not at all likely	54	24%	21%	25%	23%	26%	15%	22%	24%	35%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
Planning to replace existing lights with LEDs:										
Extremely likely	54	24%	21%	25%	27%	22%	31%	23%	24%	30%
Very likely	43	19%	19%	19%	22%	19%	19%	20%	21%	10%
Moderately likely	45	20%	19%	20%	14%	21%	17%	17%	18%	45%
Slightly likely	24	11%	13%	10%	8%	11%	10%	11%	9%	5%
Not at all likely	62	27%	28%	27%	29%	28%	23%	29%	29%	10%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
Financial incentives from your electric utility:										
Extremely likely	88	39%	44%	36%	41%	38%	42%	41%	32%	30%
Very likely	67	29%	32%	28%	29%	30%	27%	30%	21%	35%

LC6/Q44: How likely is it that the following factors would motivate you to have advanced lighting controls installed in your facility? Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Moderately likely	43	19%	14%	21%	18%	18%	21%	17%	21%	30%
Slightly likely	13	6%	3%	7%	6%	4%	10%	4%	15%	5%
Not at all likely	17	7%	7%	8%	6%	9%	0%	7%	12%	0%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
The ability to manage lighting schedules remotely:										
Extremely likely	37	16%	14%	17%	15%	12%	31%	18%	6%	15%
Very likely	37	16%	15%	17%	16%	16%	19%	18%	3%	25%
Moderately likely	44	19%	18%	20%	22%	22%	10%	18%	24%	20%
Slightly likely	46	20%	26%	17%	19%	19%	23%	18%	32%	15%
Not at all likely	64	28%	26%	29%	27%	31%	17%	27%	35%	25%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
Automatically sensing when spaces are unoccupied:										
Extremely likely	38	17%	19%	15%	14%	14%	25%	18%	9%	20%
Very likely	61	27%	25%	28%	30%	27%	25%	25%	24%	45%
Moderately likely	52	23%	21%	24%	22%	22%	27%	24%	24%	15%
Slightly likely	33	14%	17%	13%	16%	13%	19%	16%	12%	5%
Not at all likely	44	19%	18%	20%	17%	23%	4%	17%	32%	15%
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**
Turn-key services from a contractor manage all aspects of the installation, including permitting, incentives, and other paperwork:										
Extremely likely	52	23%	24%	22%	19%	22%	27%	24%	12%	35%
Very likely	51	22%	24%	22%	22%	22%	23%	25%	12%	15%
Moderately likely	58	25%	29%	24%	23%	24%	31%	22%	38%	35%
Slightly likely	26	11%	7%	13%	16%	11%	15%	11%	18%	5%
Not at all likely	41	18%	17%	19%	18%	22%	4%	18%	21%	10%

LC6/Q44: How likely is it that the following factors would motivate you to have advanced lighting controls installed in your facility?										
Answer	Count	%	Ameren	ComEd	Nicor Gas	Small Usage	Large Usage	Com.	Ind.	MF
Total	**228**		**72**	**156**	**98**	**180**	**48**	**174**	**34**	**20**

PREPARED BY GDS ASSOCIATES, INC.

Illinois Baseline & Potential Study

Prepared for the Joint Utilities (Commonwealth Edison, Ameren Illinois, and Nicor Gas)

FINAL VERSION
December 13, 2024

GDS Associates, Inc.
ENGINEERS & CONSULTANTS

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