



GDS Associates, Inc.
ENGINEERS & CONSULTANTS
gdsassociates.com

prepared for

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Ameren
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**2023 DSM MARKET
POTENTIAL STUDY
FINAL REPORT**

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prepared by

**GDS ASSOCIATES INC
BRIGHTLINE GROUP**

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1 EXECUTIVE SUMMARY

1.1 BACKGROUND & STUDY SCOPE

As part of their larger 2023 Integrated Resource Plan (IRP), Ameren Missouri commissioned GDS Associates (“GDS”) and Brightline Group, collectively “the GDS Team”, to assess energy savings potential to help inform future planning efforts. This project included several areas of analysis, which are collectively referred to as the 2023 DSM Market Potential Study, or 2023 study.

The GDS Team developed four distinct areas of analysis:

- Residential and business sector energy efficiency potential;
- Demand response peak load reduction potential;
- Distributed Energy Resource (DER) potential.
- Sensitivity and Scenario analyses

This report describes the methodology and results of these four areas of analysis. The 2023 study also included additional tasks including historical performance variance analysis, and potential benchmarking. The former aided with the development of the various potential estimates, and the latter helps frame the results of this 2023 study with studies recently completed in other electric utility service territories.

Each area of analysis sought to identify and assess a wide-range of demand-side resources across all major customer classes, market segments, and end-uses.¹ Although each of area of analysis is largely autonomous, for ease of reporting the four areas of analyses, as well as a review of the primary market research, these studies were ultimately combined into the single report presented here.

1.2 TYPES OF POTENTIAL ANALYZED

This potential study provides a roadmap for both policy makers and Ameren Missouri as they develop strategies and programs for energy efficiency (EE), demand response (DR), and distributed energy resources (DERs) in the Ameren Missouri service area. In addition to technical and economic potential estimates, the development of achievable and program potential estimates for a range of feasible measures is useful for program planning and modification purposes. Unlike achievable and program potential estimates, technical and economic potential estimates do not include customer 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 side management potential:

- Technical potential
- Economic potential
- Achievable potential
 - Maximum achievable potential
 - Realistically achievable potential
- Program potential
 - Maximum achievable potential
 - Realistically achievable potential

For each level of potential, this detailed report presents the energy savings, peak demand savings, benefits, and costs for the Ameren Missouri service area for the period of 2024-2043, a 20-year time frame.²

¹ 20 CSR 4240-20.050 (1)(A)1 through 3; 20 CSR 4240-20.050 (3)(B)

² 20 CSR 4240-20.050 (3)(G)

1.3 APPROACH SUMMARY

The purpose of this market potential study is to provide a foundation for the continuation of utility-administered energy efficiency and demand response programs in the Ameren Missouri service area, to determine the remaining opportunities for cost-effective energy savings, demand savings, and distributed energy resources for the Ameren Missouri service area. This study has examined a full array of technologies, programs, and energy efficient building practices that are technically achievable.

The GDS Team used a bottom-up approach to estimate energy efficiency potential in the residential sector. Bottom-up approaches begin with characterizing the eligible equipment stock, estimating savings and screening for cost-effectiveness first at the measure level, then summing savings at the end-use and service area levels. In the business sector (commercial and industrial), the GDS team utilized a bottom-up modeling approach to first estimate measure-level savings and costs as well as cost-effectiveness, and then applied cost-effective measure savings to all applicable shares of electric energy load. Bottom-up approaches were also used in the demand response and DER analyses for all sectors. Chapters 3 through 5 include a wide-ranging discussion of numerous methodological considerations utilized in the respective energy efficiency, demand response, and distributed energy resource analyses.

1.4 STUDY LIMITATIONS AND CAVEATS

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 energy avoided costs
- Future known changes to codes and standards
- End-use saturations and fuel shares

While the GDS Team has sought to use the best and most current available data (including the use of new primary market research in key market subsegments of interest based on stakeholder feedback) there are often reasonable alternative assumptions which 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. Other studies may select a narrower viewpoint, limiting the amount of potential from equipment that is already considered to be energy efficient. 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.

Furthermore, while the lists of energy efficiency measures examined in this study analysis represent technologies available on the market today and characterized in the Ameren Missouri submittal tool³, as well as a limited amount of emerging technologies not characterized or currently offered by Ameren, these measure lists may not be exhaustive. The GDS Team acknowledges 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.

To address some of these limitations, sensitivities to address uncertainties surrounding customer participation and cost-effectiveness are also included in the energy efficiency, demand response, and DER analyses. The study also attempts to benchmark the potential results against other studies, both regionally and nationally. This holistic approach creates a robust data set from which to draw meaningful conclusions.

³ MEEIA 4 2024-2030 Ameren Missouri Submittal Tool Measures Index 3.2

The 2023 study focuses on energy efficiency measures where electric savings are the primary benefit. However, select measures may provide additional secondary benefits (i.e. opportunities to improve the building shell in homes/businesses with fossil fuel heating and electric cooling, or low-flow water devices) that could be quantified by other utilities.⁴ Where applicable, this combination of primary and secondary benefits may afford Ameren Missouri opportunities for joint utility coordination. Although notable challenges to joint delivery exist, including concerns over cross-fuel competition, added complexity to the regulatory process, and program imbalances, co-delivery of efficiency programs may be able to provide additional savings opportunities and/or reduced costs for specific measures and/or programs.⁵

Last, where possible, the GDS Team and Ameren Missouri collaborated to ensure consistency with assumptions and methodological considerations that are expected to be employed during the program planning process. However, final program designs and implementation strategies may need additional flexibility to target specific or underserved markets, address equity concerns, or react to changing customer preferences.

1.5 POTENTIAL SAVINGS OVERVIEW

The following several sub-sections provide an overview of the energy efficiency potential for residential and business customers, peak demand reduction potential from demand response programs, and distributed energy resource potential. Chapters 3 through 5 of this report provide additional summary data and methodological considerations and descriptions.

1.5.1 Energy Efficiency Potential for Residential Market Rate Customers

Figure 1-1 provides the technical, economic, MAP and RAP results for the 3-year, 10-year, and 20-year timeframes. The respective 20-yr technical and economic potential is 37% and 33% of residential sector sales. The MAP reaches 3.1% in three years and grows to 10.1% over ten years, while the RAP reaches 2.4% in three years and grows to 8.2% over ten years. The MAP and RAP reach 17% and 14% of residential sector sales, respectively, over the 20-yr timeframe of the study. The gap between economic potential and MAP/RAP represents market barriers to prospective program participants, both financial and non-financial, to achieving the full amount of economic potential.

⁴ 20 CSR 4240-20.050 (2)(F)

⁵ Successful Practices in Combined Gas and Electric Utility Energy Efficiency Programs. ACEEE. Report U1406. August 2014.



FIGURE 1-1: OVERVIEW OF RESIDENTIAL ENERGY EFFICIENCY POTENTIAL

Table 1-1 provides cumulative annual technical, economic, MAP and RAP energy savings, in total MWh and as a percentage of the sector-level sales forecast. The MW demand savings for each level of potential are also provided. In 2024, the RAP is 0.8% of sector sales with more than 105,000 MWh in estimated energy savings and 47 MW in demand savings. By 2033, the estimated cumulative annual savings in the RAP scenario reaches 8.2% of sector sales at 1.2 million MWh and 418 MW in demand savings.

TABLE 1-1: RESIDENTIAL CUMULATIVE ANNUAL ENERGY EFFICIENCY POTENTIAL SUMMARY

	2024	2025	2026	2033	2043
MWh					
Technical	621,001	1,178,484	1,680,446	4,363,340	6,134,445
Economic	552,293	1,048,092	1,491,718	3,835,712	5,474,181
MAP	135,879	277,386	425,110	1,508,303	2,878,344
RAP	105,159	216,057	333,390	1,223,770	2,262,238
Forecasted Sales	13,508,700	13,523,783	13,910,491	14,966,747	16,671,167
MW					
Technical	216	415	580	1,398	1,863
Economic	192	369	516	1,186	1,536
MAP	59	119	181	524	799
RAP	47	95	144	418	601

1.5.2 Energy Efficiency Potential for Business Customers

Figure 1-2 provides the technical, economic, MAP and RAP results for the 3-year, 10-year, and 20-year timeframes. The respective 20-yr technical and economic potential is 35% and 32% of residential sector sales. The MAP reaches 6.4% in three years and grows to 17.1% over ten years, while the RAP reaches 4.7% in three years and grows to 12.6% over ten years. The MAP and RAP reach 22% and 16% of residential sector sales, respectively, over the 20-yr timeframe of the study. The gap between economic potential and MAP/RAP represents market barriers to prospective program participants, both financial and non-financial, to achieving the full amount of economic potential.

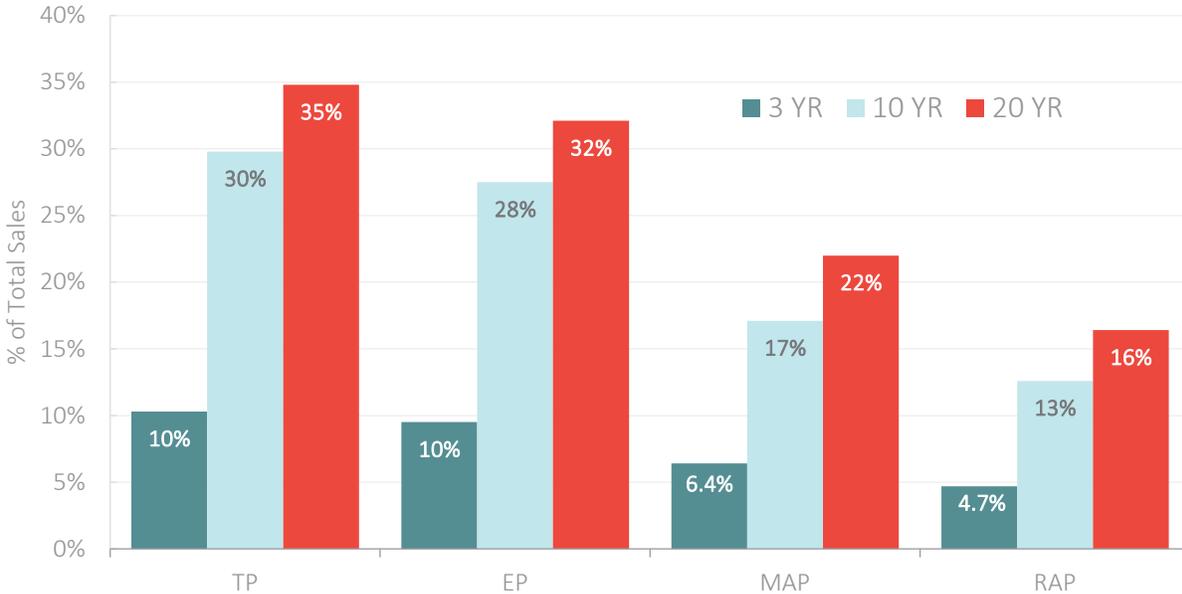


FIGURE 1-2: OVERVIEW OF BUSINESS ENERGY EFFICIENCY POTENTIAL

Table 1-2 provides cumulative annual technical, economic, MAP and RAP energy savings, in total MWh and as a percentage of the sector-level sales forecast. The MW demand savings for each level of potential are also provided. In 2024, the RAP is 1.6% of sector sales with more than 233,000 MWh in estimated energy savings and 63 MW in demand savings. By 2033, the estimated cumulative annual savings in the RAP scenario reaches 12.6% of sector sales at 1.9 million MWh and 557 MW in demand savings.

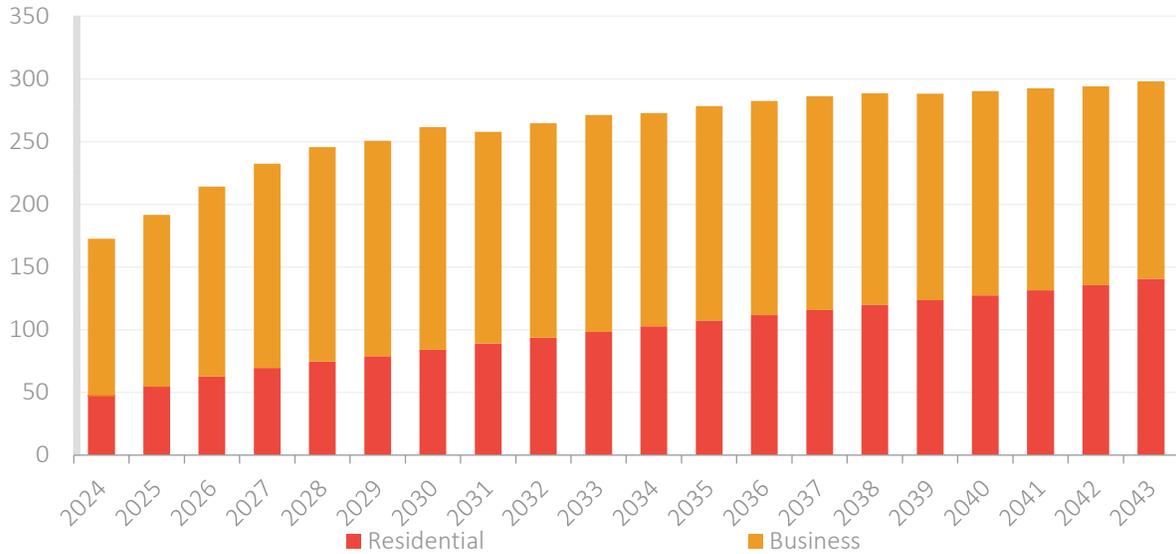
TABLE 1-2: BUSINESS CUMULATIVE ANNUAL ENERGY EFFICIENCY POTENTIAL SUMMARY

	2024	2025	2026	2033	2043
MWh					
Technical	468,422	963,866	1,483,470	4,458,691	5,462,287
Economic	436,911	897,084	1,380,145	4,116,578	5,036,977
MAP	316,388	623,887	921,943	2,554,287	3,452,685
RAP	233,465	458,816	678,451	1,885,518	2,573,513
Forecasted Sales	14,451,697	14,465,588	14,529,355	15,026,417	15,778,731
MW					
Technical	3.3%	6.7%	10.3%	29.8%	34.8%
Economic	3.0%	6.2%	9.5%	27.5%	32.1%
MAP	2.2%	4.3%	6.4%	17.1%	22.0%
RAP	1.6%	3.2%	4.7%	12.6%	16.4%
MW					
Technical	135	281	436	1,375	1,716
Economic	127	265	410	1,292	1,618
MAP	96	191	285	849	1,155
RAP	63	126	188	557	766

1.5.3 Demand Response Potential for All Customers

Figure 1-3 shows the annual demand response RAP potential by sector. These demand reduction values are present at the customer meter level of the Ameren Missouri grid. The total RAP rises to nearly 300 MW by 2043.

FIGURE 1-3. CUMULATIVE ANNUAL BASE CASE SUMMER PEAK MW RAP POTENTIAL BY SECTOR



1.5.4 Distributed Energy Resource Potential for All Customers

Table 1-3 summarizes the combined heat and power (CHP) cumulative annual potential estimates for electric demand and Table 1-4 for electric energy. 2043 technical market potential for CHP represents 22.0% of the 2043 business sector sales forecast and economic potential represents 6.4% of the 2040 business sector sales forecast.

TABLE 1-3: SUMMARY OF CHP ELECTRIC DEMAND MARKET POTENTIAL

Year	Technical (MW)	Economic (MW)	MAP (MW)	RAP (MW)
2026	6.4	1.5	0.7	0.6
2033	22.5	5.3	2.5	1.8
2043	120.0	28.5	8.8	4.0

TABLE 1-4: SUMMARY OF CHP ELECTRIC ENERGY MARKET POTENTIAL

Year	Technical (MWh)	Economic (MWh)	MAP (MWh)	RAP (MWh)
2026	90,465	26,187	14,203	12,583
2033	639,313	185,060	91,052	73,339
2043	4,251,069	1,230,559	469,316	284,237

Table 1-5 and Table 1-6 summarize the Solar PV cumulative energy potential estimates for electric generation for the residential and non-residential sectors respectively. Table 1-7 and Table 1-8 summarize the Solar PV cumulative demand potential estimates for the residential and non-residential sectors. 2043 technical market potential for Solar PV represents 36.8% of the 2043 residential and business sector sales forecast combined.

TABLE 1-5: SUMMARY OF RESIDENTIAL SOLAR PV ELECTRIC DEMAND MARKET POTENTIAL

Year	Technical DC Capacity (MW)	Technical Peak Capacity (MW) ⁶	Economic (MW)	MAP (MW)	RAP (MW)
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⁶ This peak capacity represents the alternating current (AC) production between the hours of 16 and 18 and may not align with MISO Resource Adequacy models.

2026	14.6	62	0	0	0
2033	2,155	914	0	0	0
2043	6,015	2,551	0	0	0

TABLE 1-6: SUMMARY OF NON-RESIDENTIAL SOLAR PV ELECTRIC DEMAND MARKET POTENTIAL

Year	Technical DC Capacity (MW)	Technical Peak Capacity (MW) ⁷	Economic (MW)	MAP (MW)	RAP (MW)
2026	30.6	13.4	4.24	2.30	2.04
2033	216	94.4	30	14.8	11.9
2043	1,441	629	200	76.2	46.1

TABLE 1-7: SUMMARY OF RESIDENTIAL SOLAR ELECTRIC ENERGY MARKET POTENTIAL

Year	Technical (MWh)	Economic (MWh)	MAP (MWh)	RAP (MWh)
2033	3,072,067	0	0	0
2043	8,571,985	0	0	0

TABLE 1-8: SUMMARY OF COMMERCIAL SOLAR ELECTRIC ENERGY MARKET POTENTIAL

Year	Technical (MWh)	Economic (MWh)	MAP (MWh)	RAP (MWh)
2033	309,125	97,290	47,867	38,554
2043	2,058,371	647,830	247,044	149,596

⁷ This peak capacity represents the alternating current (AC) production between the hours of 16 and 18 and may not align with MISO Resource Adequacy models.

2 BASELINE FORECAST

The load forecast is a critical input into Ameren Missouri's 2023 DSM Market Potential Study, having various uses in estimation of residential and business sector potential. Therefore, our Team took considerable time and effort to review Ameren's most recently completed load forecast models and documentation to produce the various forecast components necessary as inputs into this analysis. The 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.

2.1 AMEREN MISSOURI'S LOAD FORECASTING SYSTEM

Ameren employs a sophisticated load forecasting system that uses econometric and Statistically Adjusted End-Use ("SAE") models to project number of consumers, average consumption per consumer, and total energy sales by class. Residential, Commercial, and Industrial consumers are projected using traditional econometric techniques. Residential average usage and commercial energy sales are projected using SAE model specifications. Industrial energy sales are projected using econometric techniques.

A residential SAE model specification takes end-use data drawn from utility, regional, and even national sources and develops monthly end-use indices designed to predict average household consumption. The end-use data includes market share of key electric consuming appliances, average device efficiency trends, average building shell efficiency trends, price elasticity of demand, income elasticity of demand, and elasticity associated with the average number of people per household. A cooling index is developed to represent space cooling load and is further modified by Cooling Degree Days to incorporate summer weather into the model. Likewise, a heating index representing space heating is modified by Heating Degree Days. Finally, a base index is developed to represent consumption of all other end-uses in the home.

A commercial SAE model specification is very similar to a residential specification, with end-use energy intensity indices developed based on area employment in various industry codes. National and regional commercial data is used to estimate end-use consumption for various industries (for example, restaurants will have higher cooking usage shares than offices). Ameren also projects impacts of DSM programs it has run in the past. This includes MEEIA Cycle I through Cycle III programs, plus various pre-MEEIA programs.

2.2 ADJUSTMENTS TO THE AMEREN MISSOURI LOAD FORECAST

Before assessing the future potential for energy efficiency, demand response, or distributed energy resources in the Ameren Missouri service area, a few modifications to the 2021-vintage Ameren forecast were necessary to create an adjusted baseline forecast. These modifications are addressed in more detail below.

2.2.1 Current DSM Impacts

Although the load forecast provided by Ameren Missouri already excluded the impacts of future DSM impacts, historical DSM impacts were included in the load forecast projections. While each Missouri Energy Efficiency Investment Act (MEEIA) cycle only lasts three years, the effects of those measures installed last beyond that three-year period. An important question is how to handle the savings of those programs at the expiration of the current measure. GDS evaluated three possible options:

- 1) Assume the full savings potential is repeated. This implicitly assumes all participants in the program would participate again at the same level, even without the program in place. This indicates full transformation of the entire DSM market from Cycles 1 through 3.

- 2) In the second approach, it is assumed that free riders only would continue to install efficient equipment or behave efficiently even without the DSM program in place, but all others would revert to the minimum standard of efficiency. This represents an approach in which none of the participants that were not already actively engaged in efficiency and conservation would have been transformed by participation in the program.
- 3) The last approach is one in which free riders remain engaged in efficient behaviors plus some portion of the remaining participant population is transformed. Consistent with the approach in the 2019 MPS for Ameren Missouri, customers were segmented according to their perceptions of energy efficiency and conservation. GDS has assumed that “Active Conservers” and “Cost-Focused Conservers” would represent the proportion of the population transformed. In the residential sector, this is equivalent to a 22% assumed transformation rate in excess of free ridership. In the C&I sector, 25% of the market is assumed transformed.

The GDS and Ameren team selected the third option for this study. This approach recognizes the likelihood that some portion of program participants that were not originally free riders would likely continue to exhibit efficient behaviors but that not all such consumers would do so.

2.2.2 Naturally Occurring Efficiency Savings

The end-use appliance efficiency trends in the SAE model framework show appliance efficiency changing over time, often showing average equipment efficiency above current equipment standards. These trends are a byproduct of assumptions regarding natural occurring efficiency. In order to estimate the amount of energy associated with naturally occurring efficiency, GDS used appliance stock accounting information developed as part of the SAE modeling framework. The average device efficiency curve was recomputed by only allowing appliance replacements and new appliances in a given year to be purchased at the minimum standard level. The result is a new trend in efficiency that approaches the minimum standard without exceeding it. The new efficiency estimate was then run through the SAE regression modeling to produce the estimated change in end-use energy sales because of the new estimated efficiency without naturally occurring effects.

2.2.3 Adjustment for Large C&I Opt-Out Customers

20 CSR 4240-20.094(7)(A) states that, any customer meeting one or more of the following criteria shall be eligible to opt-out of participation in utility-offered demand-side programs: (1) The customer has one or more accounts within the service territory of the electric utility that has a demand of 5,000 kW or more; (2) The customer operates an interstate pipeline pumping station; or (3) The customer has accounts within the service territory of the electric utility that have, in aggregate across its accounts, a coincident demand of 2,500 kW or more in the previous 12 months, and the customer has a comprehensive demand-side or energy efficiency program and can demonstrate savings at least equal to those expected from utility-provided demand-side programs.

Ameren provided a list of all business customers that have opted out of participating in Ameren Missouri’s MEEIA programs, and the associated sales from these customers was removed from the business sector sales forecast and thus, from the base estimates of future efficiency potential.⁸

⁸ A sensitivity on savings was performed that included current opt-out customers.

2.2.4 Reclassification of Load

Last, the 2021 Ameren Missouri business sector customer database designated commercial and industrial rate code based on current tariff definition. When only using the account type/tariff definition to classify customers as either commercial or industrial, there were several manufacturing type premises classified as commercial, as well as several typically commercial customers classified as industrial, (i.e. a retail service building coded as an industrial account).

Conversely, the dataset also identified each business by Standard Industry Code (SIC). We then mapped these industry codes to a specified building type, and lastly classified the building type as either commercial or industrial. Customers with a building type classified as “Industrial Manufacturing” were coded as Industrial customers, while all other building types were coded as Commercial. This reclassification shifted approximately 4.3% of commercial sales (net of opt-outs), or 529,000 MWh, to the industrial sector.

2.3 LOAD FORECAST COMPARISON

Figure 2-1 demonstrates the impacts of the adjustments noted above to the overall Ameren forecast for 2024. The bar on the left is the original Ameren forecast for 2024, including the impacts of Ameren Missouri’s MEEIA DSM activities, but excluding future DSM. The Business as Usual “BAU” forecast includes the adjustments to DSM impacts to account for decay in DSM savings as well as to net out the impacts of naturally occurring savings already embedded in the forecast. Both adjustments result in a relatively small increase to the Ameren forecast. The last two bars provide the adjustments from excluding active opt-out customers, as well the reclassification of C&I load noted above.

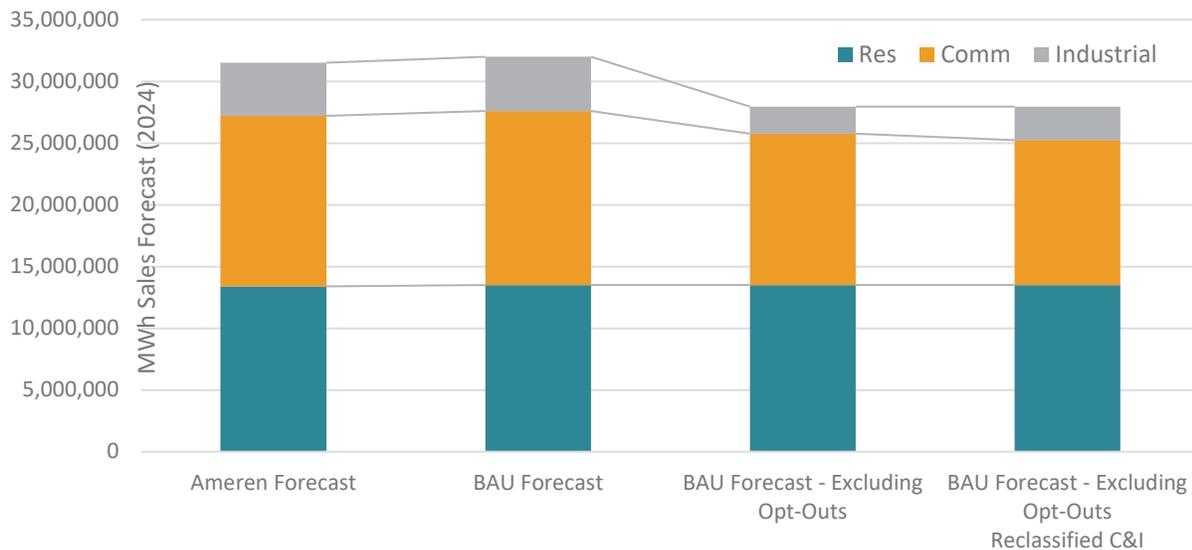


FIGURE 2-1: STEP-BY-STEP COMPARISON OF ADJUSTMENTS TO 2021 AMEREN LOAD FORECAST

Figure 2-2 depicts the total system load forecast for the MPS study timeframe of 2024-2043, following the adjustment noted in Section 2.2.



FIGURE 2-2: TOTAL SYSTEM LOAD FORECAST (NET OF OPT-OUTS) USED IN MPS

2.4 LOAD FORECAST DISAGGREGATION

The baseline forecasts represent projected total energy sales by class. For the potential studies, it is useful to have the class forecasts disaggregated in several different ways. This section presents the forecast disaggregation scenarios that will be used by GDS in developing the market potential study.

2.4.1 Residential Sector

The baseline residential forecast for the study is disaggregated across 12 different end-uses. These end-use level forecasts are important in helping to calibrate measure-level savings estimates as well as for making interactive effects adjustments in the potential model to avoid over-estimating (double-counting) savings. Table 2-1 provides a breakdown by end-use (consolidated to 12 end-uses).

TABLE 2-1: END-USE BREAKDOWN OF SALES FORECAST (2024)

End Use	Sales	% of Total
Heating	3,154,377	23.4%
Cooling	2,878,571	21.3%
Water Heating	681,379	5.0%
Cooking	337,032	2.5%
Refrigerator	807,659	6.0%
Freezer	167,857	1.2%
Dishwasher	85,109	0.6%
Clothes Washer	31,795	0.2%
Dryer	697,350	5.2%
TV	557,157	4.1%
Lighting	1,425,917	10.6%
Miscellaneous	2,684,495	19.9%
Total	13,508,700	100%

2.4.2 Business Sector

In the business sector, disaggregated forecast data provides the foundation for the development of energy efficiency potential estimates. GDS received a BAU sales forecast from Ameren for the residential, commercial and industrial sectors. As noted above, the C&I forecast was adjusted from the BAU Baseline by using SIC information from Ameren to reclassify usage as commercial or industrial. SIC information from Ameren, along with CBECS building type consumption tables, was then used to segment the forecast into building types. The forecast was further segmented into end-uses by building type using CBECS 2012 end-use survey data. Figure 2-3 provides a breakdown of commercial electric sales by building type for the commercial segment of the business sector. Retail (16%), Office (23%), and Other (21%) are the leading contributors of stand-alone building types to the total commercial electric sales.⁹

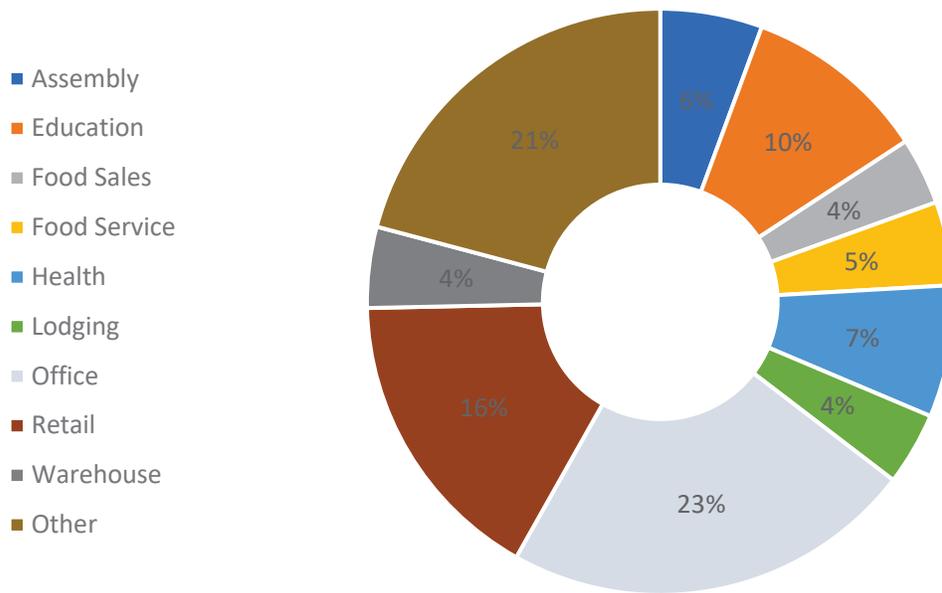


FIGURE 2-3: COMMERCIAL ELECTRIC SALES BREAKDOWN BY BUILDING TYPE

Figure 2-4 provides an illustration of the leading end-uses across all building types in the commercial sector. Lighting typically represents 20% of the commercial business sector load across buildings, with space cooling and ventilation each typically representing 10% or more across building types. Shares of refrigeration and office/computing are often dependent on the type of building, with refrigeration loads greatest in food sales and food service while office/computing loads are greatest in offices and education.

⁹ “Other” building types include buildings that engage in several different activities, a majority of which are commercial (e.g. retail space), though the single largest activity may be industrial or agricultural; “other” also includes miscellaneous buildings that do not fit into any other category.

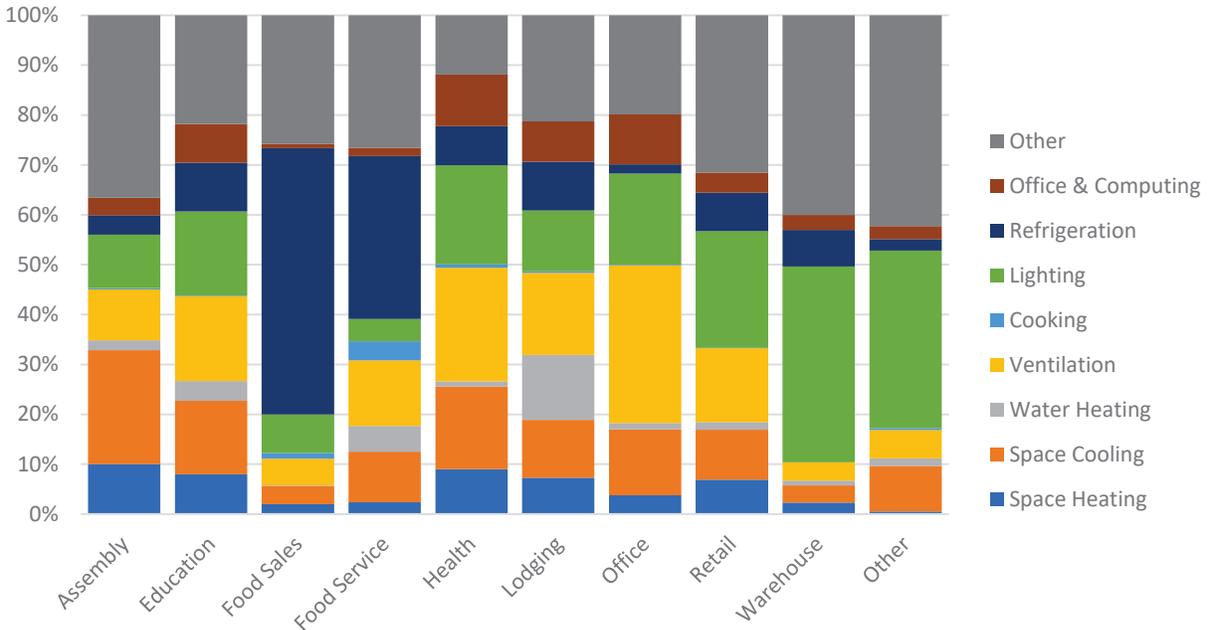


FIGURE 2-4: COMMERCIAL ELECTRIC END-USE BREAKDOWN BY BUILDING TYPE

Figure 2-5 depicts in the industrial segment of the business class, broken down by both industry type (left pie chart) and end-use (right pie chart). Food, plastics and rubber, chemical, and miscellaneous manufacturing were the leading industry types according to SIC code. The industrial machine drive end-use is the dominant share of industrial electric sales, followed by process heating, lighting, and HVAC. The industry type and end-use breakdowns are based on the redistributed industrial sales that are net of opt-out customers in the Ameren Missouri service area.

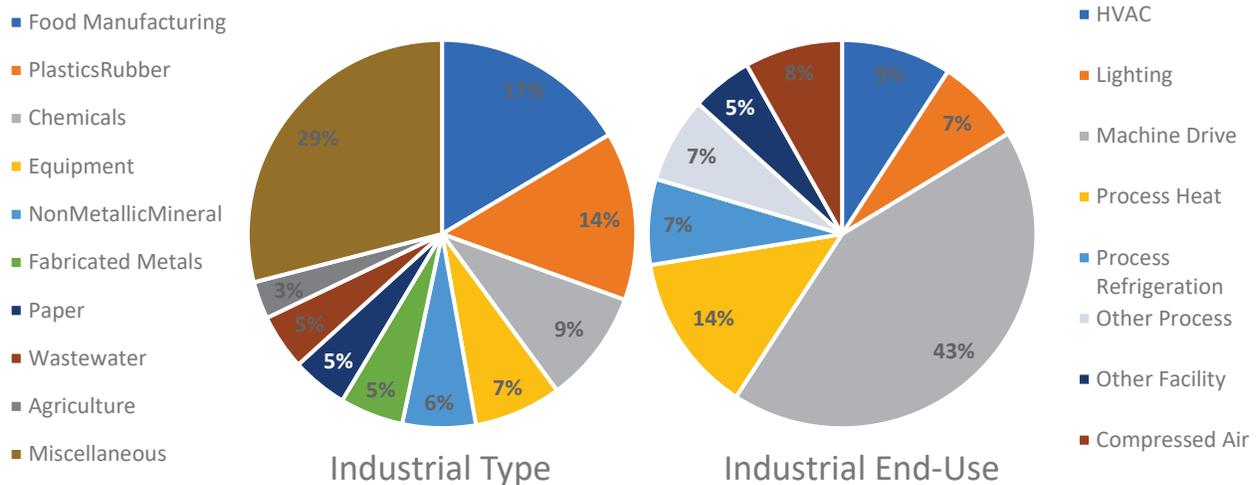


FIGURE 2-5: INDUSTRIAL SECTOR BREAKDOWN BY INDUSTRY TYPE AND END-USE (EXCLUDE OPT-OUT CUSTOMERS)

3 ENERGY EFFICIENCY POTENTIAL ANALYSIS

3.1 ANALYSIS APPROACH¹⁰

This section describes the overall methodology proposed to assess the electric energy efficiency potential for market-rate residential and business customers in the Ameren Missouri service area. Many of the methodological considerations discussed within this section are generally applicable to the demand response and DER analyses found in subsequent chapters of this report, with important distinctions in methodological approach noted in their respective chapters.

The main objectives of this Market Potential Study were to estimate the technical, economic, maximum achievable potential (“MAP”) and realistic achievable potential (“RAP”) of energy efficiency in the Ameren Missouri service territory; and to quantify these estimates of potential in terms of MWh and MW savings, expected incremental and cumulative program participants, and associated costs, for each level of energy efficiency potential.¹¹ An overview of these results is found in subsequent sections and chapters of this report. Detailed appendices also provide a catalog of assumptions and annual outputs associated with this analysis.¹²

3.1.1 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 business sector, GDS employed a bottom-up modeling approach to first estimate measure-level savings, costs, and cost-effectiveness, and then applied measure savings to all applicable shares of energy load.

3.1.2 Market Characterization

The initial step in the analysis was to gather a clear understanding of the current market segments in the Ameren Missouri service area. The GDS team coordinated with Ameren Missouri to gather electric utility sales and customer data to define appropriate market sectors, market segments, vintages, saturation data and end uses.

The GDS team relied on market research conducted as part of the 2020 study to inform critical elements of the market potential study.¹³ The research objectives of this effort were based on a gap analysis, conducted by the GDS Team, and subsequent prioritization of data needs.

3.1.2.1 Forecast Disaggregation

As noted in Chapter 2, through the development of the baseline forecasts, the GDS Team produced disaggregated forecasts by sector and end-use. The produced baseline forecasts were disaggregated by sector and then further segmented as follows¹⁴:

¹⁰ 20 CSR 4240-20.050 (3)(I)

¹¹ 20 CSR 4240-20.050 (3)(G)3 through 5

¹² 20 CSR 4240-20.050 (3)(H); complete models will be provided to Ameren Missouri as a deliverable for this study.

¹³ 20 CSR 4240-20.050 (2)

¹⁴ 20 CSR 4240-20.050 (1)(A)1 and 20 CSR 4240-20.050 (3)(B)

- **Residential.** The residential forecast was broken out by housing type between existing and new construction. Segmentation at the end-use level was done using building energy simulation modeling.
- **Commercial.** Typically based on major Energy Information Administration (EIA) Commercial Buildings Energy Consumption Survey (CBECS) business types: retail, warehouse, food sales, office, lodging, health, food service, assembly, and education. Businesses that were identified as non-profit were also segmented separately and the eligible portions were included in the assessment of income-eligible potential under the business social services program.
- **Industrial.** As determined by actual load consumption shares and major industry types as defined by EIA's Manufacturing Energy Consumption Survey (MECS) data.¹⁵

The segmentation analysis was performed by applying Ameren Missouri-specific segment and end-use consumption shares, derived from Ameren Missouri's customer database and SIC code analysis (building segmentation), and by EIA CBECS and MECS data (end-use segmentation) to forecast year sales. Within the residential, commercial and industrial market segments, the produced forecasts were segmented by the major end uses shown in Table 3-1.

TABLE 3-1: ELECTRIC END-USE LOADS¹⁶

Residential	C&I	
	Commercial	Industrial
Heating	Interior Lighting	Lighting
Cooling	Exterior Lighting	HVAC
Water Heating	Refrigeration	Machine Drive
Cooking	Space Cooling	Process Heat
Refrigerator	Space Heating	Process Cool / Refrigeration
Freezer	Ventilation	Other Process
Dishwasher	Water Heating	Process – Machine Drive
Clothes Washer	Plug Loads / Office Equipment	Other Facility
Dryer	Cooking	Compressed Air
TV	Other	Water / Wastewater
Light	Whole Building / Behavioral	Process – Agriculture
Miscellaneous		Whole Building / Behavior

3.1.2.2 Eligible Opt-Out Customers

In Missouri, commercial or industrial customers with significant peak demand requirements and/or meet specific criteria (see Section 2.2.) are eligible to opt out of utility-funded electric energy efficiency and demand response programs. In the Ameren Missouri service area, approximately 14% of commercial sales have opted out of utility-funded electric energy efficiency programs, while nearly 44% of industrial sales have opted out.¹⁷

¹⁵ Industrial sector potential was ultimately aggregated into an additional building type in the business sector analysis.

¹⁶ 20 CSR 4240-20.050 (1)(A)3

¹⁷ These percentages were calculated based on the 2021 Ameren Missouri business customer data and 2021 billing history. Note, the percentages are based on the redistributed C&I sales, as discussed in Section 2.2.4 of the report.

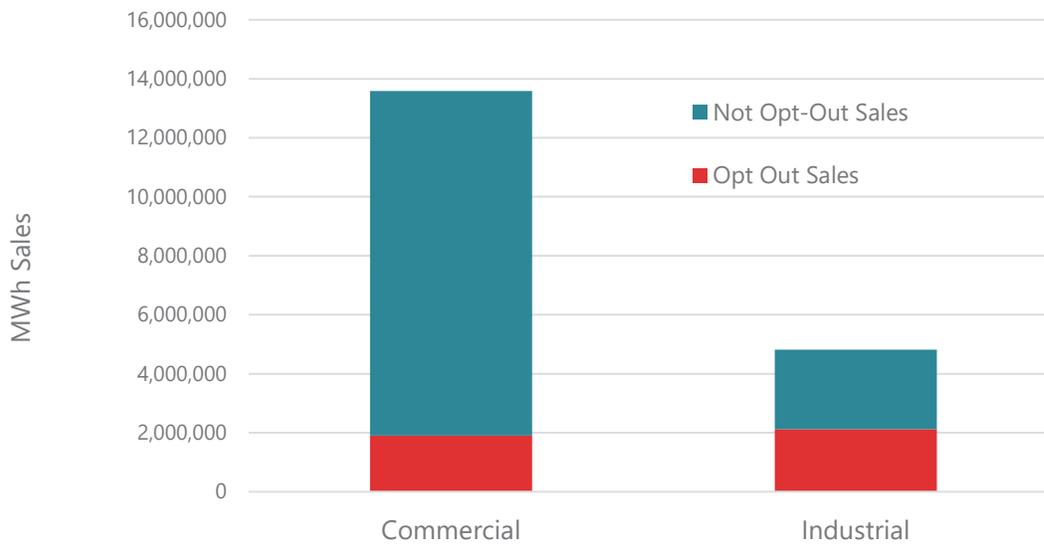


FIGURE 3-1: 2024 BUSINESS SECTOR OPT-OUT SALES

Figure 3-1 shows the total sales for the business sector, as well as the sales, by sector that have currently opted out of paying the charge levied to support utility-administered energy efficiency programs. The portion of sales that have not opted out include both ineligible load (i.e. does not meet the eligibility requirement) as well as eligible load that has not opted out.

The MPS focuses most report elements on the electric energy efficiency potential savings in the business sector excluding sales from opt-out customers. Results of business sector potential that includes savings from Ameren Missouri's opt-out customers are provided as a sensitivity later in this report.

3.1.2.3 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.

3.1.2.3.1 Residential Sector

For the residential sector, GDS relied on the primary research from the 2020 study. This research allowed for the GDS Team to characterize the baseline and efficiency saturations of the residential sector using housing-type and income-type specific data in most cases. In some cases, the sample sizes were too small to provide estimates at this level of granularity, and in these cases either housing-type or income-type specific estimates are used.

Other data sources included ENERGY STAR unit shipment data, Ameren Missouri evaluation reports, and the EIA Residential Energy Consumption Survey data from 2020. The ENERGY STAR unit shipment data filled data gaps related to the increased saturation of energy efficient equipment across the U.S. in the last decade.

3.1.2.3.2 Business Sector

GDS primarily used the latest market research collected from the 2020 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 Ameren Missouri's prior market research efforts. Prior Ameren Missouri baseline studies 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 2019 Ameren Missouri Baseline Study was leveraged to develop remaining factors for many of the measures. Saturation data from this study was updated to reflect interim energy efficient achievements from Ameren Missouri's 2019-2021 DSM savings 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 2021 was used to determine remaining factors for commercial cooking equipment, refrigerators and freezers, computer and data center equipment and commercial dishwashers.

3.1.2.4 Remaining Factor

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. This study makes 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, estimated savings reflect the initial measure assumptions developed as part of the MPS and are typically consistent with the Ameren Missouri submittal tool, and discussed in Section 3.1.3.3, below. The question, then, is whether there is any additional future potential to be quantified from homes/businesses that already possess an efficient measure. Consistent with the 2020 study and assumptions used to develop the load forecast used in this study (see Section 2.2.1), the team developed our models to allow a portion of these existing measures to be refilled, during their natural replacement cycle, by assuming that consumers will either backslide back to baseline technologies or 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, relative to improved baselines, at similar incremental costs.

There are, of course, exceptions to this logic. 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 variable frequency drives, motor controls, comprehensive residential retrofits, and most shell measures (insulation, air sealing, door improvements). Other exceptions in this study include measures that are known to be impacted by codes or standards or are considered to have reached the limit of technological advancements in efficiency (ex. Screw-based LED Lighting, where future efficiency improvements are expected to be minimal compared to historic baselines) and miscellaneous residential electronics with high market penetration.

An additional adjustment was made to business sector lighting to reflect the rapid replacement of inefficient lighting with LED technologies by Ameren Missouri in recent years. The business sector lighting potential was modeled as a market opportunity with baseline lighting technologies replaced with LEDs at the rate of 1 divided by the baseline technology's measure life. During the initial year calibration process to ensure 2024 savings were benchmarked against historical and/or planned savings, the GDS team front-loaded the replacement opportunities years for these inefficient technologies so that LED replacements would be introduced into the technical potential earlier than would have otherwise happened.

Last, we have also assumed that measures that are converted during early years of the analysis but reach the end of their useful life over the 20-year analysis timeframe, are also eligible for future installations assuming the same adjustment for future efficiency and/or costs and the same stated exceptions.

3.1.3 Measure Characterization

3.1.3.1 Measure Lists

The study's sector-level energy efficiency measure lists were informed by a range of sources. The primary resource for developing the measure included Ameren Missouri's most recent Submittal Tool/TRM. In addition to this resource, additional measures were considered for inclusion by referencing current Ameren Missouri program offerings, prior Ameren Missouri and other regional potential assessments and program offerings, other regional technical reference manuals, and commercially viable emerging technologies, among others.¹⁸ Measure list development was a collaborative effort in which GDS developed a draft measure lists that was shared with Ameren Missouri and stakeholders for qualitative review. The final measure lists ultimately included in the study reflects the informed comments and considerations from the parties that participated in the measure list review process.¹⁹ The measure list for the residential income-eligible customers closely mirrored the measures included in the market-rate analysis. This ensures that a thorough review of remaining potential not limited only to existing offerings to income-eligible customers and current program designs.²⁰

In total, GDS analyzed 185 residential and 195 business measure types for Ameren Missouri. To help inform future program planning and to align with existing offerings, many measures were included in the study as multiple permutations to account for different specific market segments, such as different building types, efficiency levels, and replacement/delivery options.²¹ GDS developed a total of 3,135 measure permutations for this study. Each permutation was screened for cost-effectiveness according to the Total Resource Cost (TRC) Test. The parameters for cost-effectiveness under the TRC are discussed in detail later in Section 3.1.6.²²

In select cases, certain measures initially considered for inclusion in the 2023 Ameren Missouri MPS were ultimately screened out of the quantitative analysis. Measures were qualitatively screened out for several possible reasons, including recently changed baselines, limited applicability, assumed current market baseline, and historically poor customer acceptance.

3.1.3.2 Emerging Technologies

GDS considered several specific emerging technologies as part of analyzing future potential.²³ In the residential sector, these technologies include several smart technologies, including connected lighting, smart window coverings, heat pump dryers, cool roofs²⁴ and smart vents/sensors. In the business sector, specific emerging technologies considered

¹⁸ 20 CSR 4240-20.050 (3)(A); In addition, Ameren Missouri performed a broad review of programs available around the country through the Energy Star website as part of the measure list review.

¹⁹ 20 CSR 4240-20.050 (3)(C)

²⁰ 20 CSR 4240-20.050 (3)(A)

²¹ 20 CSR 4240-20.050 (1)(A)2; 20 CSR 4240-20.050 (3)(E)

²² 20 CSR 4240-20.050 (5)(B)

²³ 20 CSR 4240-20.050 (1)(E)1

²⁴ EO-2023-0099 1A (Special Contemporary Issues)

as part of the analysis include strategic energy management, advanced lighting controls, advanced rooftop controls, cool roofs and cloud-based energy information systems (“EIS”). While this is likely not an exhaustive list of possible emerging technologies over the next 20 years it does consider many of the known technologies that are available today but may not yet have widespread market acceptance and/or product availability.

In addition to these specific technologies, GDS acknowledges that there could be future opportunities for new technologies as equipment standards improve and market trends occur. While this analysis does not make any explicit assumption about unknown future technologies, the methodology 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, relative to improved baselines, at similar incremental costs.

3.1.3.3 Assumptions & Sources

A significant amount of data is needed to estimate the electric savings potential for individual energy efficiency measures or programs across the residential market-rate and business sectors. GDS utilized data specific to Ameren Missouri when possible. Evaluation report findings and the Ameren Missouri Submittal Tool/TRM were leveraged to the extent feasible – additional data sources were only used if these first two sources either did not address a certain measure or contained outdated information. Following the collection of primary market research, select fields in the Ameren Missouri Submittal Tool were updated to incorporate the latest findings.

Additional sources for measure data included the Illinois TRM and the Michigan Energy Measures Database (MEMD). Additional source documents also included American Council for an Energy-Efficient Economy (ACEEE) research reports covering topics like emerging technologies.²⁵

Considerable effort was expended to identify, review, and document all available data sources in the development of reasonable and supportable assumptions regarding measure lives; measure costs (incremental or full costs as appropriate); measure electric savings; and saturations for each energy efficiency measure included in the final list of measures examined in this study.²⁶

Measure Savings²⁷: GDS relied primarily on the Ameren Missouri Submittal Tool as well as the latest Ameren Missouri evaluation report findings and collected primary research to inform calculations supporting estimates of annual measure demand and energy reduction impacts as a percentage of base equipment usage. For measures not included in the Ameren Missouri Submittal Tool, GDS estimated savings from a variety of sources, including:

- Illinois TRM, MEMD
- Engineering analyses
- Secondary sources such as the ACEEE, DOE, EIA, ENERGY STAR[®], and other technical potential studies

For each measure, estimates of annual energy and demand reductions are also characterized to provide seasonal on- and -off peak impacts.²⁸

²⁵ For example: Energy Impacts of Smart Home Technologies. Report A1801. ACEEE. 2018; Smart Buildings: A Deeper Dive into Market Segments. Report A1703. 2017; Rate Design Matters: The intersection of Residential Rate Design and Energy Efficiency. Report U1703. 2017.

²⁶ The appendices and supporting databases to this report provide the data sources used by GDS to obtain up-to-date data on energy efficiency measure costs, savings, useful lives and saturations.

²⁷ 20 CSR 4240-20.050 (3)(G)1

²⁸ 20 CSR 4240-20.050 (6)(B); The energy efficiency potential study utilizes seasonal load shapes to assess the cost-effectiveness of measures. More granular hourly load shapes of energy impacts will be developed for inputs into the IRP as needed.

Measure Costs²⁹: 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 held constant over time.

GDS obtained measure cost estimates primarily from Ameren Missouri program planning databases and evaluation reports. GDS also used the following data sources to supplement measure cost data:

- Illinois TRM, MEMD
- Secondary sources such as the ACEEE, ENERGY STAR, and National Renewable Energy Lab (NREL)
- Program evaluation and market assessment reports completed for utilities in the Pacific Northwest (Bonneville Power Administration) and California

Costs and savings for new construction and replace on burnout measures were calculated as the incremental difference between the federal minimum efficiency standard (where applicable) and the energy efficiency measure. This approach was utilized because the consumer must select an efficiency level that is at least equal to the federal minimum efficiency standard when purchasing new equipment. The incremental cost is calculated as the difference between the cost of high efficiency and standard efficiency (code compliant) equipment. However, for retrofit or direct install measures, the measure cost was the “full” cost of the measure, as the baseline scenario assumes the consumer would not make energy efficiency improvements in the absence of a program. In general, the savings for retrofit measures are calculated as the difference between the energy use of the removed equipment and the energy use of the new high efficiency equipment (until the removed equipment would have reached the end of its useful life).³⁰

Measure Life: Measure life represents the number of years that energy using equipment is expected to operate. GDS obtained measure life estimates from the Ameren Missouri Submittal Tool and used the following data sources for any additional measures:

- Illinois TRM, MEMD, and other regional/state TRMs
- Manufacturer data
- Savings calculators and life-cycle cost analyses

All measure savings, costs, and useful life assumption sources for residential market-rate and business sectors are documented in Appendix B and Appendix C.

3.1.3.4 Treatment of Codes & Standards

By law, the DOE is expected to review each national appliance standard every six years and publish either a proposed rule to update the standard or determine that no change to the existing standard is needed. The analysis is not intended to predict how or when energy codes and standards will change over time. Therefore, there are only limited known improvements to federal codes and standards to reasonably account for in this analysis.³¹

The primary adjustment in this analysis impacts residential screw-based lighting. Although DOE did issue a final rule stating the Energy Independence and Security Act of 2007 (EISA) backstop has not been triggered and adopted a narrow definition of general service lighting, based on discussion with Ameren Missouri program administrators and a review of the implied efficacy of residential lighting in Ameren’s residential load forecast³², the base case analysis for the 2023 MPS severely limited the future potential for residential lighting.

²⁹ 20 CSR 4240-20.050 (3)(G)5A

³⁰ EO-2023-0099 1A (Special Contemporary Issues) Tax credits as part of the Inflation Reduction Act were considered in the energy efficiency measure characterization.

³¹ 20 CSR 4240-20.050 (3)(C)

³² Implied assumptions embedded in the Ameren load forecast for residential lighting indicate a wattage somewhere between an LED and CFL.

The base case assumes only a limited number of direct-install screw-based lighting opportunities for standard, specialty, and reflector bulbs over the analysis period.

3.1.4 Types of Potential

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 this analysis.

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 and program 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. In this analysis, achievable and program potential were included an assessment of maximum and achievable potential, with maximum achievable assuming aggressive incentive levels and optimistic delivery conditions and realistic achievable potential closely calibrated to historical incentive levels and current program awareness.

Figure 3-2 illustrates the types of energy efficiency potential considered in this analysis.

Not Technically Feasible	TECHNICAL POTENTIAL				
Not Technically Feasible	Not Cost Effective	ECONOMIC POTENTIAL			
Not Technically Feasible	Not Cost Effective	Market Barriers	MAXIMUM ACHIEVABLE POTENTIAL		
Not Technically Feasible	Not Cost Effective	Market Barriers	Partial Incentives	REALISTIC ACHIEVABLE POTENTIAL	
Not Technically Feasible	Not Cost Effective	Market Barriers	NTG	PROGRAM POTENTIAL MAP	
Not Technically Feasible	Not Cost Effective	Market Barriers	Partial Incentives	NTG	PROGRAM POTENTIAL RAP

FIGURE 3-2 TYPE OF ENERGY EFFICIENCY POTENTIAL³³

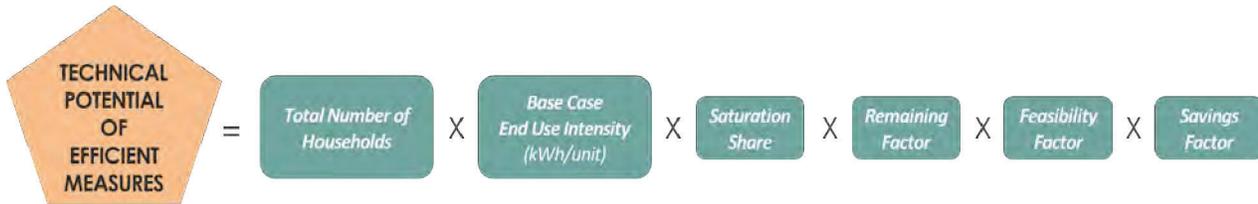
3.1.5 Technical Potential

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 only constrained by factors such as technical feasibility of measures. Under technical potential, GDS will assume that 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 be assumed to be resource constrained and that it is not possible to install all retrofit measures all at once. Rather, retrofit opportunities will be assumed to be replaced incrementally until 100% of stock will be converted to the efficient measure over a period of no more than 20 years.

³³ Reproduced from “Guide to Resource Planning with Energy Efficiency.” November 2007. US Environmental Protection Agency (EPA). Figure 2-1. Modified to depict the additional levels of achievable and program potential included in this study.

The core equation used in the residential sector energy efficiency technical potential analysis for each individual efficiency measure is shown in Equation 3-1 below. The business (C&I) sector employs a similar analytical approach.

EQUATION 3-1 CORE EQUATION FOR RESIDENTIAL SECTOR TECHNICAL POTENTIAL



Where...

Base Case Equipment End-Use Intensity = the electricity used per customer per year by each base-case technology in each market segment. In other words, the base case equipment end-use intensity is the consumption of the electrical energy using equipment that the efficient technology replaces or affects.

Saturation Share = the fraction of the end-use electrical energy that is applicable for the efficient technology in a given market segment. For example, for residential central air conditioner cooling, the saturation share would be the fraction of all residential electric customers that have electric central air conditioner cooling in their household.

Remaining Factor = the fraction of equipment that is not considered to already be energy efficient. To extend the example above, the fraction of central air conditioners that is not already energy efficient.

Feasibility Factor = (also functions as the applicability factor) the fraction of the applicable units that is technically feasible for conversion to the most efficient available technology from an engineering perspective (e.g., it may not be possible to install central air conditioners in all homes because of space limitations).

Savings Factor = the percentage reduction in electricity consumption resulting from the application of the efficient technology.

3.1.5.1 Competing Measures & Interactive Effects Adjustments³⁴

GDS 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 may be factored into the baseline saturation estimates. For example, nearly all homes can receive insulation, but the analysis will create multiple measure permutations to account for varying impacts of different heating/cooling combinations and will apply baseline saturations to reflect proportions of households with each heating/cooling combination.

Applicability/Feasibility Factor Adjustment. GDS will combine 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 estimating the technical potential, measures with the most savings are given priority for installation. The applicability factors for Economic Potential, MAP and RAP are adjusted to account for cost-effectiveness screening results.³⁵

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. The analysis typically prioritizes market opportunity equipment measures (versus retrofit measures that can be installed at any time). For example, the savings from a building shell measures are adjusted down to reflect the efficiency gains of installing efficient HVAC equipment. The

³⁴ 20 CSR 4240-20.050 (3)(G)2

³⁵ HVAC measure applicability with respect to early replacement and market opportunity measures are allocated in approximation with MEEIA Cycle 4 planning estimates.

analysis also prioritizes efficiency measures relative to conservation (behavioral) measures. These impacts are accounted for in all phases of estimated potential savings.

3.1.6 Economic Potential³⁶

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.

The State of Missouri Revised Statutes, Chapter 393, Section 393.1075.1, states that “The commission shall consider the total resource cost test a preferred cost-effectiveness test.” The TRC test calculations in this study follow the prescribed methodology detailed in the latest version of the California Standard Practice Manual (CA SPM). The California Standard Practice Manual establishes standard procedures for cost-effectiveness evaluations for utility-sponsored or public benefits programs and is generally considered to be an authoritative source for defining cost-effectiveness criteria and methodology. This manual is often referenced by many other states and utilities.

Although the TRC Test was used as the primary screening test for measure, program, and portfolio cost-effectiveness for inclusion in economic, achievable, and program potential, measure level screening results for the Utility Cost Test (UCT) and Participant Cost Test (PCT) are also provided in the appendices of this report.³⁷ In each year of the analysis, the benefits of each measure are calculated as the cumulative energy and demand impact multiplied by all applicable avoided costs; the net present value of annual lifetime benefits are then compared against the cost of each measure.³⁸ Further definitions of the tests are outlined below:

The TRC test measures benefits and costs from the perspective of the utility and society as a whole. The benefits include the net present value of the energy and capacity saved by the measures but exclude any natural gas or other fossil fuel benefits. The forecast of electric avoided costs of energy and capacity were obtained from Ameren Missouri and represent their most recent forecast of avoided electric benefits.³⁹ The costs are the net present value of all costs to implement those measures. These costs include full incremental costs (both utility and participant contributions), but no incentive payments that offset incremental costs to customers and no lost revenues.⁴⁰ The full incremental costs include single upfront costs and operational & maintenance costs where applicable. While non-incentive costs were not included in the measure-level screening of electric energy efficiency potential, they were included in further assessments of potential at the achievable and/or program potential level. Programs passing the TRC test (that is, having a B/C ratio greater than 1.0) result in a decrease in the total cost of energy services to electric ratepayers.⁴¹

The UCT, also referred to as the Program Administrator Cost Test (PACT) measures the costs and benefits from the perspective of the utility administering the program. As such, this test is characterized as the revenue requirement test. Benefits are the net present value of the avoided energy and capacity costs resulting from the implementation of the measures. Costs are the administrative, marketing and evaluation costs resulting from program implementation along

³⁶ 20 CSR 4240-20.050 (5)

³⁷ 20 CSR 4240-20.050 (5)(B); 20 CSR 4240-20.050 (5)(C); 20 CSR 4240-20.050 (5)(E); 20 CSR 4240-20.050 (5)(F); 20 CSR 4240-20.050 (5)(G)

³⁸ 20 CSR 4240-20.050 (5)(A)

³⁹ 20 CSR 4240-20.050 (5)(A)1 through 3; the MPS makes use of the avoided cost forecast provided by Ameren Missouri, and includes avoided capacity, transmission and distribution, and avoided energy. Ameren separately documents the methods and assumptions supporting the development of their avoided cost forecast in their IRP. The base avoided costs do not explicitly include any value for reduced carbon emissions. The MPS includes a sensitivity on avoided costs that could be considered as an examination of the potential impacts of additional environmental costs and the IRP, itself, is also expected to assess these impacts.

⁴⁰ 20 CSR 4240-20.050 (5)(B)(1); 20 CSR 4240-20.050 (5)(B)(3)

⁴¹ 20 CSR 4240-20.050 (5)(D)

with the costs of incentives but do not include lost revenues.⁴² Programs passing the UCT result in overall net benefits to the utility, thus making the program worthwhile from a utility cost accounting perspective.

The PCT measures the benefits and costs from the perspective of program participants, or customers. Benefits are the net present value savings that participating customers receive on their electric bills as a result of the implementation of the energy efficiency and demand response measures plus incentives received by the customer. Costs are the customer's up-front net capital costs to install the measures. If the customer receives some form of a rebate incentive, then those costs are considered as a credit to the customer and are added to the customer's total benefits.

All measures that are 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. Feasibility factors were then re-adjusted and applied to the remaining measures that are cost effective, where appropriate.

For measures applicable to the income-qualified segment of the residential sector, any measure that was offered via Ameren Missouri's income-eligible program was not required to have a TRC benefit-cost ratio greater than 1.0 (i.e. net benefits are greater than costs).⁴³

3.1.7 Achievable Potential⁴⁴

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. Additional considerations include political and/or regulatory constraints. The potential study will evaluate 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 and increased program awareness.
- **Realistic Achievable Potential** estimates achievable potential with Ameren Missouri paying incentive levels (as a percent of incremental measure costs) and program awareness closely calibrated to historical levels but is not constrained by any previously determined spending levels.

3.1.7.1 Market Adoption Rates

The assumed level of customer participation (take rate) for each energy efficiency measure is a key driver of achievable potential estimates. To inform estimates of future market adoption, the GDS Team relied on both the historical achievements of Ameren Missouri in prior years, as well as measure specific final adoption rates that were developed primary market research activities conducted for the 2020 study.⁴⁵ The historical benchmarking provides a point-estimate to serve as an initial "ground floor" market adoption rate while the final adoption rates from the market research reflect the presence of possible market barriers and associated difficulties in achieving the 100% market adoption assumed in the technical and economic scenarios. Addition detail, including an example demonstrating how the final market adoption curve was developed is provided below. A complete list of annual market adoption rates by measures are included in appendices to this report.

⁴² 20 CSR 4240-20.050 (5)(C)1; 20 CSR 4240-20.050 (5)(C)2

⁴³ 20 CSR 4240-20.050 (5)(D)

⁴⁴ 20 CSR 4240-20.050 (2)(G)5B

⁴⁵ 20 CSR 4240-20.050 (2)

Initial Year Measure Adoption. First year adoption levels were informed either by recent historical⁴⁶ or planned performance (where possible) or by the primary 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 realistic achievable scenario. Final adoption score calculations were based on a battery of questions which assessed (1) the respondent's willingness to adopt energy efficiency technologies or participate in demand response programs in scenarios with varying levels of program support, (2) the magnitude of the respondent's financial and non-financial barriers to adoption/participation, and (3) their awareness of Ameren Missouri energy efficiency programs and/or high efficiency technologies. Measure specific final adoption scores in the RAP scenario were based on the assumed current incentive level.

For the maximum achievable scenario, the final adoption score was adjusted upward, assuming an increase in customer awareness of Ameren Missouri programs and/or technologies. Specifically, the MAP scenario assumed an awareness factor adjustment of 73% or maintained the original awareness factor score if already 73% or higher.

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 2023 study employed a standard s-curve that was set to either 15 years (in MAP scenario) or 20 years (in RAP scenario) with the end-point estimate from the market research conducted for the 2020 study. The 1st year point estimate is then used to establish the number of years remaining to reach the long-term adoption rate and the slope of adoption. An example of this process is provided below.

⁴⁶ GDS performed a historical benchmarking and variance analysis between Ameren Missouri's evaluated performance relative to estimates of potential included in the 2020 study. This variance analysis helped to identify measures with significant variation between prior potential models and actual results.

Using a residential refrigerator as an example, the maximum adoption rate for the market-rate single family appliance end-use is 66%, assuming 100% incentive. The realistic adoption rate, also for the market-rate single family appliance end-use, is 45% (based on an assumed incentive that covers 50% of the incremental cost of an energy efficient refrigerator). In addition, according to the primary market research, approximately 25% of refrigerators in the Ameren Missouri service area are already energy efficient, serving as the point-estimate for the initial year adoption rate. The assumed 15-year MAP and 20-year 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 25% for energy-efficient refrigerators the MAP starting point shifts along the initial MAP curve to Year 6 (with 9 years remaining to reach the long-term MAP adoption rate of 66%), and to Year 11 (also with 9 years remaining to reach the long-term RAP adoption rate of 45%). The final adjusted MAP and RAP adoption curves are shown in the right line chart.

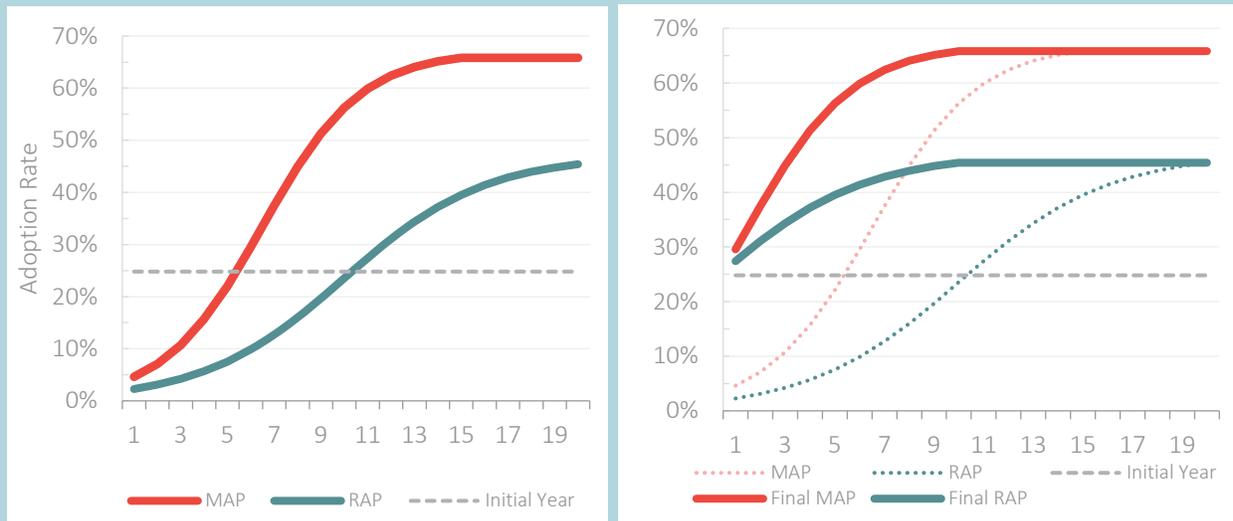


FIGURE 3-3: EXAMPLE INITIAL ADOPTION CURVES (left) AND FINAL ADJUSTED ADOPTION CURVES FOR MAP AND RAP (right)

3.1.7.2 Program Costs

GDS conducted a summary review of available information pertaining to Ameren Missouri’s evaluated energy efficiency program performance. GDS reviewed each of Ameren’s filed annual evaluation reports for 2021-2023 and collected various data points including Ameren direct and indirect expenditures to establish benchmarking data on Ameren’s performance of their DSM programs under MEEIA. Metrics tracked included:

- Gross and Net Energy Savings
- Incentive expenditures as a percentage of incremental measure costs
- Administrative cost (\$ per 1st-year kWh saved)

The purpose of this step was to understand historical program delivery performance, and to help inform estimates of maximum and realistic achievable potential. Table 3-2 summarizes the observed incentive cost trends observed for the Ameren Missouri territory and applied to the analysis.⁴⁷ Incentives were derived primary from the Ameren Missouri submittal tool. For study measures that do not map directly to a current offering or were not in the submittal tool, GDS calculated the average incentive level by sector and/or program and applied these “typical” incentive levels to the new measures. The incentive cost assumptions below were applied in the RAP and program RAP scenarios. The remaining

⁴⁷ 20 CSR 4240-20.050 (3)(G)5B

portion of the incremental measure cost is assumed to be borne by the consumer.⁴⁸ MAP and program MAP assume that incentives are equal to 100% of incremental measure cost.

TABLE 3-2: AVERAGE AMEREN MISSOURI INCENTIVE LEVELS BY END-USE

Residential	Incentive as a % of Incremental Measure Cost	Business	Incentive as a % of Incremental Measure Cost
Appliances	86%	Compressed Air	48%
Behavior	84%	Cooking	31%
Building Shell	55%	Hot Water	38%
Custom	100%	HVAC	24%
Electronics	92%	Lighting	43%
HVAC	67%	Miscellaneous	33%
Lighting	72%	Motors	53%
Pool	53%	Plug Loads	38%
Water Heating	92%	Refrigeration	38%
New Construction	92%	Whole Building	34%

Consistent with National Action Plan for Energy Efficiency (NAPEE) guidelines⁴⁹, utility non-incentive costs were also included in the overall assessment of cost-effectiveness in the achievable and program potential MAP and RAP scenarios. Initial Year (2024) non-incentive costs were developed using recent PY21-PY23 actual program cost data. Program non-incentive costs were calculated on a gross \$ per first-year kWh saved. Where a three-year trend was present, GDS applied the latest year \$/kWh to forecasted potential incremental annual savings to develop an estimate of future year non-incentive budgets. If a consistent trend was not present, the average \$/kWh over the last three program years was used. Future year non-incentive costs were then escalated annually at half the rate of inflation%.⁵⁰

Non-incentive costs were developed for each program by sector.⁵¹ Figure 3-4 shows the historical non-incentive costs and by sector used to develop the assumptions for the 2023 study.

⁴⁸ 20 CSR 4240-20.050 (3)(G)5D

⁴⁹ National Action Plan for Energy Efficiency (2007). Guide for Conducting Energy Efficiency Potential Studies. Prepared by Optimal Energy. This study notes that economic potential only considers the cost of efficiency measures themselves, ignoring programmatic costs. Conversely, achievable potential should consider the non-measures costs of delivering programs. Pg. 2-4.

⁵⁰ As noted earlier in the report, measure costs and utility incentives were not escalated over the 20-year analysis timeframe to keep those costs constant in nominal dollars. Non-incentive costs were escalated at only ½ the rate of inflation to acknowledge the possibility of select operational efficiency gains off-setting administrative increases from salary raises, cost-of-living and other factors.

⁵¹ 20 CSR 4240-20.050 (3)(G)5E; 20 CSR 4240-20.050 (3)(G)5F

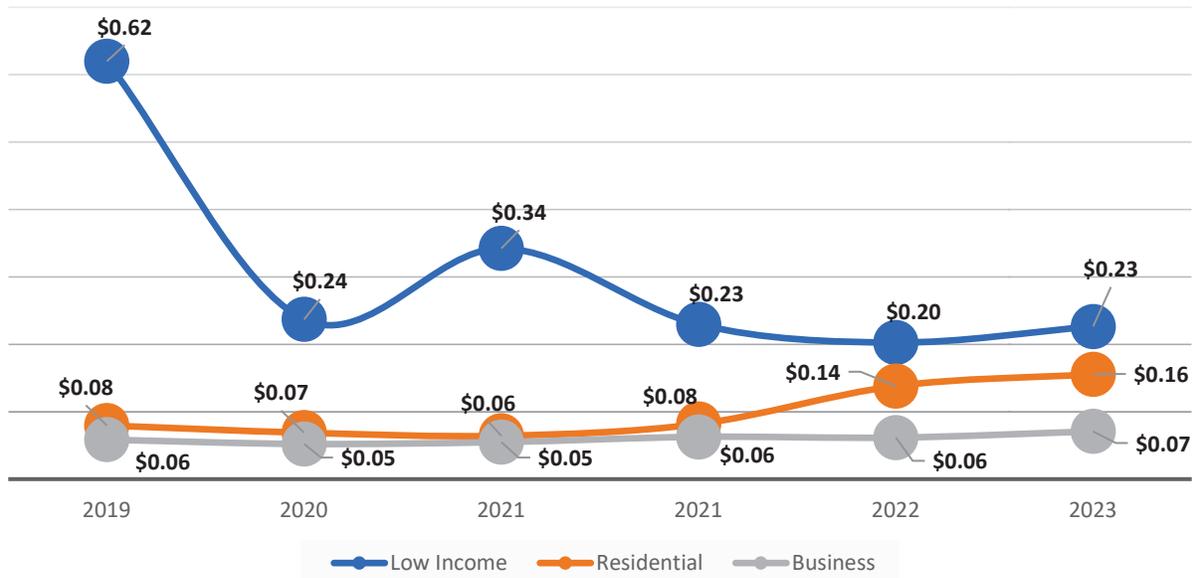


FIGURE 3-4 HISTORICAL NON-INCENTIVE COSTS BY SECTOR

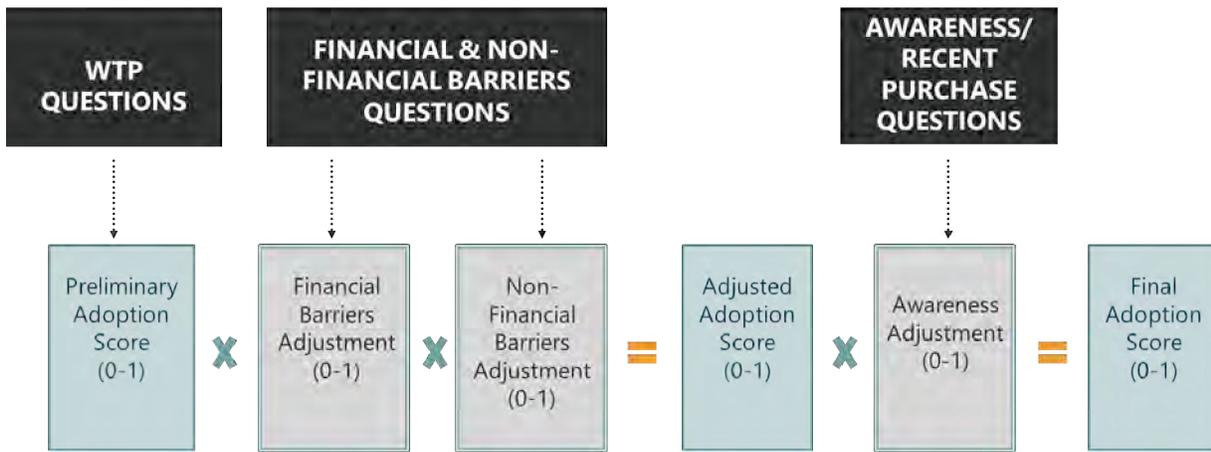
3.1.7.3 Adoption Curve Market Data

One of the major objectives of the primary research conducted for the 2020 study was to develop survey research that could be utilized to develop measure/program adoption curves to develop estimates of achievable potential. Table 3-3 describes the end-uses or categories in which adoption rate estimates were developed for energy efficiency, demand response programs, or distributed energy resources.

TABLE 3-3: ADOPTION RATE CATEGORIES ANALYZED

Willingness to Participate	EE End Uses	DR Programs	DER
Residential Customers	Heating/CAC Heat Pump Water Heater Major Appliances Insulation/Air Sealing	Central AC Control	Solar PV (Purchase) Solar PV (Lease) Electric Vehicles (EVs)
MF Building Owners	Heating/CAC Heat Pump Water Heater Insulation/Air Sealing	n/a	Solar PV (Purchase) Solar PV (Lease)
Business Customers	HVAC Equipment Water Heating Equip. Refrigeration Lighting Equipment	Central AC Control Water Heater Control Customized DR	Solar PV (Purchase) Solar PV (Lease)

Adoption rate calculations were based on a battery of questions which assessed (1) the respondent’s willingness to adopt energy efficiency technologies or participate in demand response programs in scenarios with varying levels of program support, (2) the magnitude of the respondent’s financial and non-financial barriers to adoption/participation, and (3) their awareness of Ameren Missouri energy efficiency programs and/or high efficiency technologies. Adoption rates were calculated based on the equation shown below.



EQUATION 3-2: 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, or participate in the DR program, at various incentive levels, including no incentive and an incentive that covers the full incremental (or total) cost. An example question from the residential online survey is provided below:

Now, please think about what actions you would take with respect to replacing a broken major appliance if incentives were available to cover some or all the cost. These incentives could come in the form of a rebate after purchasing.

Again, one example of appliance costs is the cost of a standard versus high efficiency clothes washer. The cost of a typical standard efficiency clothes washer is about \$450 while the cost of a high efficiency clothes washer is about \$600. An energy efficient appliance like this would give you an energy saving of about \$10-\$15 a year compared to the stand efficiency model.

If you had to replace a broken appliance, how likely would you be to purchase an ENERGY EFFICIENT model to replace this broken equipment, if there was...

- a. NO incentive?*
- b. An incentive for ONE-QUARTER of the additional cost of an energy efficient model, compared to a standard model? (If the energy efficient model cost \$600 and a standard model cost \$450, the incentive would cover \$38 of the additional cost of \$150.)*

Responses to financial and non-financial barrier questions were then used to adjust the preliminary adoption score. Last, to reflect that some customers who might otherwise participate will not be aware of the program, survey respondents were also asked about their current awareness of Ameren Missouri programs/incentives. Key adoption rates are provided below. In addition, Section 3.1.7.1 has additional description regarding the utilization of the adoption rate research for assessing achievable savings potential.

3.1.7.3.1 Residential Sector Final Adoption Scores

Table 3-4 presents the final adoption scores (after all adjustments) based on responses by residential homeowners and tenants, segmented between market-rate and income-eligible customers. In general, market rate customers indicated a greater willingness to participate and install energy efficiency measures across all end-uses, particularly at lower incentive levels relative to income-eligible customers.

TABLE 3-4: HOMEOWNER/TENANT FINAL ADOPTION SCORES BY INCENTIVE LEVEL

Homeowners / Tenants	Annual Incentive (% of incremental measure cost)				
	0%	25%	50%	75%	100%
HVAC	26%	38%	46%	53%	59%
Water Heat	6%	11%	17%	21%	25%
Insulation	10%	22%	33%	43%	55%
Appliances	23%	30%	38%	44%	51%
Market Rate	0%	25%	50%	75%	100%
HVAC	31%	44%	53%	59%	64%
Water Heat	6%	12%	16%	21%	24%
Insulation	12%	26%	37%	48%	59%
Appliances	26%	33%	40%	46%	52%
Income-Eligible	0%	25%	50%	75%	100%
HVAC	17%	25%	33%	42%	50%
Water Heat	4%	10%	16%	22%	28%
Insulation	4%	13%	23%	32%	44%
Appliances	16%	25%	33%	40%	48%

Table 3-5 provides final adoption scores based on survey responses from multifamily property managers and/or building owners. For multifamily property manager and owner WTP (as well as in the business sector), incentives were described in the form of payback periods to better align with how purchasing decisions are likely to be considered.

TABLE 3-5: MULTIFAMILY PROPERTY MANAGER/BUILDING OWNER FINAL ADOPTION SCORES BY PAYBACK PERIOD

MF Property Managers	Payback Years				
	10 Y	5 Y	3 Y	1 Y	0 Y
HVAC	18%	32%	42%	50%	57%
Water Heat	11%	21%	28%	36%	42%
Insulation	13%	26%	38%	50%	59%
Market Rate	10 Y	5 Y	3 Y	1 Y	0 Y
HVAC	16%	30%	40%	48%	56%
Water Heat	8%	16%	23%	29%	35%
Insulation	10%	24%	35%	47%	54%
Income-Eligible	10 Y	5 Y	3 Y	1 Y	0 Y
HVAC	24%	36%	47%	56%	60%
Water Heat	20%	33%	46%	54%	62%
Insulation	21%	34%	50%	65%	81%

Final adoption scores for residential direct load control (DLC) of central AC and water heating systems is shown in Table 3-6, depending on varying annual incentive levels. Current annual incentive offerings are \$25 for direct load control of central air conditioning systems. Table 3-7 provides the final adoption score for a Time of Use (TOU) rate option based on a prescribed difference between peak and off-peak rates.

TABLE 3-6: DLC DEMAND RESPONSE FINAL ADOPTION SCORES BY INCENTIVE LEVEL

DR - DLC	Annual Incentive (% of incremental measure cost)				
	\$0	\$15	\$25	\$35	\$50
Central AC	10%	15%	18%	21%	26%
Water Heat	5%	10%	14%	17%	22%
Market Rate	\$0	\$15	\$25	\$35	\$50

Central AC	11%	16%	20%	24%	28%
Water Heat	5%	11%	15%	18%	22%
Income-Eligible	\$0	\$15	\$25	\$35	\$50
Central AC	8%	12%	15%	18%	22%
Water Heat	5%	10%	14%	17%	23%

TABLE 3-7: TOU DEMAND RESPONSE FINAL ADOPTION SCORES BY INCENTIVE LEVEL

DR - Rate	Peak: Off Peak Ratio ⁵²			
	3:1	4:1	6:1	8:1
DR-TOU	14%	19%	24%	30%
Market Rate	3:1	4:1	6:1	8:1
DR-TOU	19%	26%	33%	40%
Income-Eligible	3:1	4:1	6:1	8:1
DR-TOU	4%	7%	9%	10%

The final adoption scores related to select distributed energy resources are presented in Table 3-8. Survey questions asked participants about their likelihood to purchase and/or lease solar PV systems as well as electric vehicles assuming different incentive level amounts (or payback periods).

TABLE 3-8: RESIDENTIAL DER FINAL ADOPTION SCORES

Solar Purchase	Annual Incentive (% of incremental measure cost)				
	0%	25%	50%	75%	100%
Homeowners/Tenants	5%	19%	36%	52%	74%
Solar Purchase	Payback Years				
	10 Y	5 Y	3 Y	1 Y	0 Y
Multifamily Property Managers/Owners	10%	20%	34%	44%	56%
Solar Lease	Annual Incentive (% of incremental measure cost)				
	0%	25%	50%	75%	100%
Homeowners/Tenants	5%	14%	24%	33%	41%
Solar Lease	Incentive				
	\$0	\$1,250	\$2,500	\$3,750	\$5,000
Multifamily Property Managers/Owners	5%	21%	33%	49%	55%
Electric Vehicle	Incentive				
	\$0	\$8,300	\$12,500	\$25,000	\$33,300
Electric Vehicle	9%	23%	36%	47%	59%

⁵² In the survey, peak rate was defined as \$0.24/kWh. At a 3:1 peak to off-peak ratio, where the peak rate is \$0.24/kWh, the off-peak rate is \$0.08/kWh.

3.1.7.3.2 Business Sector Final Adoption Scores

Table 3-9 presents the final adoption scores (after all adjustments) for small business customers across several end-uses, depending on whether the investment is a minor or major investment. Small businesses indicated a minor investment to be approximately \$4,000 or less. Final adoption scores were generally similar regardless of the initial investment amount.

TABLE 3-9: SMALL BUSINESS FINAL ADOPTION SCORES BY INCENTIVE LEVEL AND INVESTMENT TYPE

Small Business; Minor Inv.	Annual Incentive				
	0%	25%	50%	75%	100%
HVAC	14%	20%	25%	29%	32%
Lighting	14%	20%	25%	30%	33%
Refrigeration	12%	18%	25%	27%	30%
Water Heat	14%	20%	25%	29%	32%
Small Business; Major Inv.	Annual Incentive				
	0%	25%	50%	75%	100%
HVAC	15%	22%	29%	33%	36%
Lighting	16%	24%	29%	34%	37%
Refrigeration	14%	21%	26%	29%	32%
Water Heat	15%	23%	29%	33%	36%

Table 3-10 presents the final adoption scores (after all adjustments) for medium/large business customers depending on whether the investment is a minor or major investment. Medium/Large businesses indicated a minor investment to be roughly \$20,000 or less. While final adoption scores were generally similar regardless of the initial investment amount, medium/large businesses indicated they were more likely to adopt efficiency measures than small businesses, regardless of incentive level.

TABLE 3-10: MEDIUM/LARGE BUSINESS FINAL ADOPTION SCORES BY INCENTIVE LEVEL AND INVESTMENT TYPE

Med/Large Business; Minor Inv.	Annual Incentive (% of incremental measure cost)				
	0%	25%	50%	75%	100%
HVAC	24%	35%	44%	53%	58%
Lighting	26%	38%	48%	55%	60%
Refrigeration	25%	36%	47%	53%	58%
Water Heat	25%	37%	48%	55%	60%
Med/Large Business; Major Inv.	Annual Incentive (% of incremental measure cost)				
	0%	25%	50%	75%	100%
HVAC	24%	35%	44%	51%	55%
Lighting	27%	39%	47%	53%	58%
Refrigeration	25%	36%	46%	52%	56%
Water Heat	25%	38%	47%	54%	57%

Final adoption scores for business sector demand response options are shown in Table 3-11, depending on varying annual incentive levels for direct load control as well as volunteer load reduction. The table also provides business sector responses for participation likelihood for a TOU DR rate program on a prescribed difference between peak and off-peak rates designs.

TABLE 3-11: BUSINESS SECTOR DEMAND RESPONSE FINAL ADOPTION SCORES

DR - DLC	Annual Incentive				
	\$0	\$15	\$25	\$35	\$50
Central AC	6%	7%	9%	10%	12%
Water Heat	5%	8%	10%	11%	14%
DR – Capacity Bidding	Incentive per kW				
	\$0	\$25	\$50	\$100	
Custom DR-Large C&I Aggregator	8%	18%	27%	34%	
DR - TOU	Peak: Off-Peak Ratio				
	3:1	4:1	6:1	8:1	
DR-TOU	5%	7%	9%	12%	

Table 3-12 provides the final adoption scores for solar PV purchasing and/or leasing in the business sector. As with the energy efficiency measures, medium/large businesses indicate they are more likely to adopt DER measures across all incentive categories.

TABLE 3-12: BUSINESS SECTOR DER FINAL ADOPTION SCORES

Purchased Solar	15 YR+	10 YR	5 YR	3 YR	1 YR	0 YR
Small Business	4%	8%	14%	17%	21%	23%
Med/Lg Business	5%	9%	17%	22%	26%	30%
Solar Lease	\$0.00	Min (1/12 total cost)	Low (1/8 total cost)	High (1/4 total cost)	Max (1/3 total cost)	
Small Business	2%	7%	10%	14%	17%	
Med/Lg Business	2%	8%	13%	17%	20%	

3.1.8 Program Potential

Program potential includes the allocation and bundling of individual measures into specific program concepts to support Ameren Missouri's program planning process. All cost-effective measures across all end-uses were bundled into programs based on a mapping to existing Ameren Missouri programs or new programs, if necessary.⁵³ Program potential cases were created based on the RAP and MAP achievable potentials.

3.1.8.1 Net to Gross (NTG)

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 in these phases of the analysis. The initial estimates of maximum and program achievable potential are also presented in the context of gross savings. Program Potential MAP and RAP are, however, presented in terms of net savings to reflect the importance of program design in overcoming market barriers to participation.

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). Measure net-to-gross ratios were based on the most recent

⁵³ 20 CSR 4240-20.050 (1)(B) and 20 CSR 4240-20.050 (3)(C)

evaluation findings of Ameren Missouri’s efficiency programs and mapped to individual measures in both the residential market rate and business sector. Assumed net to gross ratios for each measure are based on reported NTG ratios in the 2021 evaluation portfolio summary reports. The application of NTG ratios, as well as a shift in reporting from end-use detail to program offering, are the sole differences between the initial estimates of MAP/RAP and Program Potential MAP/RAP in this report.

3.2 RESIDENTIAL ENERGY EFFICIENCY POTENTIAL

This section provides the potential results for technical, economic, MAP and RAP for the residential sector. Incremental and cumulative annual data is provided. Results are shown by end use and building type.

3.2.1 Scope of Measures & End Uses Analyzed

There were 185 total unique residential electric measures included in the analysis. Table 3-13 provides the number of unique measures by end-use. The measure list was developed based on a review of current Ameren Missouri programs, the Illinois TRM, other regional TRMs, and industry documents related to emerging technologies. Data collection activities to characterize measures formed the basis of the assessment of incremental costs, electric energy and demand savings, and measure life.

TABLE 3-13: RESIDENTIAL ENERGY EFFICIENCY MEASURES – BY END USE

End-Use	Number of Unique Measures	Number of Permutations
Appliances	12	73
Behavior	3	18
Building Shell	60	240
Custom	2	2
Electronics	4	37
HVAC	73	731
Lighting	15	62
Pool	4	34
Water Heating	10	60
New Construction	2	4
Total	185	1,261

3.2.2 Summary of Residential Electric Potential

Figure 3-5 provides the technical, economic, MAP and RAP results for the 3-year, 10-year, and 20-year timeframes. The respective 20-yr technical and economic potential is 37% and 33% of residential sector sales. The MAP reaches 3.1% in three years and grows to 10.1% over ten years, while the RAP reaches 2.4% in three years and grows to 8.2% over ten years. The MAP and RAP reach 17% and 14% of residential sector sales, respectively, over the 20-yr timeframe of the study. The gap between economic potential and MAP/RAP represents market barriers to prospective program participants, both financial and non-financial, to achieving the full amount of economic potential.



FIGURE 3-5: OVERVIEW OF RESIDENTIAL ENERGY EFFICIENCY POTENTIAL

Table 3-14 provides cumulative annual technical, economic, MAP and RAP energy savings, in total MWh and as a percentage of the sector-level sales forecast. The MW demand savings for each level of potential are also provided. In 2024, the RAP is 0.8% of sector sales with more than 105,000 MWh in estimated energy savings and 47 MW in demand savings. By 2033, the estimated cumulative annual savings in the RAP scenario reaches 8.2% of sector sales at 1.2 million MWh and 418 MW in demand savings.

TABLE 3-14: RESIDENTIAL CUMULATIVE ANNUAL ENERGY EFFICIENCY POTENTIAL SUMMARY

	2024	2025	2026	2033	2043
MWh					
Technical	621,001	1,178,484	1,680,446	4,363,340	6,134,445
Economic	552,293	1,048,092	1,491,718	3,835,712	5,474,181
MAP	135,879	277,386	425,110	1,508,303	2,878,344
RAP	105,159	216,057	333,390	1,223,770	2,262,238
Forecasted Sales	13,508,700	13,523,783	13,910,491	14,966,747	16,671,167
MW					
Technical	4.6%	8.7%	12.1%	29.2%	36.8%
Economic	4.1%	7.8%	10.7%	25.6%	32.8%
MAP	1.0%	2.1%	3.1%	10.1%	17.3%
RAP	0.8%	1.6%	2.4%	8.2%	13.6%

3.2.3 Detail of Residential Technical, Economic and Achievable Potential and Breakout by End Use

Table 3-15 provides cumulative annual technical, economic, and achievable potential results, by end-use, across the 20-yr study timeframe. The HVAC end use has the most potential in each scenario, with the Water Heating, Building Shell, and Appliances end uses also contributing a significant amount potential in each scenario.

TABLE 3-15: RESIDENTIAL ELECTRIC POTENTIAL – DETAIL BY END USE AND SCENARIO (MWH)

End Use	Technical	Economic	MAP	RAP
Appliances	460,671	287,637	141,808	117,014
Behavior	237,407	252,088	58,823	57,189
Building Shell	770,221	584,082	305,625	178,749
Custom	81,294	4,755	3,035	2,763
Electronics	89,645	90,464	45,788	30,854
HVAC	3,462,501	3,253,587	1,868,685	1,529,090
Lighting	203,799	201,682	91,368	69,953
Pool	17,209	2,714	1,431	1,048
Water Heating	671,517	656,989	313,965	233,316
New Construction	140,182	140,182	47,816	42,261
Total	6,134,445	5,474,181	2,878,344	2,262,238
Savings as % of Forecast	36.8%	32.8%	17.3%	13.6%

Figure 3-6 provides the MAP and RAP across the 20-yr timeframe of the study. The green and orange bars provide the respective incremental annual MAP and RAP in MWh per year energy savings. The green and red lines provide the corresponding cumulative annual MAP and RAP as a percent of forecasted annual sales. The MAP rises to 17% by 2043 and the RAP rises to 14%.

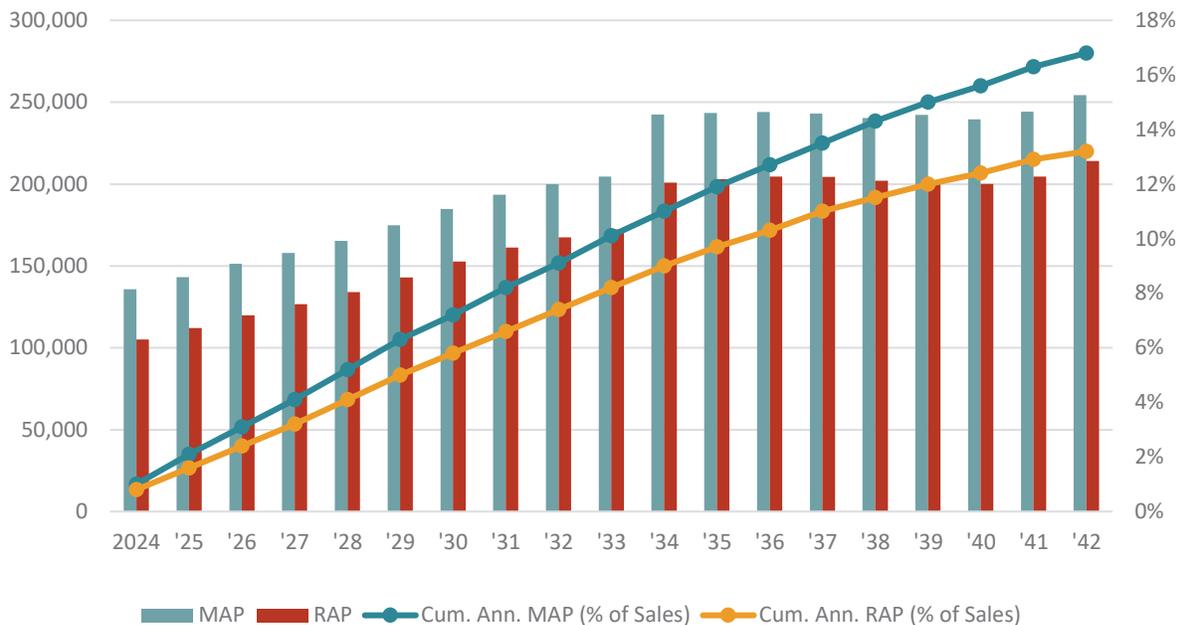


FIGURE 3-6: OVERVIEW OF ANNUAL RESIDENTIAL ACHIEVABLE POTENTIAL

Figure 3-7 provides a breakdown of the RAP potential in 2043 across end-uses and building type market segments. As in technical and economic potential, the HVAC Equipment is by far the leading end-use accounting for 68% of the total. Water Heating accounts for 10% and Building Shell accounts for an additional 8%. The remaining 14% is comprised of Lighting, Behavior, New Construction, Electronics and Custom

measures. The single family and multifamily market rate housing sector represents 53% of the potential, while 41% is contributed by the low-income sector, and the remaining 6% is in the new construction housing market.

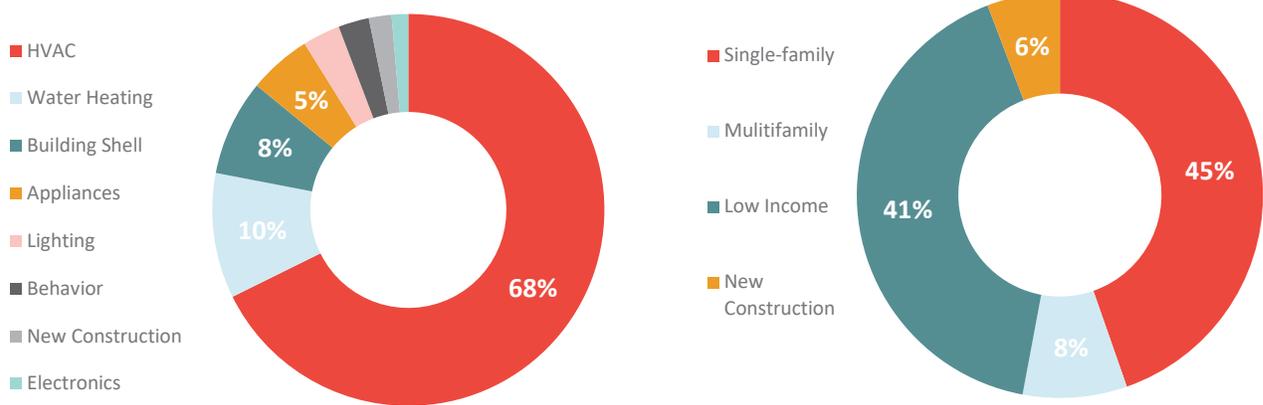


FIGURE 3-7: RESIDENTIAL REALISTIC ACHIEVABLE POTENTIAL BY END-USE AND BUILDING TYPE – 20-YR CUMULATIVE ANNUAL

Table 3-16 provides additional end-use level detail for the incremental annual residential MAP and RAP. On an incremental annual basis, the MAP ranges from 1.0% to 1.2% over the first six years of the study, with more than half of the savings from the HVAC end use. The RAP ranges from 0.8% to 1.0% of savings on an incremental annual basis. The RAP savings are also dominated by the HVAC end use, with sizeable contributions also from the Water Heating, Appliances, and Building Shell end uses.

TABLE 3-16: RESIDENTIAL INCREMENTAL MAP AND RAP – END USE DETAIL

	2024	2025	2026	2027	2028	2029
MAP Incremental Annual MWh						
Appliances	3,359	4,106	4,919	5,778	6,665	7,557
Behavior	1,941	2,763	3,351	4,016	4,894	7,093
Building Shell	33,316	34,298	33,343	31,517	29,506	27,928
Custom	536	508	457	393	325	259
Electronics	7,720	5,435	4,967	4,436	3,892	3,370
HVAC	79,781	85,908	92,344	97,971	104,019	109,613
Lighting	3,167	3,700	4,071	4,435	4,844	5,432
Pool	88	99	109	118	126	132
Water Heating	5,403	5,527	6,825	7,975	9,675	11,557
New Construction	567	797	1,005	1,207	1,459	1,819
Total	135,879	143,142	151,390	157,846	165,405	174,762
% of Forecasted Sales	1.0%	1.1%	1.1%	1.1%	1.2%	1.2%
RAP Incremental Annual MWh						
Appliances	2,452	3,024	3,659	4,344	5,066	5,806
Behavior	1,818	2,593	3,156	3,799	4,647	6,733
Building Shell	17,640	18,034	17,344	16,285	15,293	14,649
Custom	488	463	416	358	296	236
Electronics	5,155	3,458	3,272	3,016	2,715	2,369
HVAC	70,958	76,840	82,591	87,995	93,221	98,290
Lighting	2,719	3,078	3,372	3,671	3,997	4,409
Pool	70	77	84	90	95	100
Water Heating	3,356	3,898	4,984	5,947	7,354	8,870
New Construction	501	705	888	1,067	1,289	1,608
Total	105,159	112,170	119,766	126,573	133,973	143,071
% of Forecasted Sales	0.8%	0.8%	0.9%	0.9%	0.9%	1.0%

3.3 BUSINESS ENERGY EFFICIENCY POTENTIAL

This section provides the potential results for technical, economic, MAP and RAP for the business sector. Incremental and cumulative annual data is provided. Results are shown by end use and building type.

3.3.1 Scope of Measures & End Uses Analyzed

There were 195 total unique business electric measures included in the analysis. Table 3-17 provides the number of unique measures by end-use. The measure list was developed based on a review of current Ameren Missouri programs, the Illinois TRM, other regional TRMs, and industry documents related to emerging technologies. Data collection activities to characterize measures formed the basis of the assessment of incremental costs, electric energy and demand savings, and measure life.

TABLE 3-17: BUSINESS ENERGY EFFICIENCY MEASURES – BY END USE

End-Use	Number of Unique Measures	Number of Permutations
HVAC	7	77
Lighting	10	110
Refrigeration	6	66
Office Equipment	44	473
Whole Building	34	374
Cooking	11	121
Process	5	55
Compressed Air	11	121
Behavioral	26	286
Miscellaneous	5	55
Hot Water	10	110
Motors	17	17
Agriculture	9	9
Total	195	1,874

3.3.2 Summary of Business Electric Potential

Figure 3-8 provides the technical, economic, MAP and RAP results for the 3-year, 10-year, and 20-year timeframes. The respective 20-yr technical and economic potential is 35% and 32% of business sector sales. The MAP reaches 6.4% in three years and grows to 17.1% over ten years, while the RAP reaches 4.7% in three years and grows to 12.6% over ten years. The MAP and RAP reach 22% and 16% of business sector sales, respectively, over the 20-yr timeframe of the study. The gap between economic potential and MAP/RAP represents market barriers to prospective program participants, both financial and non-financial, to achieving the full amount of economic potential.

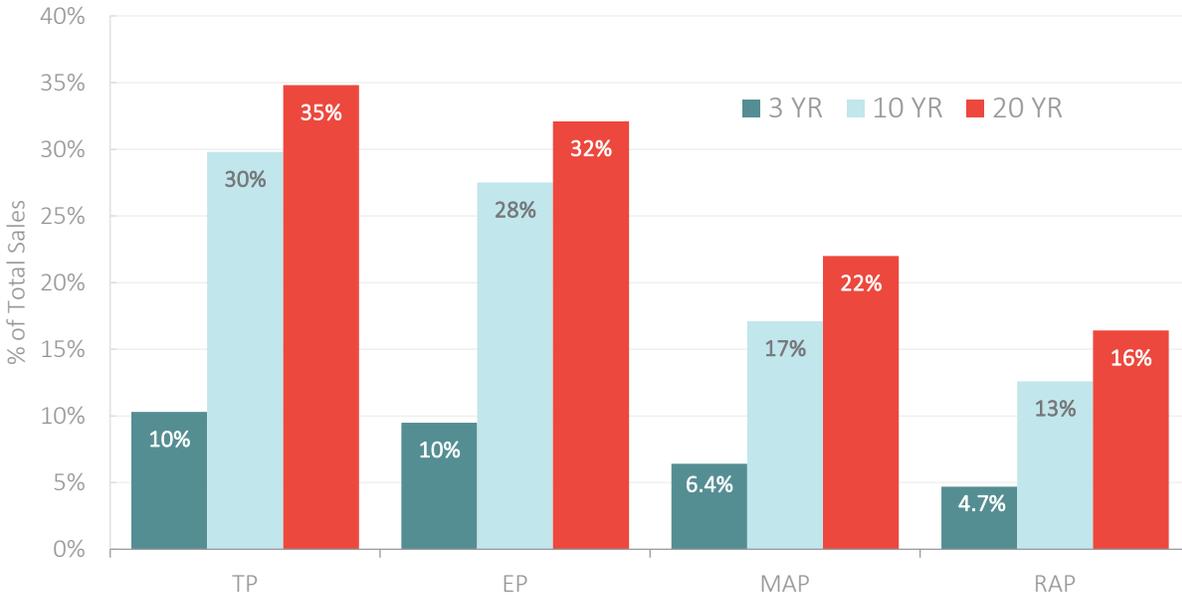


FIGURE 3-8: OVERVIEW OF BUSINESS ENERGY EFFICIENCY POTENTIAL

Table 3-18 provides cumulative annual technical, economic, MAP and RAP energy savings, in total MWh and as a percentage of the sector-level sales forecast. The MW demand savings for each level of potential are also provided. In 2024, the RAP is 1.6% of sector sales with more than 233,000 MWh in estimated energy savings and 63 MW in demand savings. By 2033, the estimated cumulative annual savings in the RAP scenario reaches 12.6% of sector sales at 1.9 million MWh and 557 MW in demand savings.

TABLE 3-18: BUSINESS CUMULATIVE ANNUAL ENERGY EFFICIENCY POTENTIAL SUMMARY

	2024	2025	2026	2033	2043
MWh					
Technical	468,422	963,866	1,483,470	4,458,691	5,462,287
Economic	436,911	897,084	1,380,145	4,116,578	5,036,977
MAP	316,388	623,887	921,943	2,554,287	3,452,685
RAP	233,465	458,816	678,451	1,885,518	2,573,513
Forecasted Sales	14,451,697	14,465,588	14,529,355	15,026,417	15,778,731
Energy Savings (as a % of Forecast)					
Technical	3.3%	6.7%	10.3%	29.8%	34.8%
Economic	3.0%	6.2%	9.5%	27.5%	32.1%
MAP	2.2%	4.3%	6.4%	17.1%	22.0%
RAP	1.6%	3.2%	4.7%	12.6%	16.4%
MW					
Technical	135	281	436	1,375	1,716
Economic	127	265	410	1,292	1,618
MAP	96	191	285	849	1,155
RAP	63	126	188	557	766

3.3.3 Detail of Business Technical, Economic and Achievable Potential and Breakout by End-Use

Table 3-19 provides cumulative annual technical, economic, and achievable potential results, by end-use, across the 20-yr study timeframe. The Lighting, HVAC and Whole Building / Behavioral end uses account for approximately 75%-80% of the potential each year, with Compressed Air, Hot Water, Motors, and Refrigeration each contributing a significant amount potential in each scenario.

TABLE 3-19: BUSINESS ELECTRIC POTENTIAL – DETAIL BY END USE AND SCENARIO (MWH)

End Use	Technical	Economic	MAP	RAP
Compressed Air	158,266	138,041	88,926	64,091
Cooking	8,678	8,747	5,003	4,092
Hot Water	163,436	157,009	92,955	70,327
HVAC	1,650,822	1,586,881	1,071,132	713,353
Lighting	1,394,182	1,382,401	1,018,288	818,856
Miscellaneous	197,593	163,803	85,548	60,947
Motors	594,309	580,925	370,759	275,404
Plug Loads / Office	153,743	136,763	82,032	58,271
Refrigeration	288,313	191,802	121,595	88,651
Whole Building / Behavioral	852,946	690,604	516,447	419,522
Total	5,462,287	5,036,977	3,452,685	2,573,513
Savings as % of Forecast	34.6%	31.9%	21.9%	16.3%

Figure 3-9 provides the MAP and RAP across the 20-yr timeframe of the study. The green and red bars provide the respective incremental annual MAP and RAP in MWh per year energy savings. The green and orange lines provide the corresponding cumulative annual MAP and RAP as a percent of forecasted annual sales. The MAP rises to 22% by 2043 and the RAP rises to 16%.

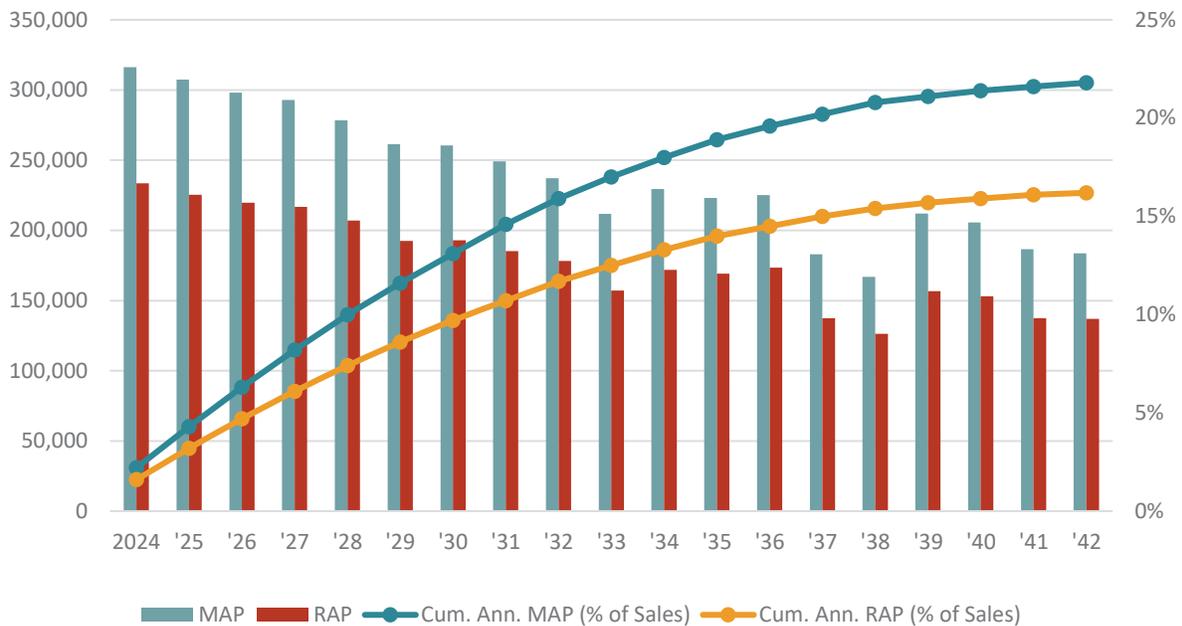


FIGURE 3-9: OVERVIEW OF ANNUAL BUSINESS ACHIEVABLE POTENTIAL

Figure 3-10 provides a breakdown of the RAP potential in 2043 across end-uses and building type market segments. In the RAP scenario, the HVAC, Lighting, Motors, and Whole Building / Behavioral end-uses combined to account for nearly 80% of the potential. Across building types, Office buildings, Industrial, and

Retail buildings provide close to 40% of the RAP. Food Service, Health, Lodging, Business Social Services, Assembly and Retail buildings account for between 4% and 8% of the RAP.

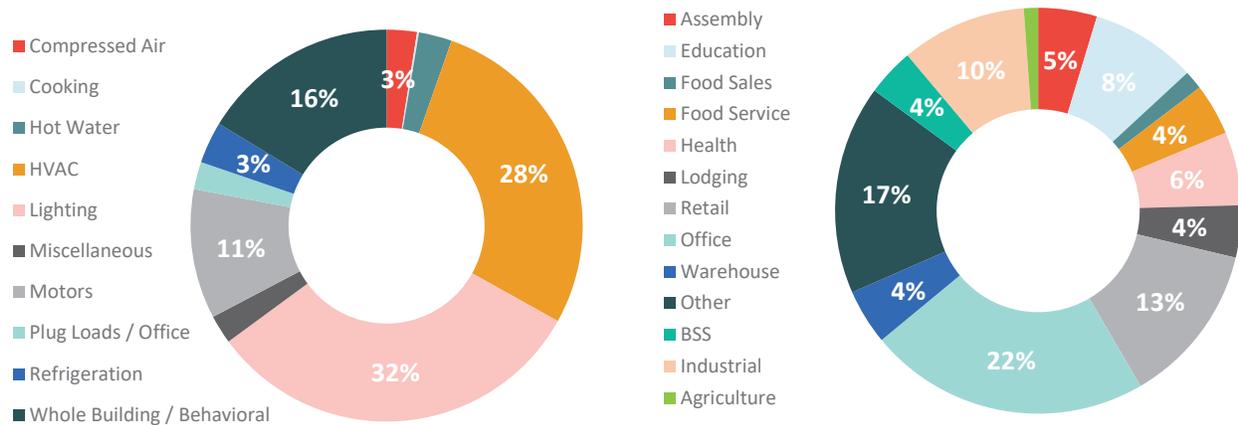


FIGURE 3-10: BUSINESS REALISTIC ACHIEVABLE POTENTIAL BY END-USE AND BUILDING TYPE – 20-YR CUMULATIVE ANNUAL
 Table 3-16 provides additional end-use level detail for the incremental annual business MAP and RAP. On an incremental annual basis, the MAP ranges from 1.7% to 2.0% over the first six years of the study. The RAP ranges from 1.2% to 1.5% of savings on an incremental annual basis. The RAP savings have sizeable contributions also from the HVAC, Lighting, Motors, and Whole Building/Behavioral end uses.

TABLE 3-20: BUSINESS INCREMENTAL MAP AND RAP – END USE DETAIL

	2024	2025	2026	2027	2028	2029
MAP Incremental Annual MWh						
Compressed Air	12,166	11,771	11,018	10,669	9,555	12,332
Cooking	259	280	299	316	331	344
Hot Water	5,811	5,600	5,538	5,612	5,031	4,934
HVAC	65,323	72,142	75,014	81,315	82,036	85,118
Lighting	185,249	168,992	148,283	127,826	107,595	87,642
Miscellaneous	3,230	3,656	4,028	4,336	4,595	4,796
Motors	13,784	16,428	18,212	22,003	23,717	25,520
Plug Loads / Office	1,396	2,133	2,425	2,656	2,976	3,737
Refrigeration	2,563	3,830	4,264	4,580	5,133	6,881
Whole Building / Behavioral	26,605	22,667	29,021	33,566	37,543	30,145
Total	316,388	307,499	298,103	292,879	278,511	261,449
% of Forecasted Sales	2.0%	1.9%	1.9%	1.9%	1.8%	1.7%
RAP Incremental Annual MWh						
Compressed Air	8,813	8,525	7,980	7,740	6,931	8,822
Cooking	219	236	251	264	275	284
Hot Water	5,306	5,021	4,868	4,835	4,157	3,940
HVAC	40,113	45,126	47,537	52,921	53,811	56,719
Lighting	144,150	132,101	116,428	101,100	85,779	70,325
Miscellaneous	2,155	2,466	2,748	2,991	3,202	3,375
Motors	10,077	12,058	13,373	16,166	17,452	18,844
Plug Loads / Office	1,012	1,543	1,749	1,911	2,137	2,683
Refrigeration	1,862	2,783	3,099	3,329	3,731	4,986
Whole Building / Behavioral	19,757	15,493	21,638	25,419	29,540	22,615
Total	233,465	225,352	219,672	216,675	207,015	192,594
% of Forecasted Sales	1.5%	1.4%	1.4%	1.4%	1.3%	1.2%

3.4 PROGRAM POTENTIAL

This section of the report provides an overview of the program potential. The cumulative annual savings are shown across the study timeframe, in aggregate as well as by program within each sector. The benefits and costs of program potential are also provided. The program potential scenarios are based off the achievable potential scenarios and are referred to as PP MAP (based off of MAP) and PP RAP (based off of RAP).

3.4.1 Program Potential Savings

Figure 3-11 below illustrates the cumulative annual program potential by sector over the next six years. The stacked bar chart shows the contributions of the residential and business sectors to the total program potential for the PP MAP and PP RAP scenarios. The gray portion of each bar shows the gap between the program potential and achievable potential, the latter of which is the basis for program potential scenario. This gap is created by estimated levels of free ridership in future programs which reduce the net-to-gross ratio to levels slightly below 100% and thereby reduce the program-level net savings estimates.

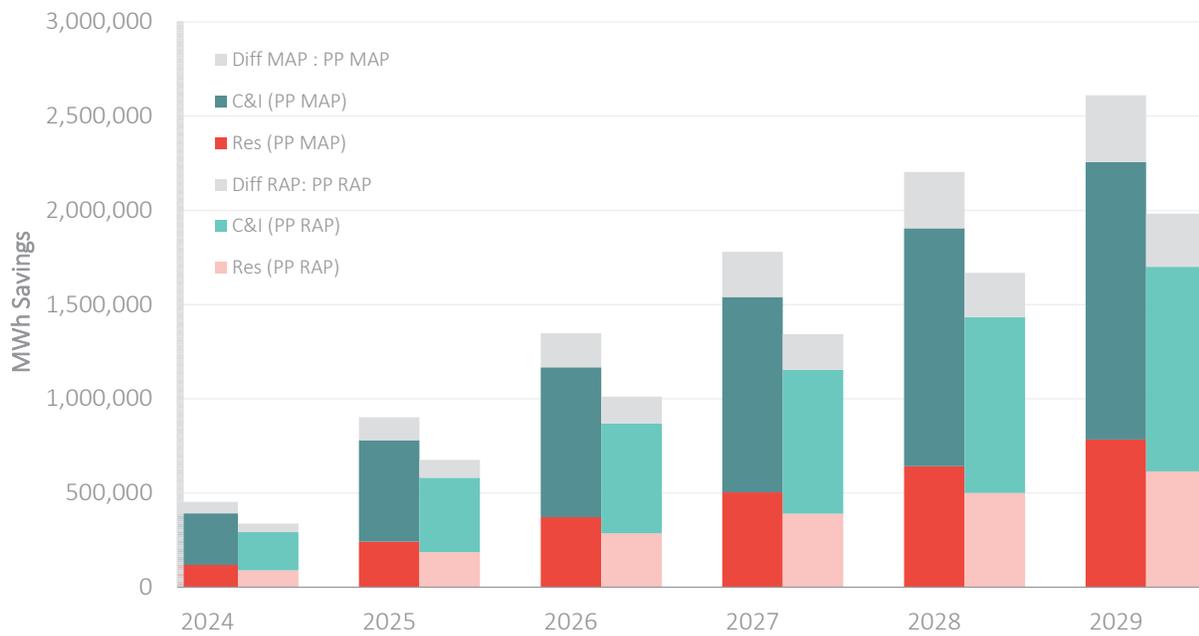


FIGURE 3-11: PROGRAM POTENTIAL BY SECTOR – PP MAP AND PP RAP

Figure 3-12 below illustrates the incremental annual energy savings in residential programs over the next six years. The HVAC, Efficient Products and Multifamily Market rate programs are the leading market rate programs, with the Single Family and Multifamily Income Eligible programs providing significant savings. The PAYS, Energy Efficiency Kits and New Construction programs provide some additional potential, with some measures not currently offered (“No program”) providing some additional potential as well. The residential PP RAP ranges from 90,000 to 122,000 incremental annual MWh over the next six years.

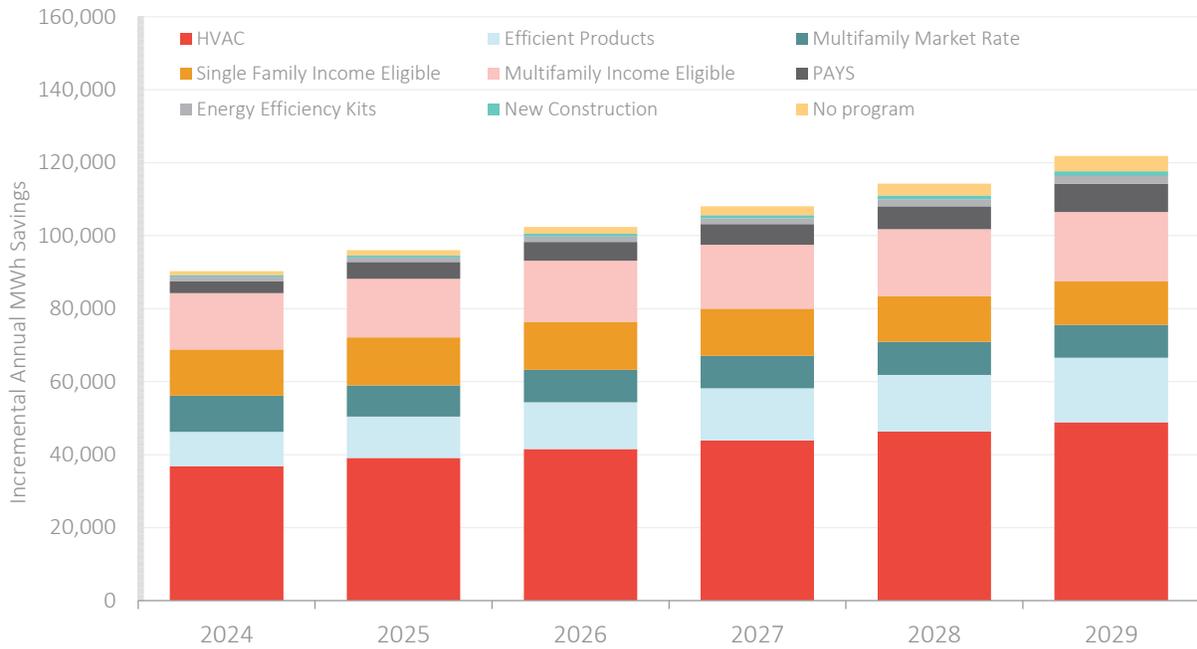


FIGURE 3-12: RESIDENTIAL SECTOR PROGRAM POTENTIAL – PP RAP

Figure 3-13 below illustrates the incremental annual energy savings in business programs over the next six years. The Standard, Small Business Direct Install and Custom programs are the leading business sector programs, with the Retrocommissioning, Strategic Energy Management, Agriculture and Business Social Services programs some additional potential as well. The business sector PP RAP ranges from 166,000 to 201,000 incremental annual MWh over the next six years.

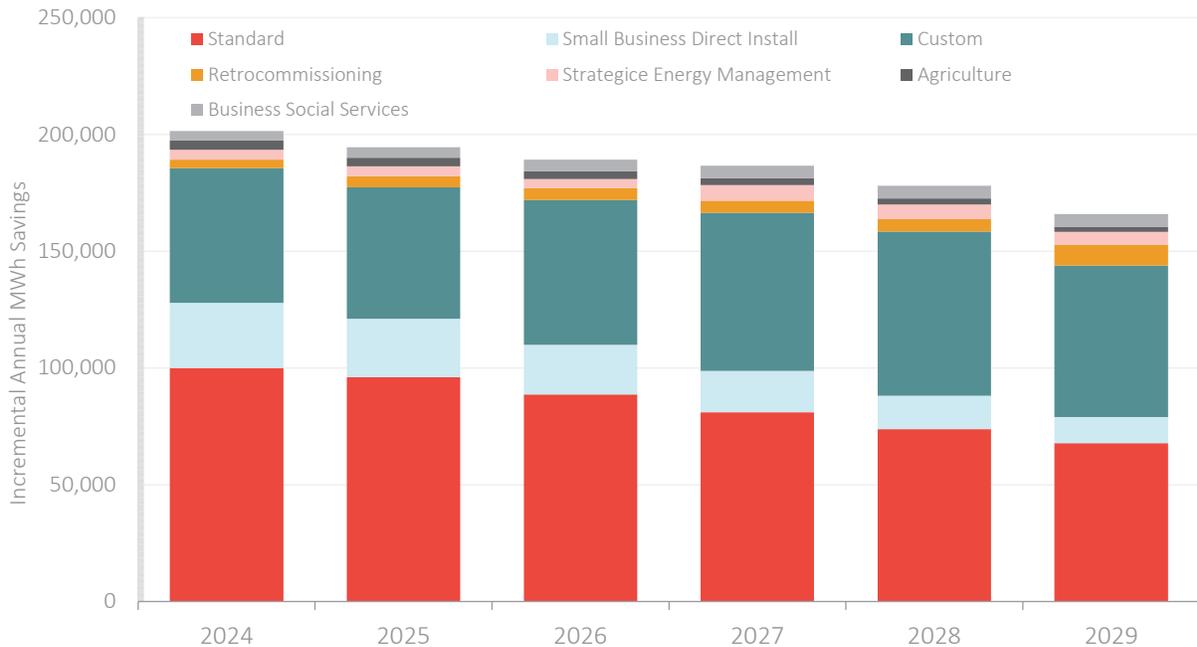


FIGURE 3-13: BUSINESS SECTOR PROGRAM POTENTIAL BY SECTOR – PP RAP

3.4.2 Benefits/Costs of Program Potential

Figure 3-14 shows the annual program budgets in the residential sector for the program RAP scenario. The budgets are broken out by incentives and admin costs. Total residential sector budgets range from \$61 million in 2024 to more than \$114 million by 2043.

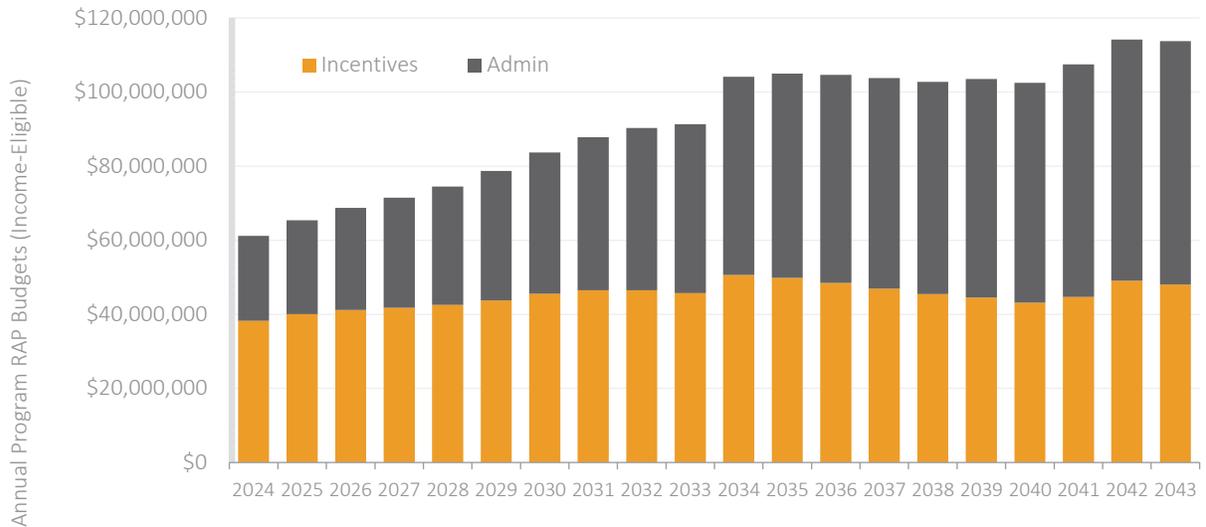


FIGURE 3-14: RESIDENTIAL SECTOR PROGRAM POTENTIAL BUDGETS – INCENTIVES AND ADMIN

Figure 3-15 shows the annual program budgets in the business sector for the program RAP scenario. The budgets are broken out by incentives and admin costs. Total business sector budgets start at nearly \$36 million and remain steady for the next 10 years, with budgets decreasing in the second decade of the study timeframe.

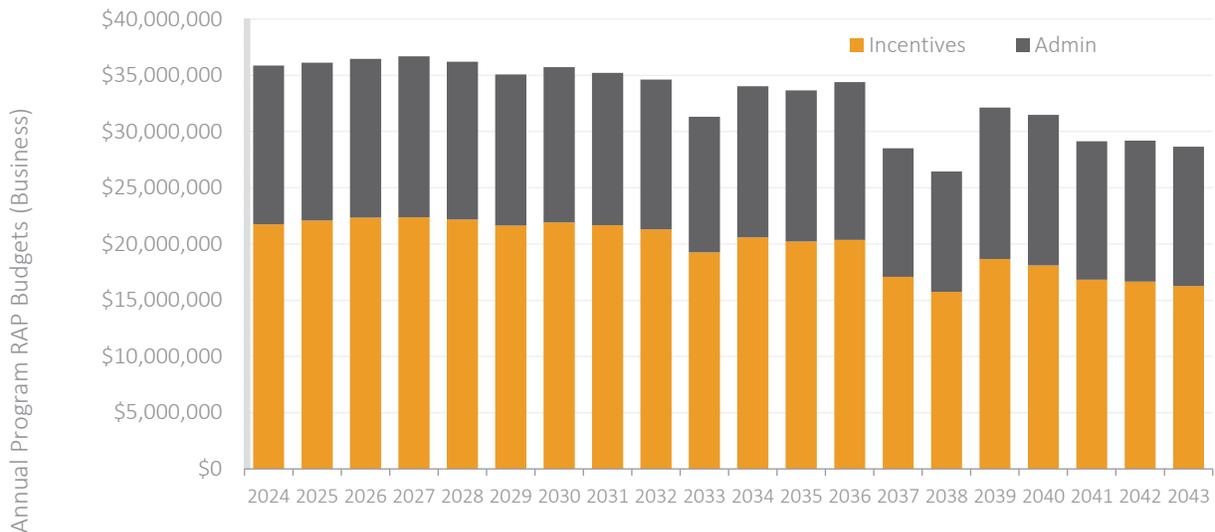


FIGURE 3-15: BUSINESS SECTOR PROGRAM POTENTIAL BUDGETS – INCENTIVES AND ADMIN

Table 3-21 below provides the net-present-value (“NPV”) benefits and costs for each sector across the study timeframe and in total across all programs according to the TRC test. The overall TRC ratio is 1.7, with an estimated total of more than \$1.3 billion in net benefits.

TABLE 3-21: PROGRAM RAP TRC NPV BENEFITS AND COSTS –BY 2043 (\$, IN MILLIONS)

Sector	NPV Benefits	NPV Costs	TRC Ratio	NPV Net Benefits
Residential	\$1,591	\$1,137	1.40	\$455
Business	\$1,572	\$707	2.22	\$864
Total	\$3,163	\$1,844	1.72	\$1,319

Table 3-22 below provides the net-present-value (“NPV”) benefits and costs for each sector across the study timeframe and in total across all programs according to the UCT. The overall UCT ratio is 2.3, with an estimated total of more than \$1.7 billion in net benefits.

TABLE 3-22: PROGRAM RAP UCT NPV BENEFITS AND COSTS –BY 2043 (\$, IN MILLIONS)

Sector	NPV Benefits	NPV Costs	UCT Ratio	NPV Net Benefits
Residential	\$1,591	\$988	1.61	\$604
Business	\$1,572	\$396	3.97	\$1,175
Total	\$3,163	\$1,384	2.29	\$1,779

3.5 SENSITIVITIES

3.5.1 Sensitivities Overview

In addition to the development of a base case for Program RAP potential, sensitivity analyses were performed surrounding several key assumptions in the study. The GDS team, Ameren Missouri, and stakeholders discussed multiple candidates for the sensitivity analysis that could either analyze the impact of uncertainty concerning customer participation and/or cost-effectiveness.⁵⁴ The following eight were ultimately selected for the residential market-rate and/or business sector energy efficiency analysis:

Avoided Costs. Avoided costs are the primary benefit in assessing the cost-effectiveness of DSM measures. Higher avoided costs will likely result in additional measures passing the TRC cost-effectiveness screen, leading to greater savings potential; while lower avoided costs will decrease the cost-effectiveness of measures and lead to lower savings potential.

High Sensitivities: (1) Increase avoided energy and generation capacity costs by 35%; no change to avoided T&D costs, and (2) Increase avoided T&D costs by 200%; no change to energy and capacity costs.

Low Sensitivities: (1) Decrease avoided energy and generation capacity costs by 50%; no change to avoided T&D costs, and (2) Reduce avoided T&D costs to \$0 from 2024-2033, then apply base case T&D costs in second decade; no change to energy and capacity costs.

Impacted Sectors: Residential / Business

Prolonged Economic Downturn. GDS held constant economic factors in the Ameren Missouri load forecast, resulting in a negative impact on future energy sales. Adoption rates were also reduced to reflect concern over financial barriers. Population, households, and income are held constant at 2019 levels for residential. GDP, employment, and other rate class outputs were held constant in the business sector.

High Sensitivity: n/a

Low Sensitivity: (1) Residential: 10% decrease to forecast by 2040; 10% decrease to adoption levels; (2) Commercial: 5% decrease to forecast by 2040; 5% decrease to adoption levels; (3) Industrial: 8% decrease to forecast by 2040; 8% decrease to adoption levels

⁵⁴ 20 CSR 4240-20.050 (6)(C); 20 CSR 4240-20.050 (6)(C)1; 20 CSR 4240-20.050 (6)(C)2

Impacted Sectors: Residential / Business

COVID-19 Short/Long-Term Impacts. Sensitivity is expected to perform like the prolonged economic downturn, with a focus on changes in pre/post-COVID customer consumption and usage patterns. The forecast is assumed to already account for near-term COVID impacts. There are short-term impacts on lower adoption rates due to supply-chain concerns.

High Sensitivity: n/a

Low Sensitivity: Near-term adoption levels were adjusted (curve set back 2 years).

Impacted Sectors: Residential / Business

NTG Uncertainty (Attribution Case). The attribution sensitivity is relevant to Ameren in understanding the risk associated with changes in attribution that are outside the control of Ameren Missouri. In the case of DSM, attribution is the actual savings that are assigned to a program. One element in the transition from achievable potential to program potential includes the addition of the net-to-gross ratio assumed for each measure/program. The net-to-gross (NTG) ratio identifies the fraction of program participants who would not have purchased the energy efficient measures in the absence of a program. For the Program RAP reference case, the NTG ratios assigned to each measure/end-use/program were based on the latest evaluated DSM programs for MEEIA Cycle 2. However, changes to DSM measure mixes, costs, savings, program delivery methods, market forces, and other factors can significantly impact future NTG ratios.

High Sensitivity: 15% increase to current NTG ratios

Low Sensitivity: 30% decrease to current NTG ratios

Impacted Sectors: Residential / Business

High Touch Marketing. Intended to explore strategy of increasing marketing/high-touch administration to improve program delivery and increase program participation.⁵⁵ The high-touch marketing scenario is applied to RAP and produces a result between the current RAP and MAP levels.

High Sensitivity: Assume historical incentive levels but raises the program awareness threshold to the MAP level. Non-Incentive costs were estimated to be higher as well.

Low Sensitivity: n/a

Impacted Sectors: Residential / Business

Large Customer Opt-Outs. The base case excludes sales and savings from all eligible customers that currently opt-out of Ameren Missouri's energy efficiency programs. This sensitivity looks at the range of potential if no C&I customers were to opt-out, or if all eligible customers chose to opt-out.

High Sensitivity: Include currently opted-out customers in analysis of future potential.

Low Sensitivity: Exclude all eligible opt-out customers from analysis. For purposes of estimating sales from all eligible customers opt-out, GDS used the existing opt-out customers and included sales from all additional customers in the 11M rate (that are not currently designated as an opt-out customer).

Impacted Sectors: Business Only

Volatile Weather. Assessed impact of increasing Heating Degree Days and Cooling Degree Days, impacting measure savings and cost-effectiveness. GDS included a similar adjustment to heating and cooling load in the sales forecast (i.e. as HDD/CDD increased, the heating and cooling portion of the sector loads was similarly increased).

⁵⁵ 20 CSR 4240-20.050 (1)(E)2

High Sensitivity: Assumed heating and cooling degree days both increased by 25%.

Low Sensitivity: n/a

Impacted Sectors: Residential / Business

Improved Technology Savings/Costs. This sensitivity was included to assess the impact of improved technology savings and/or reduced technology costs.⁵⁶

High Sensitivity: Assume program participation focuses on higher tier technologies regardless of current market acceptance; assume a 35% decrease in emerging technology/high tier equipment costs and incentives over the study horizon. For all other measures, reduced costs between 5%-20% based on current energy efficiency saturation assumptions. Shifted applicability to highest tier equipment (if cost-effective).

Low Sensitivity: n/a

Impacted Sectors: Residential / Business

Additional IQ-Funding Sensitivity. This sensitivity assumes 100% incentives of the full measure cost (rather than incremental) for income-qualified HVAC and Water Heating measures.

High Sensitivity: Increased adoption rates (MAP awareness factor). Modified measure costs and associated incentives.

Low Sensitivity: n/a

Impacted Sectors: Residential Only

PAYS Sensitivity. This sensitivity enhances the adoption of measures mapped to the PAYS program delivery channel. Model parameters adjusted include market adoption rates and net-to-gross assumption.

High Sensitivity: Adoption rates are based on assuming financing elements of PAYS yields adoption rates equal same assumed level as covering 100% of measure cost. NTG ratios for these measures are set to 100%. Market adoption curve accelerated to account for higher awareness.

Low Sensitivity: n/a

Impacted Sectors: Residential Only

Summer Planning Reserve Margin. This sensitivity assesses the impact of transitioning from MISO Planning Reserve Margin (PRM) Installed Capacity (ICAP) to Unforced Capacity (UCAP).

High Sensitivity: n/a

Low Sensitivity: Reduce summer planning reserve margin to 7.4%

Impacted Sectors: Residential / Business

3.5.2 Sensitivity Results

Figure 3-16 shows the program RAP based on the results of the sensitivity analysis, with the residential sector results in orange and the business sector results in black. The blue bars show the 20-yr cumulative annual MWh, and the orange line provides the corresponding 20-yr budget (in \$ billions). Improved Technology, All Opt-Outs Included and High NTG provide the most savings, while the Low NTG, Economic Downturn, and Low Avoided Costs 1 sensitivities provide the least savings. 20-yr total budgets range from \$2.1 billion to \$3.9 billion with the low being the Economic Downturn and the high being the Improved Technology sensitivity.

⁵⁶ 20 CSR 4240-20.050 (1)(E)1

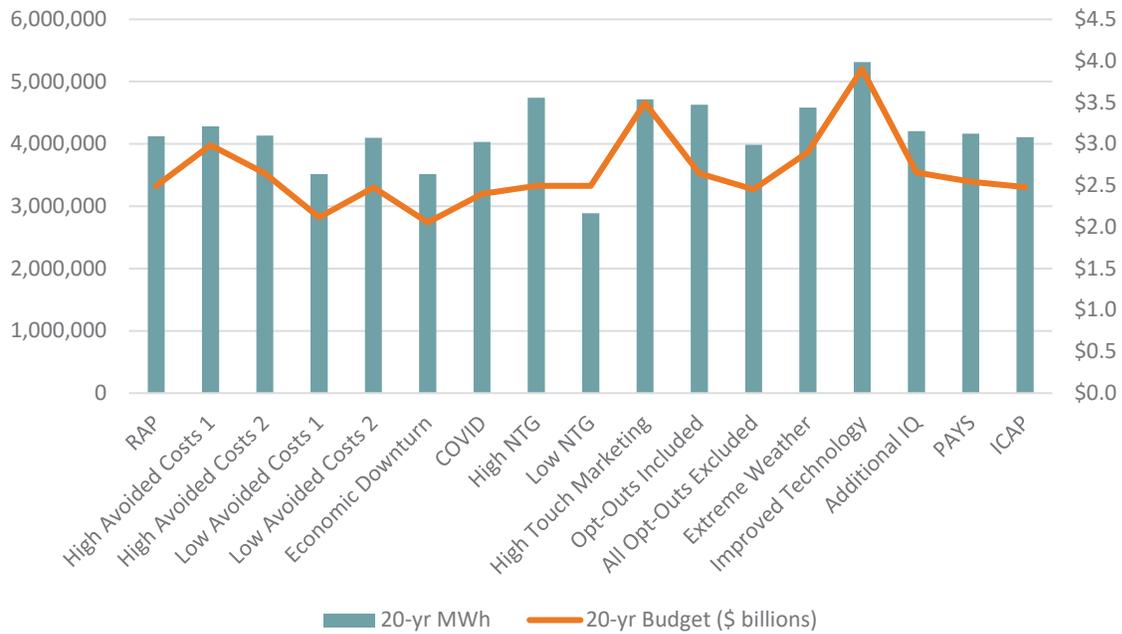


FIGURE 3-16: PROGRAM RAP SENSITIVITIES – CUMULATIVE ANNUAL SAVINGS AND 20-YR BUDGETS

Table 3-23 shows the NPV benefits and costs for the program RAP sensitivities. The sensitivity with high NTG has the highest TRC ratio of 1.97. The High Avoided Costs 1 sensitivity yields the greatest NPV net benefits. The sensitivity with low NTG has the highest TRC ratio of 1.30. The Additional IQ sensitivity yields the lowest NPV net benefits.

TABLE 3-23: SENSITIVITY PROGRAM RAP NPV BENEFITS AND COSTS –BY 2043 (\$, IN MILLIONS)

Program	NPV Benefits	NPV Costs	NPV Net Benefits	TRC Ratio
RAP	\$3,162,625,462	\$1,843,863,501	\$1,318,761,960	1.72
High Avoided Costs 1	\$4,151,557,318	\$2,178,765,606	\$1,972,791,712	1.91
High Avoided Costs 2	\$3,485,001,042	\$1,961,843,037	\$1,523,158,005	1.78
Low Avoided Costs 1	\$2,453,317,946	\$1,693,028,777	\$760,289,169	1.45
Low Avoided Costs 2	\$2,782,340,058	\$1,579,864,467	\$1,202,475,591	1.76
Economic Downturn	\$2,663,118,557	\$1,523,051,139	\$1,140,067,418	1.75
COVID	\$3,599,512,549	\$1,901,849,142	\$1,697,663,407	1.89
High NTG	\$3,911,483,961	\$1,988,226,045	\$1,923,257,917	1.97
Low NTG	\$2,793,356,030	\$2,150,821,883	\$642,534,147	1.30
High Touch Marketing	\$3,543,376,873	\$2,434,280,831	\$1,109,096,041	1.46
Opt-Outs Included	\$4,061,407,059	\$2,592,380,468	\$1,469,026,590	1.57
All Opt-Outs Excluded	\$3,632,538,618	\$2,395,042,045	\$1,237,496,573	1.52
Extreme Weather	\$3,565,579,338	\$2,114,477,644	\$1,451,101,694	1.69
Improved Technology	\$3,819,673,057	\$2,419,497,159	\$1,400,175,898	1.58
Additional IQ	\$1,653,173,884	\$1,210,535,534	\$442,638,351	1.37
PAYS	\$1,722,046,691	\$1,211,604,599	\$510,442,092	1.42
ICAP	\$3,074,301,271	\$1,825,962,095	\$1,248,339,177	1.68

4 DR POTENTIAL RESULTS

4.1 ANALYSIS APPROACH⁵⁷

This section provides an overview of the demand response potential methodology. Summary results of the demand response analysis are provided in Section .2. Additional results details are provided in Appendix F.

4.1.1 Definition of Demand Response⁵⁸

According to the Federal Energy Regulatory Commission (FERC), demand response is defined as changes in electric usage by demand-side resources from their normal consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized. FERC's definition of demand response conforms to the North American Electric Reliability Corporation (NERC) definition developed by a consortium of utilities and end users – of which Ameren Missouri had a leadership role.

The Midcontinent Independent System Operator (MISO) defines demand response as the ability of a Market Participant to reduce its electric consumption in response to an instruction received from MISO. Market Participants can provide such demand response either with discretely interruptible or continuously controllable loads or with behind-the-meter generation. In short, resources must be dispatchable and measurable. Demand response rate options such as TOU or CPP don't meet these requirements. However, these rates can provide value for Ameren Missouri if they lower their peak demand requirements. That reduction in peak load can translate into lower capacity requirements. Utilities in MISO must demonstrate that they have enough capacity on a forward basis.⁵⁹

This study uses the broader FERC definition of demand response so that all potential DR, including rate options, are identified. Ameren Missouri's integrated resource planning team will analyze and adjust as necessary the identified DR potential for what can be counted in the MISO market and/or how DR potential will be used to construct alternative resource plans.

4.1.2 Demand Response Program Options

Table 4-1 provides a brief description of the demand response (DR) program options that were considered as part of the base analysis and identifies the eligible customer segment for each demand response program to be considered in this study.⁶⁰ The list of DR options was determined based on a review of the 2020 Ameren MPS, Ameren's current and/or planned offerings, as well as DR programs run by other utilities in the region. The base case analysis includes direct load control (DLC), rate design, and aggregator options.⁶¹ Additional demand response rate options were included as a sensitivity to the base case analysis.⁶²

⁵⁷ 20 CSR 4240-20.050 (3)(I)

⁵⁸ EO-2023-0099 1F (Special Contemporary Issues)

⁵⁹ 20 CSR 4240-20.050 (4)(F)

⁶⁰ 20 CSR 4240-20.050 (1)(C)

⁶¹ EO-2023-0099 1B (Special Contemporary Issues)

⁶² 20 CSR 4240-20.050 (3)(A)

TABLE 4-1 DEMAND RESPONSE BASE CASE PROGRAM OPTIONS AND ELIGIBLE MARKETS

DR Program Option	Program Description	Eligible Markets
DLC AC (Switch)	The compressor of the air conditioner is remotely shut off (cycled) by the system operator for periods that may range from 7 ½ to 15 minutes during every 30-minute period (i.e., 25%-50% duty cycle)	Residential and Non-Residential Customers
DLC AC (Thermostat) ⁶³	The system operator can remotely raise the AC's thermostat set point during peak load conditions, lowering AC load.	Residential and Non-Residential Customers
DLC Pool Pumps	The swimming pool pump is remotely shut off by the system operator for periods normally ranging from 2 to 4 hours.	Residential and Non-Residential Customers
DLC Water Heaters	The water heater is remotely shut off by the system operator for periods normally ranging from 2 to 8 hours.	Residential and Non-Residential Customers
DLC Room AC	The compressor of the air conditioner is remotely shut off (cycled) by the system operator for periods that may range from 7 ½ to 15 minutes during every 30-minute period (i.e., 25%-50% duty cycle)	Residential Customers
DLC Lighting	A portion of the lighting load is remotely shut off by the system operator for periods normally ranging from 2 to 4 hours.	Non-Residential Customers
DLC Agricultural Irrigation Pump Control	The irrigation pump is remotely shut off by the system operator for periods normally ranging from 2 to 4 hours.	Agricultural Farms
Time of Use Rates	A retail rate with different prices for usage during different blocks of time. Daily pricing blocks could include on-peak, mid-peak, and off-peak periods. Pricing is pre-defined, and once established do not vary with actual cost conditions. Includes the four residential TOU rates Ameren already has.	Residential and Non-Residential Customers
Capacity Bidding Programs	CBP is a flexible bidding program offering qualified businesses payments for agreeing to reduce when a CBP event is called. Make monthly nominations and receive capacity payments based on the amount of capacity reduction nominated each month, plus energy payments based on your actual kilowatt-hour (kWh) energy reduction when an event is called. The amount of capacity nomination can be adjusted on a monthly basis. Penalties occur if load nominations are not met.	Non-Residential Customers
Demand Bidding Programs	DBP is a year-round, flexible, Internet-based bidding program that offers business customers credits for voluntarily reducing power when a DBP event is called.	Non-Residential Customers
Battery Storage ⁶⁴	Dispatch of residential customer-sited batteries during critical peak hours.	Residential Customers

4.1.3 Demand Response Potential Assessment Approach Overview

The analysis of DR, where possible, closely follows the approach outlined for energy efficiency. The framework for assessing the cost-effectiveness of demand response programs is based on *A Framework for Evaluating the Cost-*

⁶³ EO-2023-0099 1F(1) (Special Contemporary Issues)

⁶⁴ EO-2023-0099 1F(3), EO-2023-0099 1F(4), EO-2023-0099 1G(4) (Special Contemporary Issues) The battery storage system was not found to be cost-effective via the TRC test. Regardless of program delivery option. Given that residential-sized systems were not cost-effective, it was assumed that larger systems with more significant costs were also not cost-effective.

*Effectiveness of Demand Response, prepared for the National Forum on the National Action Plan (NAPA) on Demand Response.*⁶⁵ Additionally, GDS reviewed the May 2017 National Standard Practice Manual published by the National Efficiency Screening Project.⁶⁶ GDS utilized this guide to define avoided ancillary services and energy and/or capacity price suppression benefits.

The demand response analysis was conducted using the GDS Demand Response Model. The DR Model determines the estimated savings for each demand response program by performing a review of all benefits and cost associated with each program.⁶⁷ GDS developed the model such that the value of future programs could be determined and will help facilitate demand response program planning strategies. The model contains approximately 50 required inputs for each program including: expected life, coincident peak (“CP”) kW load reductions, proposed rebate levels, program related expenses such as vendor service fees, marketing and evaluation cost and on-going O&M expenses. This model and future program planning features can be used to standardize the cost-effectiveness screening process between Ameren Missouri departments interested in the deployment of demand response resources.

The TRC Test was used to determine the cost-effectiveness of each demand response program. Benefits are based on avoided generation capacity, energy (including load shifting) and T&D infrastructure costs. Costs include incremental program equipment costs (such as control switches or smart thermostats), fixed program capital costs (such as the cost of a central controller), program administrative, marketing and evaluation costs. Incremental equipment program costs are included for both new and replacement units (such as control switches) to account for units that are replaced at the end of their useful life.⁶⁸

The demand response analysis includes estimates of technical, economic, achievable, and program potential. Achievable potential is broken into maximum and realistic potential in this study:

MAP represents an estimate of the maximum cost-effective demand response potential that can be achieved over the study period. For this study, this will be defined as customer participation in demand response program options that reflect a “best practices” estimate of what could eventually be achieved. MAP assumes no barriers to effective delivery of programs.

RAP represents an estimate of the amount of demand response potential that can be realistically achieved over the study period. For this study, this will be defined as achieving customer participation in demand response program options that reflect a realistic estimate of what could eventually be achieved assuming typical or “average” industry experience. RAP is a discounted MAP, by considering program barriers that limit participation, therefore reducing savings that could be achieved.

Both MAP and RAP include the impact of energy efficiency gains realized in the Energy Efficiency Potential study. These gains include the changes that occur when old equipment is replaced with high efficiency equipment. Yearly impacts were developed for space cooling (used for DLC of AC programs) and whole building (used for rate programs that affect multiple measures). The space cooling efficiency gains were used for the direct load control of air conditioning programs, and the general sector efficiency gains were used for all other programs included in MAP and RAP potential.

4.1.4 Avoided Costs

Demand response avoided costs are consistent with those utilized in the energy efficiency potential analysis and were provided by Ameren Missouri. The primary benefit of demand response is avoided generation capacity, resulting from a reduction in the need for new peaking generation capacity. Demand response can also produce energy related

⁶⁵ Study was prepared by Synapse Energy Economics and the Regulatory Assistance Project, February 2013.

⁶⁶ [National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources](#), May 18, 2017, Prepared by The National Efficiency Screening Project

⁶⁷ 20 CSR 4240-20.050 (5)(A)

⁶⁸ 20 CSR 4240-20.050 (5)

benefits. Demand response programs can also potentially delay the construction of new transmission and distribution lines and facilities, which is reflected in avoided T&D costs. If the demand response option is considered “load shifting”, such as direct load control of electric water heating, the consumption of energy is shifted from the control period to the period immediately following the period of control. If the program is not considered to be “load shifting” the measure is turned off during peak control hours, and the energy is saved altogether. The number of annual control hours for all direct load control programs was determined by GDS in collaboration with Ameren Missouri.

4.1.5 Demand Response Program Assumptions

This section briefly discusses the general assumptions and sources that will be used to complete the demand response potential analysis.

Load Reduction⁶⁹: Demand reductions were based on various secondary data sources including the FERC and other industry reports, including demand response potential studies. Direct load control options are typically calculated based on a per-unit kW demand reduction whereas rate-based DR options and aggregator programs are typically assumed to reduce a percentage of the total facility peak load.

TABLE 4-2 DEMAND RESPONSE LOAD REDUCTION IMPACTS

Program	Residential Load Reduction (kW)	Business Load Reduction (kW)
DLC Central AC	1.06	1.60
DLC Room AC	0.50	N/A
DLC Water Heating	0.41	0.90
DLC Pool Pumps	1.36	2.00
DLC Lighting	N/A	8.9% of CP Billing Demand
DLC Agricultural Irrigation	N/A	44.00
Time of Use - Evening/Morning Savers	0.3% of CP Billing Demand	N/A
Time of Use - Overnight Savers	6.8% of CP Billing Demand	N/A
Time of Use - Smart Savers	11.8% of CP Billing Demand	N/A
Time of Use - Ultimate Savers	12.9% of CP Billing Demand	N/A
Battery Storage	3.00	N/A
Capacity Bidding	N/A	19.5% of CP Billing Demand
Demand Bidding	N/A	7% of CP Billing Demand

Eligible Control Units: The number of control units (or demand response equipment) per participant were calculated based on the average number of units in homes in the Ameren Missouri territory. This was used to determine the total equipment cost.

⁶⁹ 20 CSR 4240-20.050 (3)(G)1

Useful Life: The useful life of equipment used in demand response programs, such as load control switches, smart thermostats, or AMI equipment, was determined using TRMs, and data from manufacturers. This useful life was used to determine when equipment needs to be re-installed in the study after the device has failed, therefore adding a second equipment cost for some participants in the study. GDS used a useful life of 20 years for AMI meters⁷⁰, 11 years for smart thermostats⁷¹, 10 years for level 2 EV chargers⁷², and 10 years for load switches.⁷³

Equipment and Incentive Costs: Equipment costs were included for each new participant. Incentives were included for all programs in the Base Case. These costs were either on a per participant, per kW or per kWh basis (noted in table).⁷⁴

TABLE 4-3. ASSUMED BASE CASE EQUIPMENT AND INCENTIVE COSTS⁷⁵

Sector	Program	Equipment & Installation Cost	Incentive Cost
Residential	DLC Central AC	\$150 for thermostat: \$100 participant cost, \$50 rebate	\$25/participant-year for RAP; \$30/participant-year for MAP
	DLC Room AC	\$270	\$25/participant-year for RAP; \$30/participant-year for MAP
	DLC Water Heating	\$768	\$25/participant-year for RAP; \$30/participant-year for MAP
	DLC Pool Pumps	\$146	\$25/participant-year for RAP; \$30/participant-year for MAP
	Time of Use Rates	N/A	N/A
	Battery Storage	\$11,781	N/A
Non-Residential	DLC Central AC	\$250 for thermostat: \$200 participant cost, \$50 rebate	\$50/participant-year for RAP; \$60/participant-year for MAP
	DLC Water Heating	\$768	\$50/participant-year for RAP; \$60/participant-year for MAP
	DLC Pool Pumps	\$146	\$50/participant-year for RAP; \$60/participant-year for MAP
	DLC Lighting	\$1,900	\$50/participant-year for RAP; \$60/participant-year for MAP
	DLC Agricultural Irrigation	\$1,804	\$42/kW-year
	Capacity Bidding	\$0	\$45/kW-year
	Demand Bidding	\$0	\$0.50/kWh-year

⁷⁰ Ameren Illinois AMI Cost/Benefit Analysis, 2012

⁷¹ Illinois Technical Reference Manual 2018

⁷² US DOE, Costs Associated with Non-Residential EV Supply Equipment, 2015

⁷³ Freeman, Sullivan & Co Cost Effectiveness of CECONY Demand Response Programs 2013; PA Act 129 Order 2013

⁷⁴ 20 CSR 4240-20.050 (3)(G)5A; 20 CSR 4240-20.050 (3)(G)5B

⁷⁵ 20 CSR 4240-20.050 (5)(B)2

Program Costs: One-time program development costs of \$400,000 were included in the first year of the analysis for new programs⁷⁶. This cost was split between similar programs. No program development costs are assumed for programs that already exist. Each program includes an evaluation cost, marketing cost (higher for MAP than RAP), and administration cost. All program costs were escalated each year by the general rate of inflation assumed for this study.

Eligible Market Size: For direct load control programs, the size of the eligible market was determined by multiplying the forecast of Ameren Missouri’s customers by the saturation of the end use to be controlled. End use saturations were obtained from the 2019 primary research conducted by ODC in the Ameren Missouri service area to help inform the 2020 MPS.⁷⁷

GDS assumed that Ameren Missouri’s AMI will be fully deployed by 2024.⁷⁸ Two-way communication is fundamental for these pricing programs and AMI meters allow for hourly load data to be read and transmitted to the utility. Since it is imperative that hourly data must be read for rate programs, GDS assumed AMI meters were required to participate in the Time of Use program. No other programs in the Base Case required AMI.⁷⁹

4.1.6 DR Program Adoption Levels

Long-term program adoption levels (or “steady state” participation) represent the enrollment rate once the fully achievable participation has been reached. GDS has reviewed industry data and program adoption levels from several utilities’ DR programs.

Customer participation in new demand response programs is assumed to reach the steady state adoption rate over a five-year period. The path to steady state customer participation follows an “S-shaped” curve, in which participation growth accelerates over the first half of the five-year period, and then slows over the second half of the period (see Figure 4-1). GDS reflected the planned participation in DR programs during MEEIA Cycle 4 in the assessment of future potential in MEEIA Cycle 5 and beyond.

GDS used ODC research to determine steady state adoption rates when possible. For the residential sector, ODC had data for direct load control of air conditioning, direct load control of water heating, and rate programs. For the business sector, ODC had data for capacity bidding, direct load control of air conditioning, direct load control of water heating, and rate programs. For rate programs, the ODC survey did not ask about specific rates, and only if a customer would be willing to participate in a rate program in general. GDS split this rate program adoption rate between Peak Time Savings, Time of Use, and Critical Peak Pricing programs. The proportions of each rate program were based upon secondary research. This secondary research is sourced in Appendix D. For programs where GDS did not have ODC data, other research or potential studies were used. Table 4-4 provides the Base Case long-term adoption rates for MAP and RAP. Annual adoption rates, sources, and specific assumptions for each program are in Appendix D.

⁷⁶ Tennessee Valley Authority Potential Study Vol. 3: Demand Response Potential Study, Global Energy partners, December 2011

⁷⁷ 20 CSR 4240-20.050 (2)

⁷⁸ 20 CSR 4240-20.050 (4)(C)

⁷⁹ 20 CSR 4240-20.050 (3)(D)

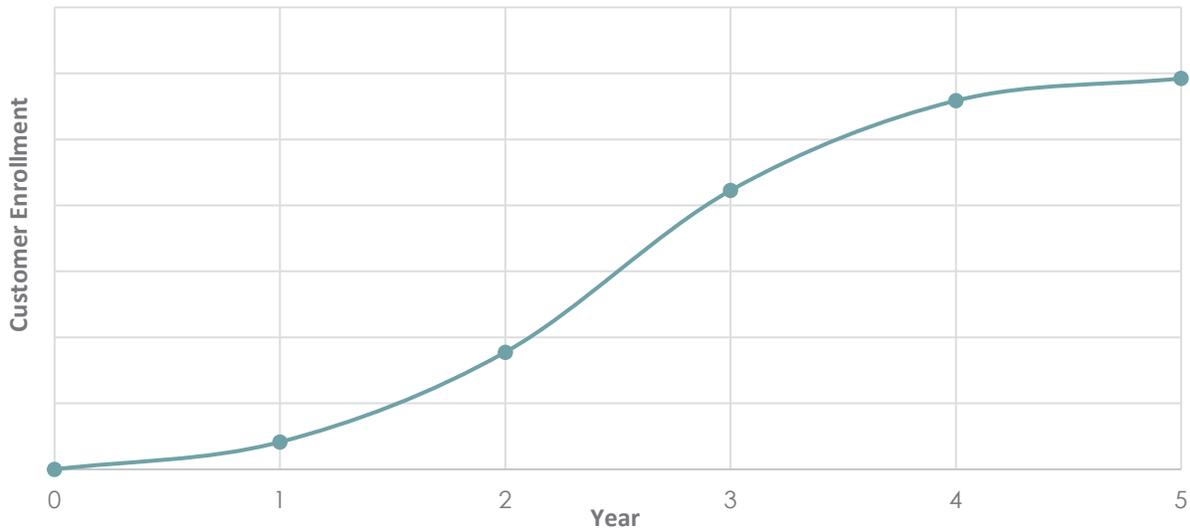


FIGURE 4-1 ILLUSTRATION OF S-SHAPED MARKET ADOPTION CURVE

TABLE 4-4. BASE CASE ADOPTION RATES

Sector	Program	Steady State MAP Adoption Rate	Steady State RAP Adoption Rate
Residential	DLC Central AC	34%	18%
	DLC Room AC	31%	20%
	DLC Water Heating	28%	14%
	DLC Pool Pumps	38%	19%
	Time of Use - Evening/Morning Savers	61%	81%
	Time of Use - Overnight Savers	5%	2%
	Time of Use - Smart Savers	4%	2%
	Time of Use - Ultimate Savers	3%	1%
	Battery Storage	10%	5%
Non-Residential	DLC Central AC	26%	9%
	DLC Water Heating	30%	10%
	DLC Pool Pumps	16%	7%
	DLC Lighting	14%	3%
	DLC Agricultural Irrigation	30%	15%
	Capacity Bidding	50%	18%
	Demand Bidding	8%	1%

Double-counting savings from demand response programs that affect the same end uses is a common issue that must be addressed when calculating the demand response savings potential. For example, a customer cannot elect to participate in both DLC programs and rate programs and claim savings from both programs for curtailing the same end use. One cannot save a kW of load in a specific hour more than once. In general, the hierarchy of demand response programs is accounted for by subtracting the number participants in a higher

priority program from the eligible market for a lower priority program.⁸⁰ Table 4-5 shows the hierarchy for each sector, with 1 being the top priority.

TABLE 4-5 BASE CASE DR HIERARCHY FOR EACH SECTOR

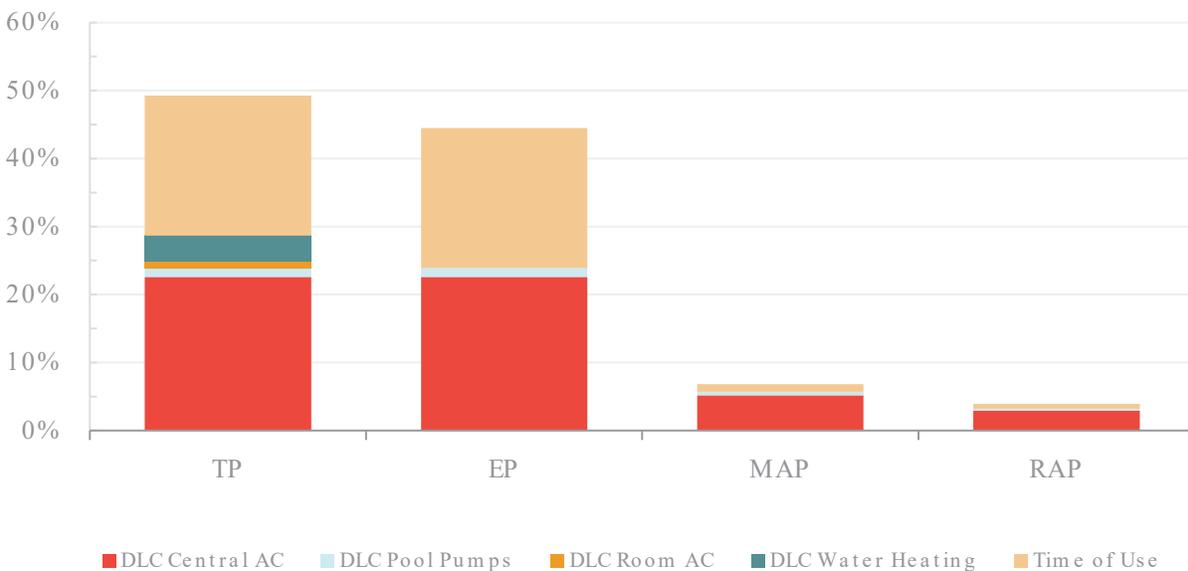
Order	Residential Hierarchy	Small Non-Residential Hierarchy	Large Non-Residential Hierarchy
1	Direct Load Control	Direct Load Control	Capacity Bidding
2	Time of Use		

4.2 DEMAND RESPONSE POTENTIAL

4.2.1 Residential Potential

Figure 4-2 shows the 2043 residential market rate and income-eligible technical, economic, MAP and RAP demand response potential. These demand reduction values are presented at the customer meter level of the Ameren Missouri grid.

FIGURE 4-2. SUMMER PEAK MW RESIDENTIAL SECTOR BASE CASE RESULTS AS % OF 2043 RESIDENTIAL CLASS LOAD

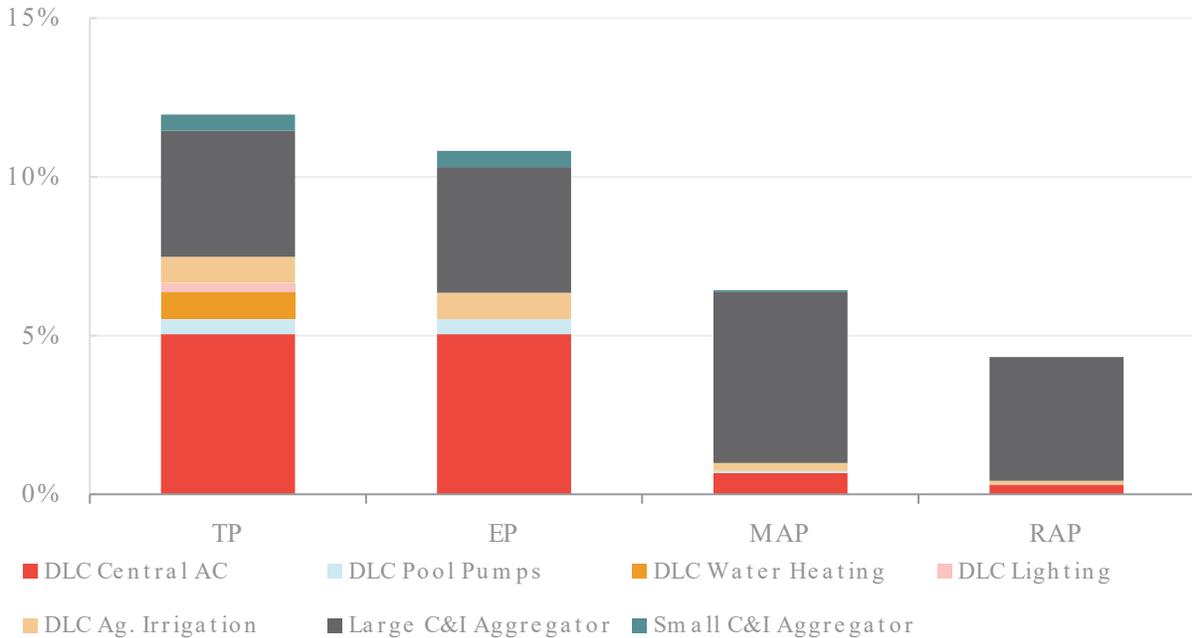


4.2.2 Business Sector Potential

Figure 4-3 shows the 2043 business sector technical, economic, MAP and RAP demand response potential. These demand reduction values are present at the customer meter level of the Ameren Missouri grid. Note that for the Capacity Bidding program, MAP and RAP are larger than Technical and Economic potentials towards the end of the study timeframe. This is due to the interactive effects of efficiency trends from the energy efficiency study. The larger peak demand impacts from energy efficiency measures in technical and economic potential created reduced impacts attributed to capacity bidding/C&I aggregator programs. As the impacts of energy efficiency on the system peak are smaller for MAP and RAP, there is additional opportunity for capacity bidding programs.

⁸⁰ 20 CSR 4240-20.050 (3)(G)2

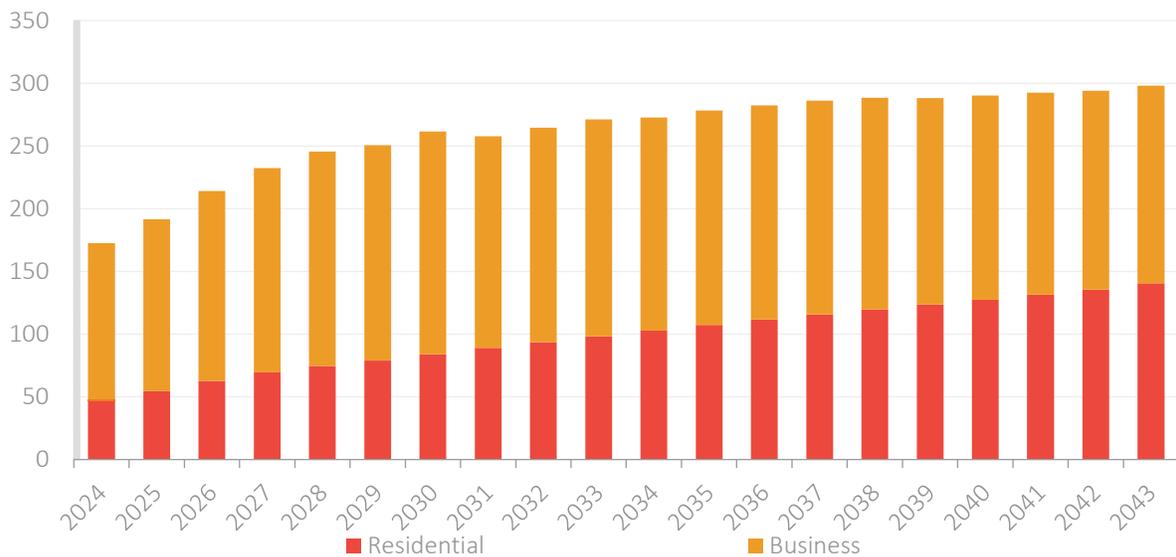
FIGURE 4-3. SUMMER PEAK MW BUSINESS SECTOR BASE CASE RESULTS AS % OF 2043 BUSINESS CLASS LOAD



4.2.3 Total Potential

Figure 4-4 shows the annual demand response RAP potential for the Base Case by sector. These demand reduction values are present at the customer meter level of the Ameren Missouri grid. Additional annual detail can be found in Appendix D.⁸¹

FIGURE 4-4. CUMMULATIVE ANNUAL BASE CASE SUMMER PEAK MW RAP POTENTIAL BY SECTOR



⁸¹ 20 CSR 4240-20.050 (4)(E)

4.2.4 Benefits/Costs of Program Potential

Cost-effectiveness of demand response measures was determined based on screening with the TRC test.⁸² Table 4-6 and Table 4-7 shows the residential and business benefits, costs, and TRC ratios for each program for MAP and RAP in the Base Case.

TABLE 4-6. BASE CASE MAP BENEFITS, COSTS, AND TRC RATIOS

Sector	Program	NPV Benefits	NPV Costs	TRC Ratio
Residential	DLC Central AC	\$210,823,046	\$114,914,999	1.83
	DLC Room AC	\$50,197,337	\$70,884,757	0.71
	DLC Pool Pumps	\$27,604,683	\$9,649,550	2.86
	DLC Water Heating	\$61,794,073	\$179,725,648	0.34
	Battery Storage	\$278,948,065	\$1,150,304,284	0.24
	Time of Use - Evening/Morning Savers	\$8,274,871	\$4,180,950	1.98
	Time of Use - Overnight Savers	\$10,019,413	\$1,063,587	9.42
	Time of Use - Smart Savers	\$12,190,625	\$866,927	14.06
	Time of Use - Ultimate Savers	\$10,996,628	\$786,246	13.99
Non-Residential	DLC Central AC	\$52,571,377	\$34,152,165	1.54
	DLC Pool Pumps	\$3,985,781	\$2,671,112	1.49
	DLC Water Heating	\$13,686,754	\$34,142,318	0.40
	DLC Lighting	\$2,039,733	\$16,145,394	0.13
	DLC Agricultural Irrigation	\$14,323,804	\$6,215,042	2.30
	Capacity Bidding	\$351,621,207	\$158,872,174	2.21
	Demand Bidding	\$4,679,127	\$3,471,995	1.35

TABLE 4-7. BASE CASE RAP BENEFITS, COSTS, AND TRC RATIOS

Sector	Program	NPV Benefits	NPV Costs	TRC Ratio
Residential	DLC Central AC	\$126,873,034	\$55,575,584	2.28
	DLC Room AC	\$32,385,378	\$43,695,504	0.74
	DLC Pool Pumps	\$13,802,342	\$5,159,701	2.68
	DLC Water Heating	\$30,560,085	\$87,009,520	0.35
	Battery Storage	\$140,717,293	\$575,570,836	0.24
	Time of Use - Evening/Morning Savers	\$10,190,797	\$5,210,438	1.96
	Time of Use - Overnight Savers	\$5,107,084	\$647,071	7.89
	Time of Use - Smart Savers	\$6,213,791	\$574,887	10.81
	Time of Use - Ultimate Savers	\$5,605,189	\$545,273	10.28

⁸² CSR 4240-20.050 (5)(B)5F

Sector	Program	NPV Benefits	NPV Costs	TRC Ratio
Non-Residential	DLC Central AC	\$18,966,743	\$11,559,672	1.64
	DLC Pool Pumps	\$1,743,779	\$1,944,216	0.90
	DLC Water Heating	\$4,502,222	\$12,163,158	0.37
	DLC Lighting	\$438,395	\$4,499,712	0.10
	DLC Agricultural Irrigation	\$7,161,902	\$3,850,493	1.86
	Capacity Bidding	\$252,156,615	\$113,018,792	2.23
	Demand Bidding	\$701,224	\$1,660,451	0.42

4.3 SENSITIVITIES

As with the residential and business sector energy efficiency potential analysis, several sensitivities on the RAP base case were analyzed to determine the impact of uncertain conditions surrounding customer participation and/or cost-effectiveness.⁸³ While many of the sensitivities are similar to those discussion in Section 3.5.1, there are some distinct differences. Notably, demand response includes a sensitivity that examines various demand response rate options on future peak savings potential.

4.3.1 Sensitivities Overview

Avoided Costs. Avoided costs are the primary benefit in assessing the cost-effectiveness of DSM measures. Higher avoided costs will likely result in additional measures passing the TRC cost-effectiveness screen, leading to greater savings potential; while lower avoided costs will decrease the cost-effectiveness of measures and lead to lower savings potential.

High Sensitivities: (1) Increase avoided energy and generation capacity costs by 35%; no change to avoided T&D costs, and (2) Increase avoided T&D costs by 200%; no change to energy and capacity costs.

Low Sensitivities: (1) Decrease avoided energy and generation capacity costs by 50%; no change to avoided T&D costs, and (2) Reduce avoided T&D costs to \$0 from 2024-2033, then apply base case T&D costs in second decade; no change to energy and capacity costs.

Impacted Sectors: Residential / Business

Prolonged Economic Downturn. GDS held constant economic factors in the Ameren Missouri load forecast, resulting in a negative impact on future energy sales. Adoption rates were also reduced to reflect concern over financial barriers. Population, households, and income are held constant at 2019 levels for residential. GDP, employment, and other rate class outputs were held constant in the business sector.

High Sensitivity: n/a

Low Sensitivity: (1) Residential: 10% decrease to forecast by 2040; 10% decrease to adoption levels; (2) Commercial: 5% decrease to forecast by 2040; 5% decrease to adoption levels; (3) Industrial: 8% decrease to forecast by 2040; 8% decrease to adoption levels.

Impacted Sectors: Residential / Business

High Touch Marketing. Intended to explore strategy of increasing marketing/high-touch administration to improve program delivery and increase program participation.⁸⁴ The high-touch marketing scenario is applied to RAP and produces a result between the current RAP and MAP levels to provide an indication which strategy (increased incentives or increased marketing) is likely to have a larger impact on adoption.

⁸³ 20 CSR 4240-20.050 (6)(C)1; 20 CSR 4240-20.050 (6)(C)2

⁸⁴ 20 CSR 4240-20.050 (1)(E)2

High Sensitivity: Assume historical incentive levels but raises the program awareness threshold to the MAP level. Non-Incentive costs were estimated to be higher as well.

Low Sensitivity: n/a

Impacted Sectors: Residential / Business

Large Customer Opt-Outs. The base case excludes sales and savings from all eligible customers that currently opt-out of Ameren Missouri’s energy efficiency programs. This sensitivity looks at the range of potential if no C&I customers were to opt-out, or if all eligible customers chose to opt-out.

High Sensitivity: Include currently opted-out customers in analysis of future potential.

Low Sensitivity: Exclude all eligible opt-out customers from analysis. For purposes of estimating sales from all eligible customers opt-out, GDS used the existing opt-out customers and included sales from all additional customers in the 11M rate (that are not currently designated as an opt-out customer).

Impacted Sectors: Business Only

Summer Planning Reserve Margin. This sensitivity assesses the impact of transitioning from ICAP to UCAP.

High Sensitivity: n/a

Low Sensitivity: Reduce summer planning reserve margin to 7.4%

Impacted Sectors: Residential / Business

Additional Demand Response Rate Options.⁸⁵ The rates sensitivity includes rate programs that were not already included in the Base Case analysis (in addition to the programs in the Base Case). Table 4-8 lists the rate programs and eligible markets that were included in this sensitivity.⁸⁶ This list of rate programs included in the potential study was determined from common rate programs offered by utilities in the US and additional secondary research on rate design.^{87,88}

TABLE 4-8. DEMAND RESPONSE RATE SENSITIVITY PROGRAM OPTIONS AND ELIGIBLE MARKETS⁸⁹

DR Program Option	Program Description	Eligible Markets
Time of Use Rates	A retail rate with different prices for usage during different blocks of time. Daily pricing blocks could include on-peak, mid-peak, and off-peak periods. Pricing is pre-defined, and once established do not vary with actual cost conditions. Includes enabling technology that connects technologies within building.	Residential and Non-Residential Customers
Peak Time Savings	A program where customers are rewarded if they reduce electricity consumption during peak times with monetary rebates	Residential and Non-Residential Customers

⁸⁵ 20 CSR 4240-20.050 (4); 20 CSR 4240-20.050 (4)(G); In addition, the EE sensitivity (Chapter 4) also included a sensitivity where all market-rate customers were assumed to be on a TOU rate.

⁸⁶ 20 CSR 4240-20.050 (1)(C)

⁸⁷ 20 CSR 4240-20.050 (4)(A)

⁸⁸ Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency. ACEEE (Brendon Baatz). March 2017. Report U1703

⁸⁹ 20 CSR 4240-20.050 (4)(B)

DR Program Option	Program Description	Eligible Markets
Critical Peak Pricing with Enabling Technology	A retail rate in which an extra-high price for electricity is provided during a limited number of critical periods (e.g. 100 hours) of the year. Market-based prices are typically provided on a day-ahead basis, or an hour-ahead basis. Includes enabling technology that connects technologies within building. Only for customers with AC.	Residential and Non-Residential Customers
Critical Peak Pricing without Enabling Technology	A retail rate in which an extra-high price for electricity is provided during a limited number of critical periods (e.g. 100 hours) of the year. Market-based prices are typically provided on a day-ahead basis, or an hour-ahead basis.	Residential and Non-Residential Customers
Interruptible Rate	A discounted rate is offered to the customer for agreeing to interrupt or curtail load during peak period. The interruption is mandatory. No buy-through options are available.	Non-Residential Customers
Electric Thermal Storage Rate	The use of a cold storage medium such as ice, chilled water, or other liquids. Off-peak energy is used to produce chilled water or ice for use in cooling during peak hours. The cool storage process is limited to off-peak periods.	Non-Residential Customers
Electric Vehicle Charging Station Off Peak ⁹⁰	Special rate service for electric vehicles that charge off-peak.	Residential and Non-Residential Customers
Golf Cart Charging Off Peak	Special rate service for golf courses that charge their golf carts off-peak.	Golf Courses

As mentioned earlier, a hierarchy was put in place to avoid double-counting savings.⁹¹ For the Rates Sensitivity, Table 4-9 shows the hierarchy of all programs in both the Base Case in addition to the extra rates.⁹²

TABLE 4-9. DR HIERARCHY FOR EACH SECTOR INCLUDING RATE PROGRAMS

Order	Residential Hierarchy	Small Non-Residential Hierarchy	Large Non-Residential Hierarchy
1	Direct Load Control	Direct Load Control	Capacity Bidding
2	Time of Use	Critical Peak Pricing	Interruptible Rate
3	Peak Time Savings		Critical Peak Pricing
4	Critical Peak Pricing		

Demand reductions were based on various secondary data sources including the FERC and other industry reports, including demand response potential studies that conducted primary research. Rate-based DR options

⁹⁰ EO-2023-0099 1F(2); this analysis looked at a TOU rate for EVs but did not consider vehicle to grid impacts due to concerns over limited applications and technologies permitting V2G and other market factors.

⁹¹ 20 CSR 4240-20.050 (3)(G)2

⁹² 20 CSR 4240-20.050 (4)(D)2; 20 CSR 4240-20.050 (4)(D)3

are typically assumed to reduce a percentage of the total facility peak load. Table 4-10 shows the assumed load reductions.⁹³

TABLE 4-10. DEMAND RESPONSE LOAD REDUCTION IMPACTS FOR RATE SENSITIVITY PROGRAMS

Program	Residential Load Reduction	Business Load Reduction
Time of Use	N/A	4%
Critical Peak Pricing with Enabling Technology	23%	22%
Critical Peak Pricing without Enabling Technology	13%	11%
Electric Vehicle Charging Rate	0.62 kW Level 1 Charger; 0.66 kW Level 2 Charger	N/A
Thermal Electric Storage Cooling Rate	N/A	19.4 kW
Golf Cart Charging Rate	N/A	42.75 kW
Peak Time Savings	13%	1%
Interruptible Rate	N/A	41.3 kW

Table 4-11 provides the Rate Sensitivity long-term adoption rates for MAP and RAP. Annual adoption rates, sources, and specific assumptions for each program are in Appendix D.

TABLE 4-11 RATE SENSITIVITY ADOPTION RATES

Sector	Program	MAP	RAP
Residential	Peak Time Savings	9.6%	4.8%
	Critical Peak Pricing <i>with Enabling Technology</i>	10.2%	5.0%
	Critical Peak Pricing <i>without Enabling Technology</i>	7.9%	3.9%
	Electric Vehicle Charging Rate	94%	57%
Non-Residential	Interruptible Rate	21%	3%
	Time of Use	4%	2%
	Peak Time Savings	8%	3%
	Critical Peak Pricing <i>with Enabling Technology</i>	7%	3%
	Critical Peak Pricing <i>without Enabling Technology</i>	7%	3%
	Thermal Electric Storage Cooling Rate	20%	7%
	Golf Cart Charging Rate	20%	7%

⁹³ 20 CSR 4240-20.050 (4)(D); 20 CSR 4240-20.050 (4)(D)1;

4.3.2 Sensitivity Results

Figure 4-5 shows the MW potential results of each sensitivity compared to the Base Case for each sector. The first bar in the graph is the base case, with the other sensitivities following. Four of the sensitivities did not lead to a change in potential. Sensitivities that led to a higher total RAP potential include the High Touch Marketing and Opt-Out sensitivities. Sensitivities that led to a lower total RAP potential include the Avoided Cost Scenario #2 (50% decrease in energy and capacity avoided costs) and the Economic Downturn sensitivities.

FIGURE 4-5. DEMAND RESPONSE RAP SENSITIVITIES (EXCLUDING RATE SENSITIVITY)

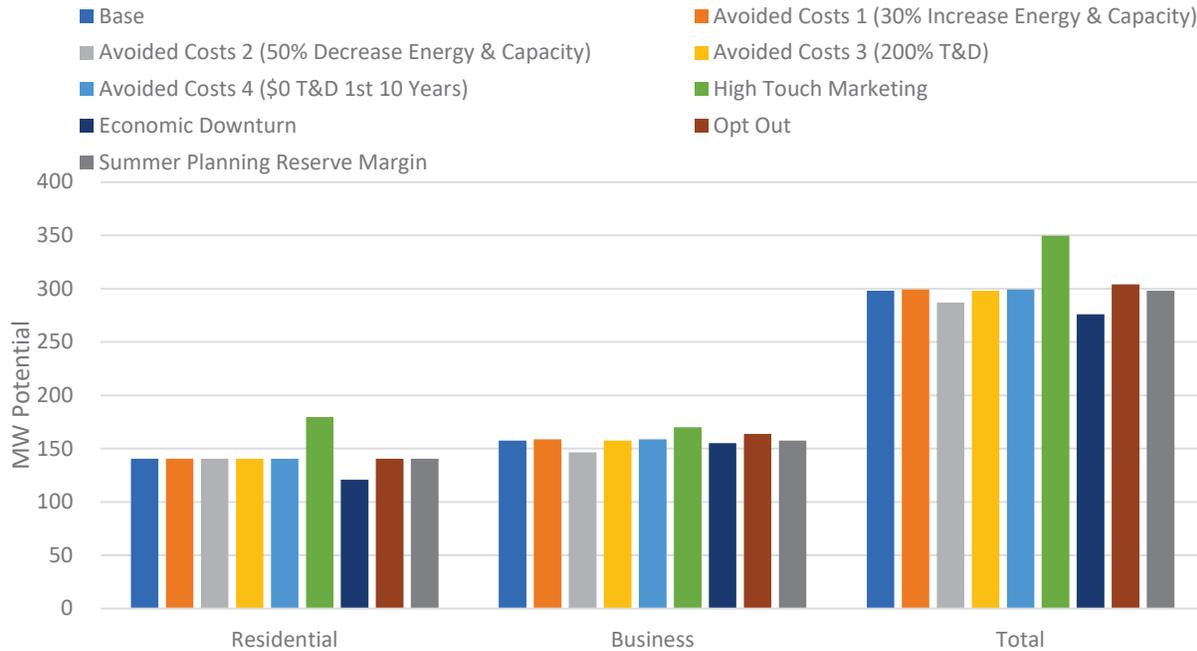
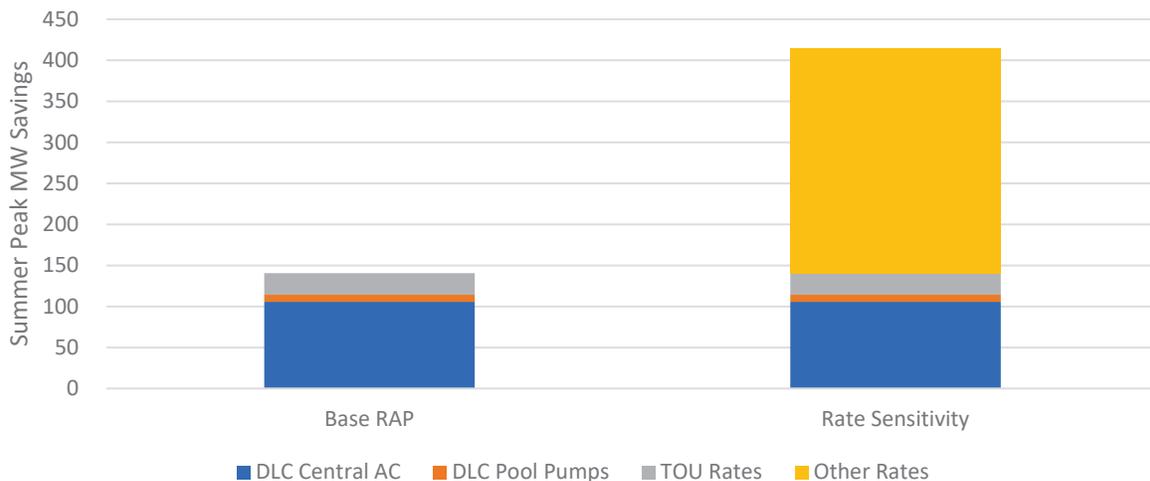


Figure 4-6 compares the Residential Base Case to the Rate Sensitivity. An additional 274 MW of RAP potential was added in the Rate Sensitivity. Additional annual impacts and costs associated with each DR ratio options is included in Appendix D.⁹⁴



⁹⁴ 20 CSR 4240-20.050 (4)(D)4; 20 CSR 4240-20.050 (4)(D)5A through D

FIGURE 4-6. RESIDENTIAL BASE CASE RAP VS INCLUDING RATE SENSITIVITY

Figure 4-7 shows a breakdown of the cost-effective rate programs contributing to the total potential. The biggest contributing program is the TOU rate of EV Charging.

FIGURE 4-7. BREAKDOWN OF ADDITIONAL RATE DR FOR RESIDENTIAL SECTOR

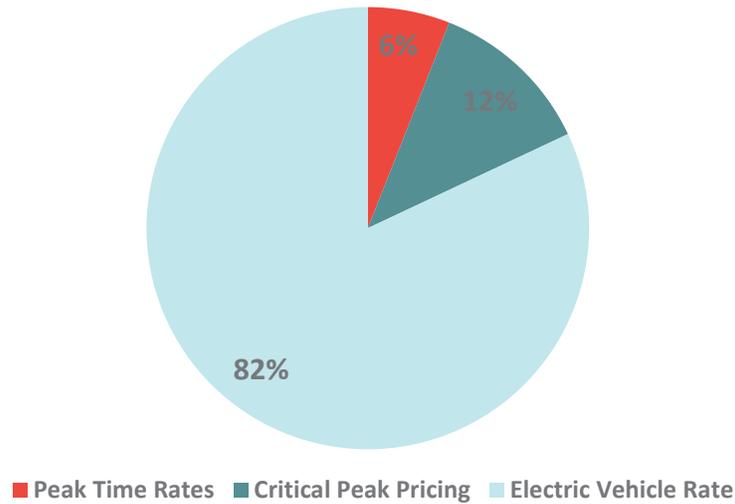


Figure 4-8 compares the business sector Base Case to the Rate Sensitivity. An additional 26 MW of RAP potential was added in the Rate Sensitivity.

FIGURE 4-8. BUSINESS SECTOR BASE CASE RAP VS INCLUDING RATE SENSITIVITY

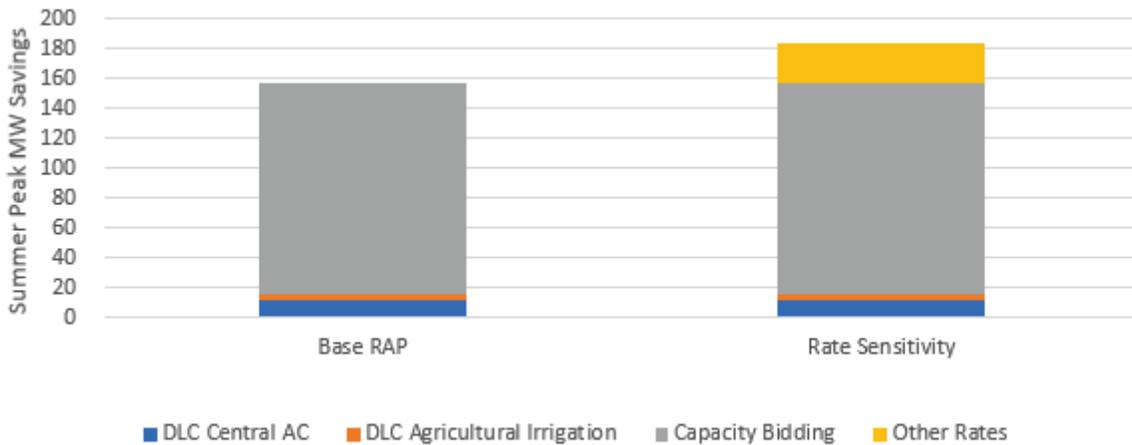
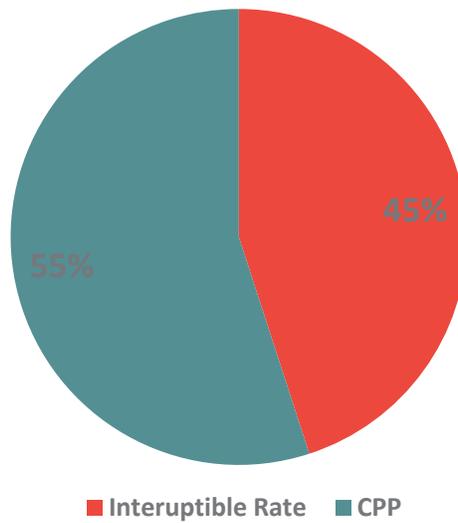


Figure 4-9 shows a breakdown of the cost-effective rate programs contributing to the total potential. The biggest contributing program is the Critical Peak Pricing program.

FIGURE 4-9. BREAKDOWN OF ADDITIONAL RATE DR FOR BUSINESS SECTOR



Cost-effectiveness of demand response measures was determined based on screening with the TRC test. Table 4-12 and Table 4-13 shows the residential and business sector benefits, costs, and TRC ratios for each program for MAP and RAP in the Rate Sensitivity.

TABLE 4-12. RATE SENSIVITY MAP BENEFITS, COSTS, AND TRC RATIOS

Sector	Program	NPV Benefits	NPV Costs	TRC Ratio
Residential	Peak Time Savings	\$53,843,283	\$6,950,266	7.75
	Critical Peak Pricing with Enabling Tech	\$56,381,890	\$15,900,692	3.55
	Critical Peak Pricing without Enabling Tech	\$38,087,784	\$4,860,000	7.84
	Electric Vehicle Charging Rate	\$264,240,632	\$66,857,093	3.95
Business	Interruptible Rate	\$110,241,367	\$9,374,593	11.76
	Time of Use	\$832,049	\$1,659,941	0.50
	Peak Time Savings	\$509,630	\$2,017,946	0.25
	Critical Peak Pricing with Enabling Tech	\$19,761,424	\$2,245,911	8.80
	Critical Peak Pricing without Enabling Tech	\$18,143,178	\$1,402,998	12.93
	Thermal Electric Storage Cooling Rate	\$31,181,482	\$296,967,340	0.10
	Golf Cart Charging	\$1,836,773	\$1,570,682	1.17

TABLE 4-13. RATE SENSIVITY RAP BENEFITS, COSTS, AND TRC RATIOS

Sector	Program	NPV Benefits	NPV Costs	TRC Ratio
Residential	Peak Time Savings	\$29,040,770	\$3,383,289	8.58

Sector	Program	NPV Benefits	NPV Costs	TRC Ratio
	Critical Peak Pricing with Enabling Tech	\$34,104,783	\$8,999,029	3.79
	Critical Peak Pricing without Enabling Tech	\$21,846,806	\$2,470,625	8.84
	Electric Vehicle Charging Rate	\$160,231,022	\$37,383,818	4.29
Business	Interruptible Rate	\$19,600,897	\$2,557,003	7.67
	Time of Use	\$393,957	\$1,342,476	0.29
	Peak Time Savings	\$240,595	\$1,461,566	0.16
	Critical Peak Pricing with Enabling Tech	\$13,473,670	\$1,710,272	7.88
	Critical Peak Pricing without Enabling Tech	\$10,596,111	\$1,077,413	9.83
	Thermal Electric Storage Cooling Rate	\$10,445,797	\$100,209,584	0.10
	Golf Cart Charging	\$642,870	\$1,318,268	0.49

DISTRIBUTED ENERGY RESOURCES POTENTIAL

This chapter focuses on additional distributed energy resources (DER) technologies including combined heat and power (CHP) and Solar Photovoltaics (PV), and their potential in the Ameren Missouri service area under the current MEEIA cost-effectiveness framework. The market potential assessment for electric (DER) included CHP and solar PV systems within Ameren Missouri service area for the period 2024 to 2043. Resources for this potential assessment study were limited to technologies that are behind-the-meter and owned by the customer. Market potential for supply-side resources were not considered within this assessment.

CHP systems generate electric power and useful thermal energy in a single, integrated system. Heat that is normally wasted in conventional power generation is recovered as useful thermal energy. Due to the integration of both power and thermal generation, CHP systems are more efficient than separate sources for electric power generation and thermal energy production. This provides environmental, economic, and energy system infrastructure benefits. Solar PV is a system that uses solar panels mounted on a rooftop of a home or business to generate electricity.

5.1 ANALYSIS APPROACH⁹⁵

This section describes the overall methodology proposed to assess the electrical DER potential in the Ameren Missouri service area. The approach utilizes a bottom-up approach to estimate distributed energy resource potential by:

- Characterizing the applicable premises within each market sector, along with the premise-level energy consumption for average premise;
- Researching DER technology performance, including hourly profiles, along with installed and operating costs⁹⁶;
- Analysis of cost-effectiveness for each technology for each unique capacity and application;
 - The TRC test, consistent with energy efficiency and demand response potential analysis along with the statute framework⁹⁷ was applied to consider as a DSM resource on equal footing with energy efficiency and demand response. No additional benefits for reliability or resilience were included in the analysis. It is GDS' understanding that reliability or resilience benefits are already included within the avoided electricity costs.⁹⁸
- Forecast achievable potential and program potential through application of customer adoption curve(s) for technologies that are cost-effective; and,
- Consider sensitivities through alternative scenarios with different unique inputs.

Many methodological activities and steps are similar to those performed in the energy efficiency potential study conducted within this report and are therefore not repeated.

5.1.1 Ameren Service Territory Characterization

The Ameren Missouri market sector and premise characterization within the DER potential assessment is aligned with the end-use energy consumption characterization used within the energy efficiency potential assessment, but the end-use properties are not as relevant. However, it is important to characterize premise type by annual energy consumption, as this is an important parameter to align with the technology generation capacity. While it is technically plausible, most end-users will not select technology capacities that are greater than annual electric energy consumption, as exporting electricity is not often cost-effective from the customer perspective. Table 5-1 and Table 5-2 summarize the energy consumption, percent of customers, and energy consumption shares for each cohort.

⁹⁵ 20 CSR 4240-20.050 (3)(I)

⁹⁶ 20 CSR 4240-20.050 (6)(B)

⁹⁷ 20 CSR 4240-20.050 (5); The State of Missouri Revised Statutes, Chapter 393, Section 393.1075.1, states that "The commission shall consider the total resource cost test a preferred cost-effectiveness test."

⁹⁸ 20 CSR 4240-20.050 (5)(A)

Ameren Missouri customers with annual energy consumption less than 1,000 kWh were not considered for DER market potential.

TABLE 5-1 BUSINESS SECTOR COHORT CHARACTERIZATION

Business Thresholds	High End Energy (kWh) Threshold	Percent of Market Sector Customers	Percent of 2021 Energy Consumption by Market Sector
Petite	15,000	54.6%	2.1%
Very Small	100,000	31.6%	8.3%
Small	200,000	5.1%	4.8%
Small-Medium	500,000	4.7%	9.8%
Medium	750,000	1.3%	5.3%
Medium-Large	1,500,000	1.3%	9.3%
Large	4,000,000	1.0%	15.2%
Very Large	999,999,999	0.4%	45.2%

TABLE 5-2 RESIDENTIAL COHORT CHARACTERIZATION

Residential Thresholds	High End Energy (kWh) Threshold	Percent of Market Sector Customers	Percent of 2021 Energy Consumption by Market Sector
Small	4,500	9.8%	2.3%
Medium	10,000	32.4%	18.0%
Large	25,000	48.0%	55.3%
Very Large	9,999,999	9.8%	24.5%

For the combined heat and power technologies potential estimate, only a portion of the business sector population will be included. That is, only those customer segments whose electric and thermal load profiles allow for the application of CHP should be considered. Business customers in the Petite cohort are not expected to have the consistent electric and thermal loads necessary to support CHP.

5.1.2 Combined Heat & Power Technology

Estimates for each DER technology are unique, so the following narratives discuss the general methodology for each. In most CHP applications, a heat engine creates shaft power that drives an electrical generator (fuel cells can produce electrical power directly from electrochemical reactions). The waste heat from the engine is then recovered to provide steam or hot water to meet on-site needs. By combining the thermal and electrical energy generation in one process, the total efficiency of a CHP application far exceeds that of a separate plant and boiler system. Overall, the efficiency of CHP technologies can reach 75% or more, while simple-cycle electricity generation reaches only 40% and combined cycle generation typically achieves 50%. When considering both thermal and electric energy generation, CHP may require 25% less energy input to achieve the same energy output as a separate plant and boiler system. Figure 5-1 illustrates this point.

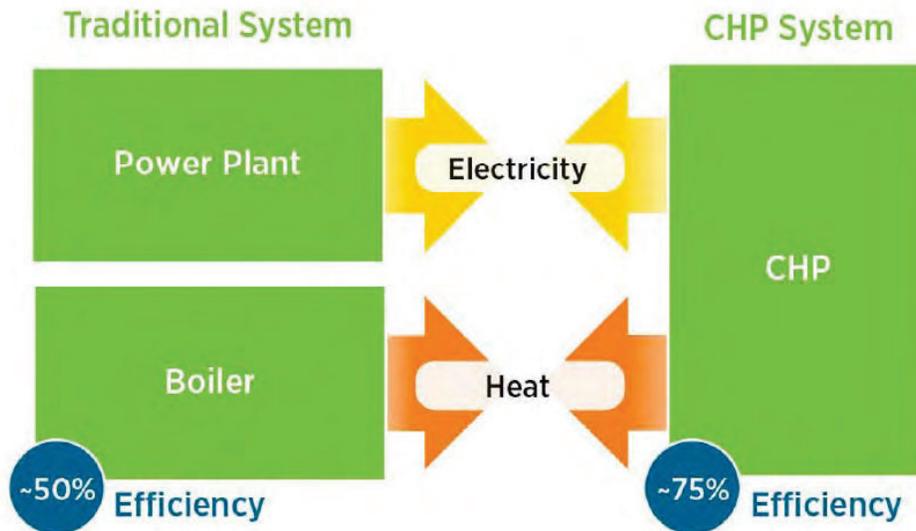


FIGURE 5-1 CHP ENERGY FLOW DIAGRAM

Common technologies used in CHP applications and explored in this study include:

- Steam turbines
- Gas turbines
- Micro turbines
- Fuel Cells
- Internal combustion engines

In a topping cycle system, fuel is first combusted to generate electricity. A portion of the heat left over from the electricity generation process is then converted into useful thermal energy (e.g. heating, hot water, or steam for industrial processes). A bottoming-cycle CHP system uses the reverse process. Fuel is first combusted to provide thermal input to industrial process equipment like a kiln or furnace, and the heat rejected from the process is then captured and used for power production.⁹⁹

Applications with steady demand for electricity and thermal energy are potentially good economic targets for CHP deployment. Industrial applications, particularly in industries with continuous processing and high steam requirements, are very economic and represent a large share of existing CHP capacity today. Commercial applications such as hospitals, nursing homes, laundries, and hotels with large hot water needs are well suited for CHP. Institutional applications such as colleges and schools, prisons, and residential and recreational facilities are also excellent prospects for CHP.

As of 2022, there are four existing operable CHP sites within the in Ameren Missouri service area, representing a total installed capacity of 57.3 MW.¹⁰⁰ CHP is generally dependent on natural gas availability, including pipeline capacity availability, and customer steam usage. Ameren Missouri assumes almost all electric customers also have access to natural gas either via the distribution system or the wholesale pipeline system. Ameren Missouri does not currently have predetermined financial incentives for CHP projects. However, Ameren Missouri can consider CHP projects submitted by business customers under the current Business Custom program. If a CHP project was submitted for consideration to receive an incentive via the Business Custom program, Ameren Missouri would then determine an appropriate incentive.

⁹⁹ U.S. Department of Energy, Combined Heat and Power (CHP) Technical Potential in the United States, March 2016, p. ii.

¹⁰⁰ U.S. DOE Combined Heat and Power Installation Database, <https://doe.icfwebservices.com/chpdb/state/MO> and discussions with Ameren Missouri.

Selecting a specific CHP technology depends on several factors, which include but are not limited to power requirements, the duty cycle, space constraints, thermal energy needs, emission regulations, fuel availability, utility prices, and interconnection issues. Table 5-3 summarizes the CHP technologies evaluated in this study and their assumed operating parameters.

TABLE 5-3: CHP TECHNOLOGY COMPARISON¹⁰¹

Parameter	Internal Combustion Engine	Gas Turbine	Steam Turbine	Micro-Turbine	Fuel Cell
Size (kW)	50-5,000	500-50,000	10-100,000	30-250	200-2,000
Electric Efficiency	28-39%	25-40% (simple) 40-60% (combined)	5-15%	25-28%	36-42%
Overall Efficiency	73-79%	64-72%	~80%	67-72%	62%-67%
Fuels	Natural gas, biogas, propane, liquid fuels	Natural gas, biogas, propane, distillate oil	All	Natural gas, biogas, propane, distillate oil	Hydrogen, natural gas, propane
NOx Emissions (lb/MWh)	0.15-2.17	0.55-0.68	Function of boiler emissions	0.14-0.17	0.01-0.04
Uses for Heat Recovery	Hot water, low pressure steam, district heating	Direct heat, hot water, low- or high-pressure steam, district heating	Low- or high-pressure steam, district heating	Direct heat, hot water, low pressure steam	Hot water, low- or high-pressure steam
Thermal Output (Btu/kWh)	3,000-6,100	3,200-5,000	n/a	4,800-6,300	1,500-3,000
Useable Temp (°F)	200-500	500-1,100	n/a	400-650	140-700

Table 5-4 summarizes detailed CHP cost considerations and assumptions utilized in this analysis.¹⁰²

TABLE 5-4: DETAILED CHP COST CONSIDERATION SUMMARY¹⁰³

Technology Type	Size (kW)	Installed System Cost (\$/W) ¹⁰⁴	Waste Heat Utilization (kBtu/kWh)	Capacity Factor	System Lifetime (years)	O&M Costs (\$/kWh)
Fuel Cell	175	\$15.50	2.6	0.76	20.0	\$0.05
	500	\$6.76				\$0.04
	800	\$6.04				\$0.06
	1,125	\$5.26				\$0.04
Gas Turbine	2,500	\$3.32	6.0	0.78	20.0	\$0.01
	3,000	\$3.23	5.5			
	3,500	\$3.09	5.2			
	5,000	\$2.66	4.6			

¹⁰¹ Combined Heat and Power Market Assessment. ICF International for the California Energy Commission, April 2010.

¹⁰² 20 CSR 4240-20.050 (3)(G)5A

¹⁰³ Natural gas fuel costs were assumed to be \$4.61/dekatherm; 2019 EIA Energy Outlook Assessment average industrial sector retail costs for years 2020 through 2030 in nominal dollars.

¹⁰⁴ Environmental and/or siting costs are not explicitly considered. For certain locations, these costs can be considerable and in addition to the installation costs estimated.

Technology Type	Size (kW)	Installed System Cost (\$/W) ¹⁰⁴	Waste Heat Utilization (kBtu/kWh)	Capacity Factor	System Lifetime (years)	O&M Costs (\$/kWh)
	10,000	\$1.82	3.7			
	15,000	\$1.72	3.3			
	30,000	\$1.45	2.8			
Micro Turbine	25	\$3.63	5.9	0.42	10.0	\$0.01
	100	\$3.30	4.7			
	200	\$2.92	4.3			
Reciprocating Engine	125	\$2.88	5.0	0.36	20.0	\$0.02
	350	\$2.80	3.9			\$0.02
	1,250	\$2.49	3.0			\$0.02
	3,000	\$1.88	2.6			\$0.02
	4,500	\$1.73	2.5			\$0.01
Steam Turbine	1,500	\$5.00	32.4	0.45	20.0	\$0.05
	3,500	\$5.00	32.4			\$0.05
	5,500	\$5.00	32.4			\$0.05

To estimate technical potential for CHP, the GDS Team first developed a screening process to identify probable CHP candidate premises. To effectively utilize CHP, a facility must have coincident electric and thermal energy requirements for a large load factor of the year. A continuous process industry with nearly constant steam or hot water demand electric load is an excellent target, such as a chemicals manufacturer or a hospital. Facilities with intermittent electric and thermal loads are progressively less attractive as the number of hours of coincident load diminishes. Hence our screening process will identify a minimum threshold kW level which represents feasible CHP opportunities.

A thermal factor was applied to potential candidate customer loads to reflect thermal load considerations in CHP sizing. In most cases, on-site thermal energy demand is smaller than electrical demand. Thus, CHP size is usually dictated by the thermal load in order to achieve proper efficiencies and adequate returns on investment. Using electric and thermal intensity data from prior studies, the GDS team used power to heat ratios for the prime mover CHP technology for different market segments to calculate the thermal factor as shown in following equation.

EQUATION 5-1: THERMAL FACTOR CALCULATION

$$Thermal\ Factor = \frac{P/H\ (CHP\ System)}{P/H\ (Customer\ Segment)}$$

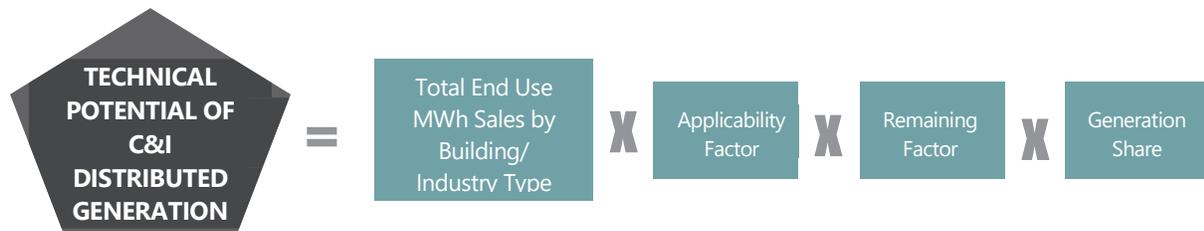
A thermal factor of one (1.0) would result in the CHP system capacity being equal to the electric demand of the facility. A thermal factor of less than one would indicate that the application is thermally limited, and the resulting CHP system size would be below the electric demand of the facility. A thermal factor greater than one indicates that a CHP system sized to the thermal load would produce more electricity than can be used on-site, resulting in excess power that could be exported to the grid. Any customer premises with an annual kWh consumption below an established threshold was removed from the analysis. The thermal factors and thresholds are intended to be reasonable values representative of the average building in each commercial segment that would be eligible to have a CHP technology installed onsite. A summary of the utilized thermal factors is listed in Table 5-5, as sourced from the DOE EPA CHP potential study.

TABLE 5-5: CHP POWER RATIOS BY SEGMENT

Industrial Segment	Heat to Power Ratio	Commercial Segment	Heat to Power Ratio
Chemicals	1.29	Education	0.75
Electrical Equipment Manufacturing	0.26	Health	0.94
Food Manufacturing	1.10	Public service	0.62
Primary Metals	0.33	Institutional	0.62
Paper	2.37	Grocery	0.20
Plastics Rubber	0.31	Lodging	0.84
Misc	1.34	Office	0.62
NonMetallic Mineral	0.25	Restaurant	0.48
General Equipment	0.25	Retail	0.37
Petroleum	3.83	Warehouse	0.68
Fabricated Metals	0.50	Misc.	0.68

After developing the screening method our team will calculate the average building consumption for each commercial and industrial segment. Next, we will estimate a building energy savings share percentage for each CHP technology based on its generation capacity. We will apply those savings shares to the applicable share of the sector load to estimate technical potential. The core equation utilized in the technical potential analysis for each individual CHP technology is shown the equation below.

EQUATION 5-2: THERMAL FACTOR CALCULATION



Applicability Factor = the share of the premises where it is technically feasible to add CHP technology from an engineering perspective (e.g., it may not be possible to install exhaust flues or obtain necessary emission permits for premises).

Remaining Factor = the fraction of equipment that does not have existing CHP technologies (or other similar competing DER resource). This can be removed from the technical and economic potential, as there are a limited number of sites where CHP is viable and had not already been considered.

Generation Factor = the share of electric consumption resulting from CHP technology. This percentage is closely related to power-to-heat ratios that are unique for each CHP technology and premise type, based on expectations of thermal loads for processes and occupants. Additionally, care must be taken align the potential CHP technology capacity with a similar premise thermal and electric consumption. In order to accomplish this, multiple cohorts for applicable premise types will be developed based on standard CHP capacity ranges (i.e., 500kW, 1,000kW, etc)

5.1.3 Solar Photovoltaic

Photovoltaic systems utilize solar panels, a packaged collection of photovoltaic cells, to convert sunlight into electricity. A system is constructed with multiple solar panels, a DC/AC inverter, a racking system to hold the panels, and electrical system interconnections. These systems are often roof-mounted systems that face south-west, south, and/or, south-east. Systems can have a fixed tilt position or they can automatically adjust tilt to track the sun's movement. This study

analyzed the potential associated with roof-mounted systems installed on residential and business sector buildings. Additionally, for the business market segment, the team estimated potential for ground mounted (or covered parking) systems for a few specific business types, such as municipal facilities, parking enclosures, and some high-end hospitality facilities. Single axis tracking PV systems were also analyzed for business sector buildings. Integrated battery storage was analyzed as an additional configuration with each with solar PV system type. This study did not explore the market potential associated utility-scale solar PV installations.

The assessment of the market potential from distributed solar PV was estimated through the following steps:

- Characterize the existing and new residential, commercial, and industrial building stocks, including relevant parameters such as number of facilities, average number of floors, and average premise square footage by utility.
- Calculate the total available roof area feasible for installing solar PV systems from the forecast disaggregation analysis to characterize the existing and new residential, commercial, and industrial building stocks. Relevant characterized parameters include share of pitched/flat roofs and unusable area due to other rooftop equipment.
 - Premises with existing solar PV will be removed.
- Align the premise energy consumption using the premise cohorts in Table 5-1 and Table 5-2 with analyzed standard system sizes.
 - Residential: System size is limited by 100% of the average energy consumption of the cohort.
 - Non-Residential: System size is limited by the available roof area and expected power density (kW per square foot of roof area).
- Develop standardized solar PV system configurations to characterize performance and system costs.
 - System sizes for residential premises range from 3 to 25 kW (DC) and 3 to 2,000 kW (DC) for business premises.
 - Battery system sizes for each solar PV system size were selected to dispatch energy for 2-4 hours during low and/or non-generation time periods.
- Analyze the energy generation output, capacity factors, and hourly load shapes using proven calculation tools, such as PVWatts¹⁰⁵ and System Advisor Model (SAM)¹⁰⁶ simulations. System models were generated for St. Louis City and determined an average rooftop suitability present for 81% of buildings across the territory. The GDS team applied this suitability factor to each building segment.¹⁰⁷

Our approach to calculate technical potential estimates the total number of buildings in Ameren’s territory with rooftops suitable for siting solar PV systems and calculating the solar PV system generation based on building characteristics. This calculation is computed using following equation:

EQUATION 5-3: SOLAR PV TECHNICAL POTENTIAL CALCULATION

$$PV \text{ Technical Potential} = \Sigma(\text{Homes with Suitable Rooftop} \times PV \text{ System Generation})$$

The two key parameters in the equation were from multiple data sources relevant to Ameren’s territory. We discuss our methods for defining these parameters below. To estimate the total number of buildings containing rooftop area suitable to host solar PV within Ameren’s territory, the GDS team leveraged multiple data sources including the National Renewable Energy’s (NREL) National Solar Radiation Database (NSRDB), Google’s Project Sunroof, and customer account information provided by Ameren Missouri. We defined suitable rooftop based on NREL and Google models with the following key screening parameters:

- **Contiguous rooftop area size:** 4 contiguous panels
- **Rooftop orientation (tilt and azimuth):** All orientations permitted
- **Minimum solar exposure:** 75% of optimal orientation

¹⁰⁵ PVWatts estimates solar PV energy production and costs. Developed by the National Renewable Energy Laboratory. (NREL) <http://pvwatts.nrel.gov/>

¹⁰⁶ SAM estimates hourly solar PV energy production and costs with more detailed inputs and outputs than PVwatts. Developed by the National Renewable Energy Laboratory. (NREL) <http://https://sam.nrel.gov/>

¹⁰⁷ 20 CSR 4240-20.050 (3)(G)5A

- **Shading:** Accounts for trees, buildings, and other obstructions within 100-150 meters as well as obstructions on the roof
- **Existing solar PV:** Estimated based on aerial imagery

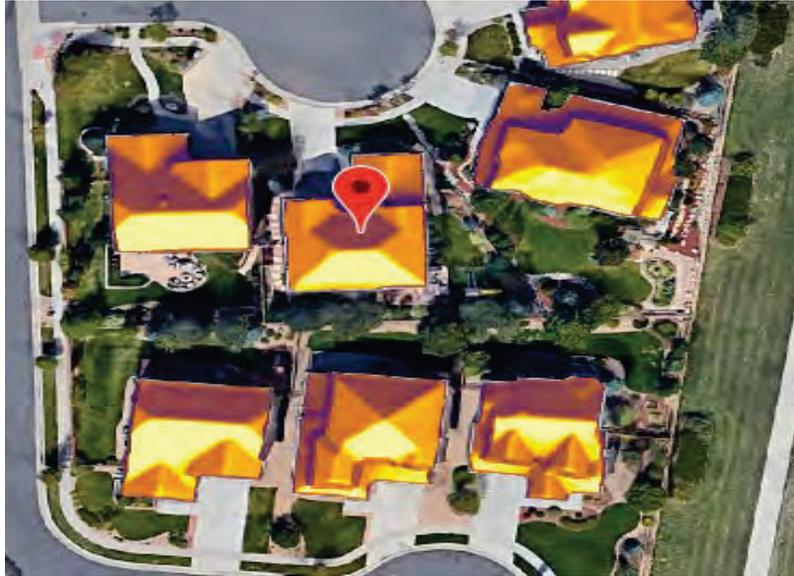


FIGURE 5-2: EXAMPLE OF GOOGLE PROJECT SUNROOF DETAIL

Our team relied on NREL's PVWatts (Version 6) and SAM tools to estimate system generation for both residential and commercial sited systems. PVWatts models PV power density based on site specific resource data sourced from NREL's LIDAR-based NSRDB to estimate total solar irradiance in conjunction with PV system specifications. For this analysis the following assumptions are summarized in Table 5-6.

TABLE 5-6: KEY ASSUMPTIONS IN SOLAR PV ANALYSIS¹⁰⁸

Parameter	Assumptions
Module Type	Standard (Crystalline Silicon)
Residential System Sizes (Nominal DC Capacity)	3 kW, 5 kW, 7 kW, 10 kW, 25 kW, 50 kW
Business System Sizes (Nominal DC Capacity)	3 kW, 5kW, 7 kW, 10 kW, 25 kW, 50 kW , 100 kW, 250 kW, 500 kW, 1,000 kW, 2,000 kW
System losses	14.1%
Tilt (Fixed)	35 degrees
Azimuth (Residential)	168 degrees
Azimuth (Business)	180 degrees
Capacity Factor (Fixed)	16.3%
Capacity Factor (Tracking)	18.6
DC to AC size ratio	1.15
Inverter efficiency	96% (micro-inverter)
Battery Round-Trip Efficiency	85%
Technology Useful Life	20 years

As part of the analysis, our team calculated capacity factors for both residential and commercial buildings. Using rooftop orientation data from Google for various locations within Ameren’s territory, the GDS team estimated an average residential system capacity factor weighted by varying rooftop orientations. The commercial capacity factor was based on an assumed flat-roof building. We applied the capacity factor to the system size and multiplied by 8,760 to estimate annual electricity generation.

To estimate economic potential for solar PV, pertinent data on system costs were gathered along with calculated generation benefits to use in the benefit-cost analysis which was conducted at the measure level. The GDS team relied on multiple data sources to determine the solar PV system costs for varying system sizes and configurations. We assessed system component costs based on data included the National Renewable Energy Laboratory’s (NREL) Q1 2021 Benchmarking report¹⁰⁹ which provided detailed cost information on modules, inverters (by technology), structural and electrical balance of system, supply chain, permitting-inspection-interconnection, marketing, overhead, and profit. Cost parameters were adjusted these from a national level to Missouri-specific values by using various market data provided by Energy Sage¹¹⁰. This analysis produced an estimated installation cost per watt installed which was applied to various system sizes to estimate total installed cost. Additionally, O&M costs were included that scale with system size. Finally, we assumed the impact of the federal investment tax credit (ITC) to follow the existing schedule at the time of this report which equates to a 30% tax credit for commercial and residential systems by 2023.^{111,112}

In addition to modeling solar PV system costs, the GDS team also estimated cost impacts for solar PV systems coupled with battery storage. As these systems are far less prevalent in both residential and commercial systems at the time of reporting, fewer published data on battery costs, balance of system costs, and maintenance were available. Moreover, the battery capacity is also variable based on the service need. Ultimately, multiple data sources were used to assume

¹⁰⁸ 20 CSR 4240-20.050 20 CSR 4240-20.050(3)(G)1

¹⁰⁹ U.S. Solar Photovoltaic System Cost Benchmark: Q1 2021. NREL, November 2021.

¹¹⁰ Energysage Solar Marketplace Intel Report, H2 2021 – H1 2022.

¹¹¹ 20 CSR 4240-20.050 (3)(G)5C

¹¹² EO-2023-0099 1CA (Special Contemporary Issues)

an overall capital cost per kWh based on a 3- or 4-hour battery for various measure permutations. O&M costs were largely defined by a ten-year amortized battery replacement cost.

TABLE 5-7: ASSUMED SOLAR PV INSTALLATION COST (2023)

Sector	System Cost (\$/ DC Watt)
Residential	\$2.72
Residential (Battery)	\$3.20-\$6.70
Business, roof mounted	\$1.72
Business, roof mounted (Battery)	\$1.98-\$3.35
Business, ground mounted	\$1.72
Business, ground mounted (Battery)	\$1.84
Operations & Maintenance	\$16/kW/yr
Operations & Maintenance (with battery)	\$29/kW/yr

5.1.4 Customer Adoption

It is notable while the TRC test for solar PV systems doesn't meet a 1.0 cost-effectiveness threshold, Ameren Missouri customers install solar PV systems at their homes and businesses. Consequently, a baseline, business-as-usual (BAU) forecast was developed for integration into the IRP modeling along with expected customer adoption for maximum and realistic potential for those system configurations and premise types where technologies pass a cost-effectiveness threshold of TRC equal to 1.0 or greater. The customer adoption forecasts are based upon:

- Number of existing installed systems,
- Trend of existing system installation from 2015-2021,
- Willingness to participate and market adoption data collected from Ameren customers during the 2020 Ameren Missouri DSM Market Potential Study,
- Bass-diffusion curve and coefficients based upon the NREL dGen model¹¹³ for the state of Missouri, EIA DGPV interconnection and Census data

Three adoption scenarios for CHP and solar PV installations are described below:

- **Realistic Achievable Potential;**
 - up to 36% market adoption for the residential sector, and
 - up to 15% market adoption for the non-residential sector, and
- **Maximum Achievable Potential;**
 - up to 74% market adoption for the residential sector, and
 - up to 26% market adoption for the non-residential sector, and

5.2 DER POTENTIAL FINDINGS

This section of the report presents the Technical, Economic, Achievable (MAP and RAP) for CHP and Solar PV.

¹¹³ <https://www.nrel.gov/analysis/dgen/>

5.2.1 Combined Heat & Power

Table 5-8 summarizes the CHP cumulative annual potential estimates for electric demand and Table 5-9 for electric energy. 2043 technical market potential for CHP represents 22.0% of the 2043 business sector sales forecast and economic potential represents 6.4% of the 2040 business sector sales forecast.

TABLE 5-8: CUMULATIVE SUMMARY OF CHP ELECTRIC DEMAND MARKET POTENTIAL

Year	Technical (MW)	Economic (MW)	MAP (MW)	RAP (MW)
2026	6.4	1.5	0.7	0.6
2033	22.5	5.3	2.5	1.8
2043	120.0	28.5	8.8	4.0

TABLE 5-9: CUMULATIVE SUMMARY OF CHP ELECTRIC ENERGY MARKET POTENTIAL

Year	Technical (MWh)	Economic (MWh)	MAP (MWh)	RAP (MWh)
2026	90,465	26,187	14,203	12,583
2033	639,313	185,060	91,052	73,339
2043	4,251,069	1,230,559	469,316	284,237

Figure 5-3 summarizes the shares of technical potential by CHP technology type.

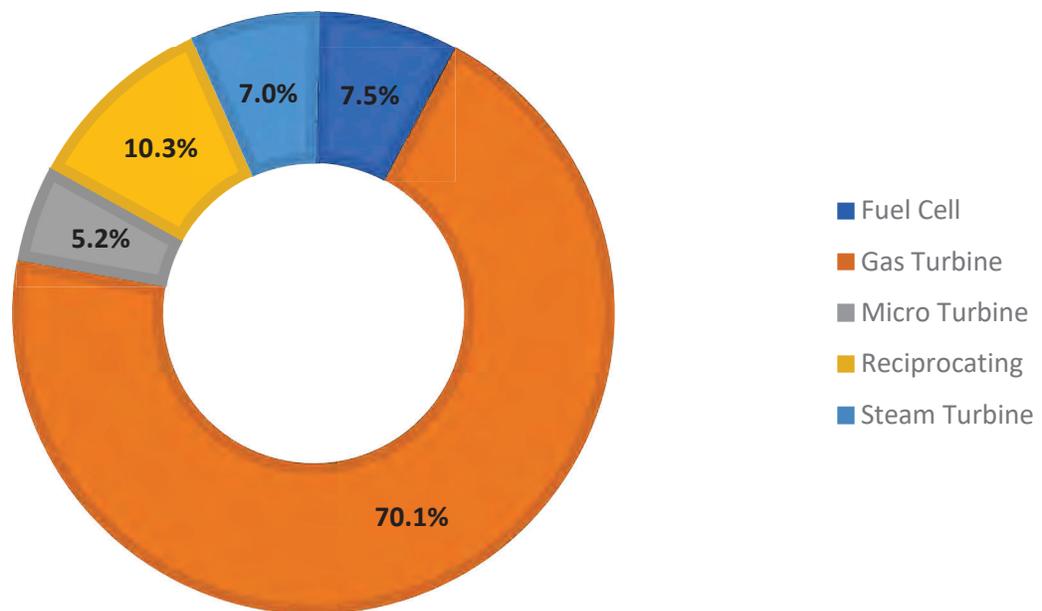


FIGURE 5-3: CHP 2043 TECHNICAL POTENTIAL TECHNOLOGY SHARES

Table 5-10 summarizes the cost effectiveness results for each technology and for each cost-effectiveness perspective. Costs included in the Utility Cost test (UCT) and Rate Impact Measure (RIM) test include incentives to the customer at a 30% share of the technology incremental cost. The Participant Test does not include the consideration of the customer incentive as representation of the customer decision-making process absent program intervention.

TABLE 5-10: SUMMARY OF CHP COST-EFFECTIVENESS¹¹⁴

CHP Technologies	TRC Test Range	UCT Range	Participant Test Range	RIM Ratio Range
Fuel Cell (175 - 1,125kW)	0.4 – 0.6	0.8 – 2.1	0.9 – 2.6	0.3 – 0.5
Gas Turbine (2,500 – 10,000kW)	0.8 – 1.3	3.8 – 5.7	1.9 – 3.0	0.5 – 0.6
Micro-Turbine (Gas) (25 – 200kW)	0.5 – 0.6	1.8 – 2.1	1.2 – 1.3	0.4
Reciprocating Engine (125 – 4,500kW)	0.5 – 0.8	1.8 – 2.9	1.2 – 1.8	0.3 – 0.6
Steam Turbine (1,500 – 5,000kW)	0.2	1.4	0.6	0.1

Large gas turbines, with capacity greater than 7.5 MW, are the technologies that are passing TRC cost-effectiveness. For all CHP technologies, the systems with the larger capacity are the most cost-effective with economies of scale.

It is notable that most of the CHP technologies do not pass cost-effectiveness screening under the TRC test following the MEEIA framework. This test is the primary cost-effectiveness criteria used to determine whether a utility sponsored program intervention is prudent. However, it may be the case that certain site location conditions have important performance parameters that allow for a favorable cost-effectiveness assessment for that specific site, even if the average system and facility is not cost-effective as analyzed. Additionally, it is notable that many of the technologies are cost-effective from the participant cost test perspective, while failing the TRC test.

This analysis assumes that Ameren Missouri will continue to offer CHP technologies through the Business Custom program for upcoming years. Table 5-11 summarizes that expected budget that would need to be included within the Custom program to cover the CHP market achievable potential.

TABLE 5-11: CHP PROGRAM BUDGETS (\$ IN MILLIONS)

Year	Program MAP Budget (Millions)	Program RAP Budget (Millions)
2033	\$2.9	\$1.2
2043	\$8.5	\$2.6

Program budgets reflect the following assumptions regarding CHP:

- For Realistic Achievable Potential (RAP), there is an assumed installation incentive of \$200/kW up to \$25,000 (or 40% of installed cost), until a project hit a \$2M total rebate.
- For Maximum Achievable Potential (RAP), there is an assumed installation incentive of 100% of installed cost.
- Program administrative cost of 25% of the total incentive costs was assumed.¹¹⁵

5.2.2 Solar Photovoltaics

Table 5-12 and Table 5-13 summarize the Solar PV cumulative energy potential estimates for electric generation for the residential and non-residential sectors respectively. Table 5-14 and Table 5-15 summarize the Solar PV cumulative demand potential estimates for the residential and non-residential sectors. 2043 technical market potential for Solar PV represents 36.8% of the 2043 residential and business sector sales forecast combined.

¹¹⁴ 20 CSR 4240-20.050 (5)(E); 20 CSR 4240-20.050 (5)(F)

¹¹⁵ 20 CSR 4240-20.050 (3)(G)5B

TABLE 5-12: SUMMARY OF RESIDENTIAL SOLAR PV ELECTRIC DEMAND MARKET POTENTIAL

Year	Technical DC Capacity (MW)	Technical Peak Capacity (MW) ¹¹⁶	Economic (MW)	MAP (MW)	RAP (MW)
2026	14.6	62	0	0	0
2033	2,155	914	0	0	0
2043	6,015	2,551	0	0	0

TABLE 5-13: SUMMARY OF NON-RESIDENTIAL SOLAR PV ELECTRIC DEMAND MARKET POTENTIAL

Year	Technical DC Capacity (MW)	Technical Peak Capacity (MW) ¹¹⁷	Economic (MW)	MAP (MW)	RAP (MW)
2026	30.6	13.4	4.24	2.30	2.04
2033	216	94.4	30	14.8	11.9
2043	1,441	629	200	76.2	46.1

TABLE 5-14: SUMMARY OF RESIDENTIAL SOLAR ELECTRIC ENERGY MARKET POTENTIAL

Year	Technical (MWh)	Economic (MWh)	MAP (MWh)	RAP (MWh)
2033	3,072,067	0	0	0
2043	8,571,985	0	0	0

TABLE 5-15: SUMMARY OF COMMERCIAL SOLAR ELECTRIC ENERGY MARKET POTENTIAL

Year	Technical (MWh)	Economic (MWh)	MAP (MWh)	RAP (MWh)
2033	309,125	97,290	47,867	38,554
2043	2,058,371	647,830	247,044	149,596

Table 5-16 summarizes the cost effectiveness results for each technology and for each cost-effectiveness perspective. Costs included in the UCT and RIM test include incentives to the customer at a 30% share of the technology incremental cost. The participant cost test does not include incentive payments. This is a necessary assumption to identify likely participant decision-making, in the absence of a utility funded program intervention. The participant cost test also assumes that all energy produced is consumed on site.

TABLE 5-16: SUMMARY OF SOLAR PV COST-EFFECTIVENESS¹¹⁸

Solar PV Technologies	TRC Test Range	UCT Range	Participant Test Range	RIM Ratio Range
Residential Roof-mounted (3 – 25kW)	0.5 – 0.7	1.0 – 1.2	0.9 – 1.1	0.4 – 0.5
Residential Roof-mounted with Batteries (3-25kW)	0.6 – 0.7	0.2 – 1.9	1.0 – 1.2	0.5
Business Roof mounted (5 – 1,000kW)	0.8 – 1.0	3.0 – 3.4	1.6	0.7

¹¹⁶ This peak capacity represents the alternating current (AC) production between the hours of 16 and 18 and may not align with MISO Resource Adequacy models.

¹¹⁷ This peak capacity represents the alternating current (AC) production between the hours of 16 and 18 and may not align with MISO Resource Adequacy models.

¹¹⁸ 20 CSR 4240-20.050 (5)(E); 20 CSR 4240-20.050 (5)(F)

Solar PV Technologies	TRC Test Range	UCT Range	Participant Test Range	RIM Ratio Range
Business Roof mounted with Batteries (5-1,000kW)	0.8	1.6 – 2.6	1.1 – 1.4	0.5 – 0.6
Business Ground mounted (100 kW-2MW)	0.8 – 1.0	3.0 – 3.4	1.6	0.7
Business Ground mounted with Batteries (100 kW-2MW)	0.8	1.6 – 2.6	1.1 – 1.4	0.5 – 0.6
Business Ground mounted Tracking (100 kW-2MW)	1.0 – 1.1	3.0 – 3.6	1.6 – 1.7	0.6 – 0.7
Business Ground mounted Tracking with Batteries (5-50kW)	0.7 – 0.8	2.2 – 2.9	1.4 – 1.5	0.5 – 0.6

It is notable that no Solar PV technologies pass cost-effectiveness screening under the TRC test following the MEEIA framework. This test is the primary cost-effectiveness criteria used to determine whether a utility sponsored program intervention is prudent. For all technologies, the systems with the larger capacity are more cost-effective largely because of the economies of scale. As systems approach small utility/neighborhood scale, over 500 kW, systems become marginally cost-effective. Consequently, while these customer-owned, behind-the-meter systems do not pass cost-effectiveness, readers should not conclude that solar PV is a resource where Ameren should not consider investment as there are alternative cost-effectiveness perspectives outside of the MEEIA framework.

Additionally, it is notable that many of the technologies are cost-effective from the participant cost test perspective while failing the TRC test as shown in . While the participant cost is not an exact replica of a customer choice criteria, like a pay-back period, it is a reasonable proxy for customer decision making. With many technologies passing the participant cost test, this is congruent with industry interest and adoption of solar PV systems, in particular for large business sector customers.

The battery storage capacity and battery dispatch approach can have a significant impact on the hourly load. The battery was sized to be dispatched for up 3 to 4 hours of operation of approximately 20-25% of the solar PV DC capacity rating. The dispatch model selected was a method that would be beneficial for the end-use customer, specifically to extend the solar production shape further into the late afternoon to reduce tariff demand charges and/or accommodate short-term weather events. It is assumed that the battery would be dispatched to 85% of the rated capacity and primarily on weekdays. Increasing the battery capacity to maximize the peak capacity benefits was considered, but the additional costs did not outweigh the additional benefits. Finally, the battery storage is assumed to be charged by the solar PV (and not re-charged by the electric grid). This approach ultimately shifts the production load shape an hour or two later into the afternoon.

5.3 SENSITIVITIES

As part of the market potential assessment for DERs, five sensitivities were analyzed to consider potentially different outcomes if input parameters effecting future participation or cost-effectiveness were to change from the original assumptions.¹¹⁹ These sensitivities included:

- Higher and lower avoided energy costs
- Higher avoided transmission and distribution costs
- All eligible DSM opt-out large business customers included
- Decreasing technology costs of solar PV and batteries

¹¹⁹ 20 CSR 4240-20.050 (6)(C)1; 20 CSR 4240-20.050 (6)(C)2

5.3.1 Avoided Energy Costs Sensitivity

Table 5-17 summarizes the market potential outcomes and changes if avoided energy costs were to increase by 30% or decrease by 50%.

TABLE 5-17: SUMMARY OF MARKET POTENTIAL OUTCOMES WITH DIFFERENT AVOIDED ENERGY COSTS

Year	Technical (MWh)	Economic (MWh)	MAP (MWh)	RAP (MWh)
Higher Avoided Energy Costs (30%)				
Combined Heat and Power (2043)	4,251,069	2,284,749	871,367	527,735
Percent difference to base scenario	0%	86%	86%	86%
Solar PV (2043)	10,630,356	1,922,121	732,983	443,855
Percent difference to base scenario	0%	197%	197%	197%
Lower Avoided Energy Costs (50%)				
Combined Heat and Power (2043)	4,251,069	0	0	0
Percent difference to base scenario	0%	n/a	n/a	n/a
Solar PV (2043)	10,630,356	42,675	16,274	9,854
Percent difference to base scenario	0%	93%	93%	93%

5.3.2 Avoided T&D Cost Sensitivity

Table 5-18 summarizes the market potential outcomes and changes if avoided transmission and distribution costs were to increase by 200% or 500%. This sensitivity is a proxy analysis for potential locational value where specific electric network component costs could be deferred or eliminated through the acquisition of DERs on that limited network.

TABLE 5-18: SUMMARY OF MARKET POTENTIAL OUTCOMES WITH DIFFERENT AVOIDED T&D COSTS

Year	Technical (MWh)	Economic (MWh)	MAP (MWh)	RAP (MWh)
Higher Avoided T&D Costs (200%)				
Combined Heat and Power (2043)	4,251,069	1,845,838	703,974	426,356
Percent difference to base scenario	0%	50%	50%	50%
Solar PV (2043)	10,630,356	1,922,121	732,983	443,855
Percent difference to base scenario	0%	197%	197%	197%
Higher Avoided T&D Costs (500%)				
Combined Heat and Power (2043)	4,251,069	2,284,749	871,367	527,735
Percent difference to base scenario	0%	86%	86%	86%
Solar PV (2043)	10,630,356	2,028,107	773,400	468,329
Percent difference to base scenario	0%	213%	213%	213%

5.3.3 All Large Business Customer Opt-Outs Removed

Table 5-19 summarizes the market potential outcomes and changes if all eligible large business customers opt-out of DSM (largely rate class 11M). Solar PV does not substantially change, because the removal of these several hundred customers does not remove much available roof area.

TABLE 5-19: SUMMARY OF MARKET POTENTIAL OUTCOMES RELATED TO LARGE CUSTOMER OPT-OUTS

Year	Technical (MWh)	Economic (MWh)	MAP (MWh)	RAP (MWh)
Combined Heat and Power (2040)	5,313,836	1,538,199	586,645	355,296
Percent difference to base scenario	25%	25%	25%	25%

5.3.4 Decreasing Technology Cost of Solar PV and Batteries

Table 5-20 summarizes the market potential outcomes and changes if solar PV and battery storage costs continue to decline in future years. Cost Effectiveness analysis considers technology costs in 2030. As shown here, total economic and all achievable potential would increase by almost 200%.

TABLE 5-20: SUMMARY OF MARKET POTENTIAL OUTCOMES RELATED TO DECREASING TECHNOLOGY COSTS

Year	Technical (MW)	Economic (MW)	MAP (MW)	RAP (MW)
Solar PV (2043)	10,630,356	1,922,121	732,983	443,855
Percent difference to base scenario	0%	197%	197%	197%

Future cost assumptions are as follows and illustrated in Figure 5-4.

- **Solar PV price drop:** 2017 - 2030: 2.4% annually
 - Source: NREL
- **Battery Storage:** price drop 2018 – 2030: 3.8% annually
- **Battery Storage:** price drop 2031 – 2050: 1.2% annually
 - Source: NREL

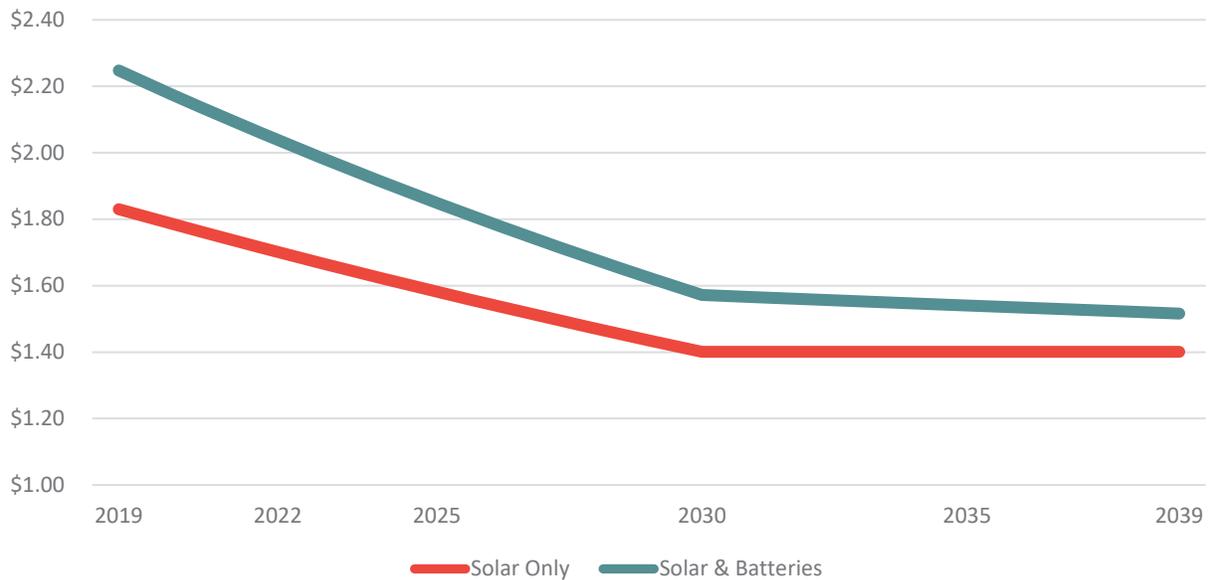


FIGURE 5-4: \$/KW COST FOR BUSINESS SECTOR SOLAR PV INSTALLATIONS

6 COMBINED RESULTS

This section provides total cost-effectiveness, savings, and program budgets for each study, along with a combined total, where appropriate.

6.1 CUMULATIVE ANNUAL POTENTIAL SAVINGS

Table 6-1 provides cumulative annual program RAP results across the 2024-2028 (Years 1-5) timeframe, as well as for 2033 (10th-year) and 2043 (20th-year). The combined program RAP potential is more than 1.0 million MWh by 2026, with more than two thirds of the potential from the business sector. By 2043 the combined program RAP is more than 4.0 million MWh.

TABLE 6-1 COMBINED PROGRAM RAP ENERGY EFFICIENCY POTENTIAL

Sector	2024	2025	2026	2027	2028	2033	2043
Residential	90,293	185,127	285,284	390,132	499,902	1,044,094	1,920,888
Business	201,421	395,969	585,202	763,459	933,202	1,620,248	2,204,250
Demand Response	0	0	0	0	0	0	0
Distributed Energy	5,346	11,522	18,638	26,819	36,196	105,995	387,375
Combined Total	297,061	592,618	889,124	1,180,410	1,469,300	2,770,336	4,512,513

Figure 6-1 shows breakdown of the contributions of each study component towards the 5-yr, 10-yr, and 20-yr program RAP savings as a percentage of total forecasted sales. The cumulative annual savings increases from 5.8% in 2024 to 12.7% by 2043. The residential sector accounts for 34% of the potential in 2026, rising to 56% by 2043, with most of the remaining potential from the business sector. Distributed energy accounts for a small portion of the potential. Demand response does not contribute to the energy savings potential.¹²⁰

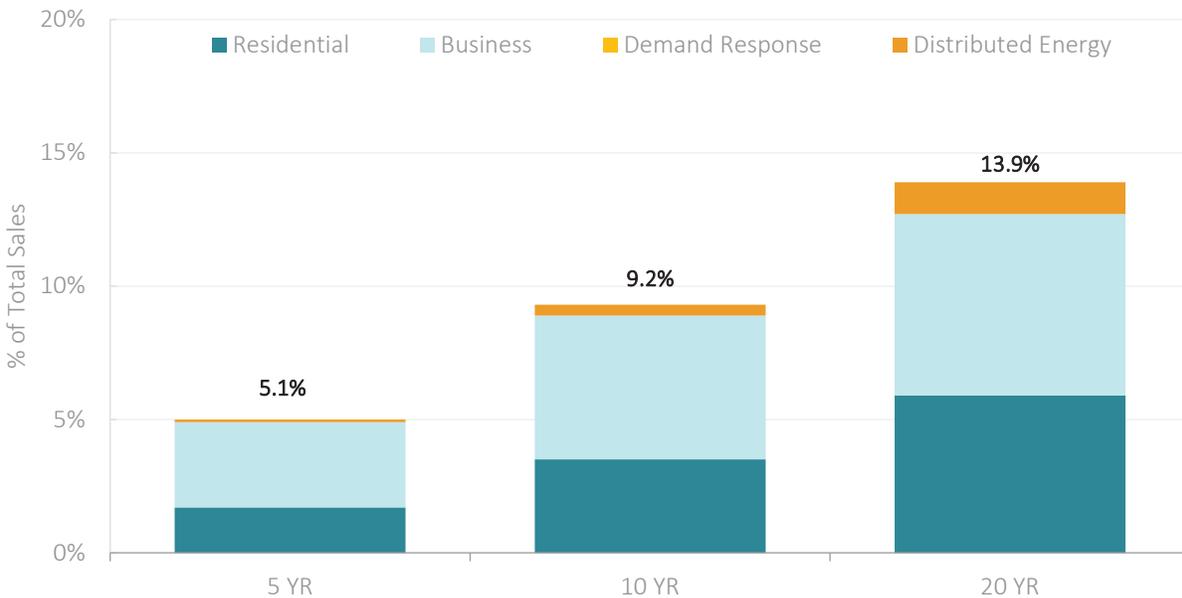


FIGURE 6-1: PROGRAM RAP ENERGY EFFICIENCY POTENTIAL BY STUDY COMPONENT

Table 6-2 provides cumulative annual program RAP results across the 2024-2028 (Years 1-5) timeframe, as well as for 2033 (10th-year) and 2043 (20th-year). The combined program RAP potential is more than 515 MW by 2026, with more than 40% of the potential from demand response. By 2043 the combined program RAP is nearly 1,600 MW.

¹²⁰ Potential savings from DER installations would likely be attributed to the business custom program.

TABLE 6-2 COMBINED PROGRAM RAP PEAK DEMAND REDUCTION POTENTIAL

	2024	2025	2026	2027	2028	2033	2043
Residential	40	80	122	164	207	355	509
Business	59	117	174	229	281	545	697
Demand Response	172	192	214	232	246	271	298
Distributed Energy	1	2	4	6	8	23	89
Combined Total	271	392	515	631	741	1,194	1,594

6.2 BENEFITS/COSTS

Table 6-3 below provides the net-present-value (“NPV”) benefits and costs (according to the TRC test) of the combined program potential across the study timeframe. The overall TRC ratio is 1.73, with an estimated total of nearly \$1.6 billion in net benefits.

TABLE 6-3: COMBINED PROGRAM RAP TRC NPV BENEFITS AND COSTS –BY 2043 (\$, IN MILLIONS)

Study Area	NPV Benefits	NPV Costs	NPV Net Benefits	TRC Ratio
Residential	\$1,591	\$1,137	\$455	1.40
Business	\$1,572	\$707	\$864	2.22
Demand Response	\$446	\$196	\$250	2.27
Distributed Energy	\$124	\$112	\$12	1.11
Total	\$3,733	\$2,152	\$1,581	1.73

Figure 6- shows the annual program RAP budgets for all study components. Total budgets range from \$109 million in 2024 to more than \$162 million by 2043.

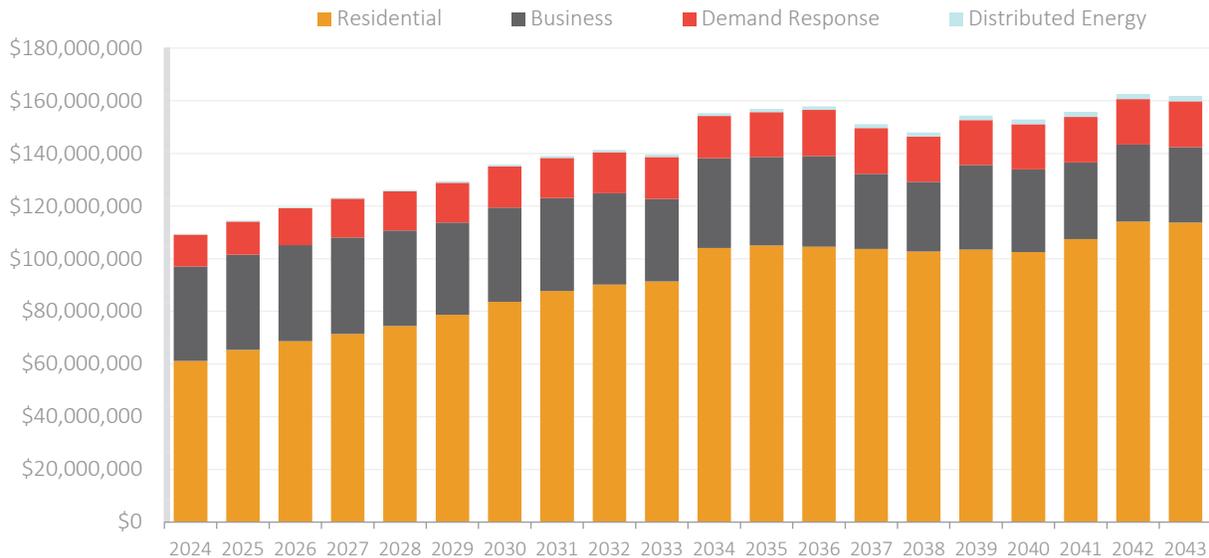


FIGURE 6-2: COMBINED PROGRAM RAP BUDGETS

6.3 ENERGY EFFICIENCY BENCHMARKING

As part of a review of the energy efficiency potential results, the GDS Team was tasked to update the benchmarking analysis (completed as part of the 2020 MPS) with the current 2023 MPS results for Ameren Missouri and any updated potential estimates available from the comparison utilities. The first step in the

benchmarking analysis was a top-down approach. This approach was intended to be national and comprehensive.¹²¹ The source of this data was the DOE’s Energy Efficiency Studies Catalog (DOE Catalog).¹²² The DOE Catalog is a compilation of roughly 93 state and local energy efficiency potential studies published since 2007. To provide a more direct comparison to the 2020 Ameren Missouri MPS, the GDS Team limited the comparison to studies in the DOE Catalog that included estimates of achievable potential and covered a roughly 20-year timeframe.¹²³ The DOE MAP-comparison was based on the average of the highest two utilities in the benchmarking analysis, while the DOE-RAP comparison was based on the 50th percentile. Table 6-4 provides the result of the top-down benchmarking, noting relative close alignment in the result, particularly with regard to the Realistic Achievable Potential levels.

TABLE 6-4: TOP-DOWN BENCHMARKING OF ENERGY EFFICIENCY POTENTIAL

	DOE	GDS
Achievable Potential (as a % of eligible sales)	20 YR	20 YR
Maximum Achievable Potential (MAP)	25%	19%
Realistic Achievable Potential (RAP)	16%	15%

Following the top-down benchmarking, the GDS Team then sought to take a “deep-dive” to focus on the most recent potential data for neighboring states or other utilities in the region.

Table 6-5 provides a list of the potential studies included in the “deep-dive” benchmarking analysis, as well as a comparison of maximum achievable and realistic achievable potential results. The GDS Team selected studies that were publicly available and provided enough methodological and reporting detail to allow for basic comparisons.¹²⁴ With a variety of different consultants undertaking the many other potential studies that are available, differences across studies assumptions and methodologies, different regulatory environments, and different program design considerations can result in varying levels of estimated future potential savings. The GDS Team briefly reviewed the methodological considerations of these studies relative to the 2023 Ameren Missouri MPS to better understand the varying outcomes. Appendix A provides a summary review of each benchmarked study.

TABLE 6-5: BENCHMARKING OF ENERGY EFFICIENCY POTENTIAL TO OTHER UTILITIES

STUDY	# YEARS	MAP* (%)	RAP (%)
Ameren Illinois (IL)	20	16%	13%
ComEd (IL)	18	10%	7%
AES-Indiana (IN)	19	25%	19%
Consumers Energy (MI)	20	17%	14%
Focus on Energy (WI)	12	17%	13%

¹²¹ 20 CSR 4240-20.050 (2)

¹²² The DOE Catalog was also used in the 2020 benchmarking analysis. The last update to this catalog was in December 2020, with only a few additional studies included in the catalog. As a result, the DOE comparison data is nearly identical to the 2020 analysis.

¹²³ The DOE Catalog provides estimates of long-term potential as a % of average annual potential savings. For direct comparison, the GDS Team multiplied the average annual savings * length of the study. This data point was then compared to the cumulative annual savings found in the 2020 Ameren Missouri MPS.

¹²⁴ The GDS Team sought input from stakeholders to produce additional studies to incorporate into the benchmarking analysis. While a few jurisdictions currently have new market potential analyses underway, no additional studies were offered for review.

STUDY	# YEARS	MAP* (%)	RAP (%)
Pennsylvania Statewide (PA)	10	13%	6%
Evergy (MO)	20	13%	8%
Louisville Gas & Electric	20	6%	6%
Arkansas PSC (AR)	10	9%	8%
Minnesota Statewide (MN)	10	21%	14%

**MAP or similar "high" scenario*

Last, because the potential study benchmarking focuses largely on the forecasted cumulative 20-year potential, we also compared the near-term potential identified in the 2023 MPS with most 2021 reported data of actual energy efficiency savings from 32 investor-owned utilities (IOUs) in nearby or neighboring states.¹²⁵ Across the residential and commercial sectors combined¹²⁶, the near-term RAP savings from the first year of the MPS (2024) are at the 48th percentile of the comparison group. This increases to the 69th percentile under the MAP scenario. Thus, the near-term savings represent roughly the median savings of comparison utilities, and the MAP is greater than 2/3rd of the comparison group.

¹²⁵ 2021 energy efficiency savings and sales data is from EIA Form 861. Investor-owned utilities in Arkansas, Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, and Oklahoma are included.

¹²⁶ Industrial sales and savings were excluded from the comparison due to concerns over opt-out customers and the potential impact on the data.

APPENDIX A: BENCHMARKING

GDS gathered information from ten publicly available potential studies conducted in the Midwest or reflecting similarities to the Midwest. In some cases, jurisdictions have not made updates since this information was provided in the prior Ameren Missouri (Ameren) potential study, though several have made updates since that time. These studies and their outcomes can be used to compare Ameren’s current potential study results to those conducted elsewhere. This appendix provides summary information from ten studies, providing key metrics and a discussion of nuances that can drive differences between the studies and the interpretation of results.

All ten studies were completed between 2015 and 2022. They share common elements – modeling technical, economic, and achievable potentials. Most utilize the TRC test for cost-effectiveness, with two using the UCT, and one the SCT. Achievable potential definitions and boundaries differ, but typically have realistic achievable estimates constraining a maximum achievable estimate with annual budget limitations or assumptions about market adoption of measures that pass the economic potential screening. Each study provides a different range of detail and information. Table A-1 summarizes key metrics, below. Following Table A-1, each study is summarized and includes additional information for further comparison.

Across the ten comparison studies, achievable potential varied as a percent of load. Factors include underlying modeling assumptions or unique conditions not present in one study or another. For example, Louisville Gas & Electric and Kentucky Utilities applied a value of \$0 to any capacity savings for energy efficiency and allowed only replace-on-failure (i.e. lost opportunity) savings for the second ten years of their potential study. Studies with longer time horizons tended to have higher achievable potential savings, likely reflecting that programs would have greater opportunity with more available time to engage with the market. Other factors that may shape differences between the studies, but were not readily apparent with consistent available information in the reports, include:

- Avoided cost and other major modeling assumptions
- Demographic and firmographic differences between utilities
- Differences in utility climate and weather sensitive loads
- The assumptions used to account for current equipment saturation
- Differences in adoption curves or willingness-to-pay modeling
- Cumulative savings being relative to a year preceding the study period or at the end of the study period

All of these factors can lead to varying outcomes that are not fully explained in each report in a way that makes them directly comparable to Ameren’s potential study. However, as a body of recent potential studies from the middle portion of the U.S., they do provide context and perspective useful for making comparisons to Ameren’s study.

Table A-1 below, provides a summary of key comparison metrics. Beneath the table, each of the utilities included in the comparison has a brief description of its potential study and more detail behind the summary results.

TABLE A-1 KEY POTENTIAL STUDY METRICS

Study Name	ISO	Subject	Year Published	Forecast Period	Market Size	Achievable Potential
Ameren Missouri 2023 Energy Efficiency Potential Study	MISO	Energy Efficiency	2023	2024-2043	2040 Forecast: Res: 16,800 GWh C&I: 15,900 GWh	RAP: 15% MAP: 19%
Ameren Illinois Demand Side Management Market Potential Study	MISO	Energy Efficiency	2016	2017-2036	2036 Forecast: Res: 11,300 GWh C&I: 24,000 GWh	RAP: 12.5% MAP: 16.4%
Arkansas Energy Efficiency Potential Study	MISO (mostly)	Energy Efficiency	2015	2016-2025	2016 Statewide: C&I: ~14,000 GWh Res: ~11,500 GWh	Higher \$: 9.0% Current \$: 7.8% Lower \$: 5.7%

Study Name	ISO	Subject	Year Published	Forecast Period	Market Size	Achievable Potential
		(statewide, IOUs only)				
		Demand Response			Not presented for DR	9%
Focus on Energy Wisconsin Energy Efficiency Potential Study	MISO	Energy Efficiency (Statewide)	2021	2023-2034	Res: 21,000 GWh C&I: 50,000 GWh	Optimized Potential: 17% Current Policy Potential: 13%
ComEd Energy Efficiency Potential Study	PJM	Energy Efficiency	2016	2017-2030	Res: 3.5 MM C&I: 376 k	Max: 10% PP Ach: 7%
Consumers Energy Electric Energy Waste Reduction Potential Study	MISO	Energy Efficiency	2021	2021-2040	2040 baseline load: Res: 14,861 GWh Com: 14,528 GWh Ind: 11,205 GWh	2040 Cumulative Max Ach: 16.5% Prog Ach: 14.1%
AES Indiana Market Potential Study (Formerly IPL)	MISO	Energy Efficiency	2022	2024-2042	2024 forecasted load: Res: 5,200 GWh C&I: 8,200 GWh	RAP: 19% MAP: 25%
		Demand Response			3.3 GW peak 2042	20% in 2042
Energy 2019 DSM Potential Study (Formerly Kansas City Power & Light)	SPP	Energy Efficiency	2019	2023-2042 (savings potential relative to 2032)	2019 loads Res: 6,552 GWh Com: 7,743 GWh Ind: 2,733 GWh	Max Ach: 13.2% (net) Realistic Ach: 7.6% (net)
		Demand Response			2019 summer peak Res: 1,521 MW Com: 1,183 MW Ind: 345 MW	Max Ach: 20% Realistic Ach: 12.5%
Louisville Gas & Electric and Kentucky Utilities	N/A	Energy Efficiency	2017	2019-2038	Res: 11,453 GWh Com: 10,200 GWh	Incentive Scenarios Low: 4.2% Mid: 5.5% High: 6.2%
MN Statewide	MISO	Energy Efficiency	2018	2020-2029	Res: 32% of market% Com: 36% Ind: 19% Opt-Out: 13%	PA Ach: 14% MAP: 21%
Energy Efficiency Potential Study for Pennsylvania	PJM	Energy Efficiency (Statewide)	2020	2021-2030	2010 load ¹ Res: 54,193 GWh Com: 55,957 GWh Ind: 36,511 GWh	PA Ach: 6.3% MAP: 12.8% (% of 2010 load)

Summary Descriptions of Comparison Potential Studies

In developing the data to support Table A-1, GDS researched the details of each of the example potential studies to help provide context to the underlying modeling and considerations for developing achievable potential. Below, each study is described in a mini-case study format, with information related to how achievable potential was defined and scenarios that that were used to test the sensitivity of multiple achievable potential perspectives.

¹ In Pennsylvania utilities must meet energy efficiency percentage reductions relative to their 2010 load.

Ameren Illinois Demand Side Management Market Potential Study (2016)

Ameren Illinois' 2016 DSM Market Potential Study served to assess various tiers of energy efficiency potential including technical, economic, maximum achievable, and realistic achievable potential. This study appears to be the most recently completed for Ameren Illinois.² The study developed baseline estimates with the latest information on federal, state, and local codes and standards for improving energy efficiency, updated from the prior study completed in 2013. The study consisted of three primary components: market research, a full energy efficiency potential analysis at the measure and program levels, and estimation of supply curves.

Ameren Illinois undertook primary market research to collect data for the Ameren Illinois service territory, including electric and natural gas end-use data, end-use saturation data, and customer psychographics, demographics, and firmographics. This information enables Ameren Illinois to understand how their customers make decisions related to their energy use and energy efficiency investment decisions.

Ameren Illinois' definition of maximum achievable assumed ideal market, implementation, and customer preference conditions, with well-established communication channels, trade allies and delivery partners, and high levels of incentives, administrative, and marketing costs. Realistic achievable potential assumed more conservative conditions as well as limited program budgets. Savings were presented as net.

Primary market research produced adoption rates that were typically lower than those produced from the 2019 Ameren Missouri market research, particularly for maximum achievable potential. In addition, estimates of technical and economic potential are generally lower, suggesting differences in electric equipment penetration or assumptions regarding the current saturation of efficient equipment. Avoided costs were not presented in the study.

TABLE A-2. AMEREN ILLINOIS 2017-2036 ENERGY EFFICIENCY POTENTIAL COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Share of Savings	Commercial Share of Savings	Industrial Share of Savings
2017-2036	TRC	Max: 16.4% PP: 12.5%	Max: 22% PP: 23%	Max: 54% PP: 52%	Max: 24% PP: 24%

Arkansas Energy Efficiency Potential Study (2016)

The Arkansas Public Service Commission filed its 2016-2025 potential study in mid-2015. Arkansas has not completed a potential study since that time, though is in process with developing a new study in 2023. Economic potential was estimated at 15.5 percent of the 2025 load forecast. Using current budgeting as the base achievable potential scenario, a cumulative saving of 7.8 percent was estimated as achievable across the 10-year forecast period. Additional scenarios also tested the effect of lower budgets, higher budgets, and in the event of a carbon value. The cumulative achievable potential ranged from 5.7 percent (low budget) to 9.0 percent (high budget). No scenario equivalent to maximum achievable potential was presented in the report. Savings are described as being net of free riders, though no details were offered on how net savings were developed. In Arkansas some customers have the option to operate their own self-direct program. Achievable savings were treated as net of self-direct customers, removing their underlying load from the analysis for all technical, economic, and achievable estimates of potential savings.

The market scope included all investor-owned utilities (IOUs) in Arkansas. The market size being modeled for the study was not explicitly described. However, graphical depictions of the residential and commercial/industrial loads were included. The residential market is approximately 11,500 GWh per year, with the commercial/industrial market at approximately 14,000 GWh per year. Technical potential is 32% of the residential market and 13% of the C&I market. To model achievable potential, the study incorporates

² <https://www.ilsag.info/resources/potential-studies/>

Arkansas energy efficiency policy requiring that “all major end-uses” be covered, and that achievable potential include savings of “all achievable within a reasonable time period and maximizing net benefits to customers and utility system.” Achievable potential was determined by applying payback acceptance curves that were based on 2012 market research conducted for Kansas City Power & Light.

The potential study included a section related to demand response. The demand response “realistic” achievable potential was estimated at nine percent of capacity by 2025. The “realistic” demand response potential considered demand forecasts, customer acceptance rates, and programmatic best practices. Economic potential was not presented in the report.

Table A-3 summarizes key achievable potential metrics by sector resulting from the Arkansas Energy Efficiency Potential Study for energy efficiency. Sector-level details were not provided for the low and high incentive scenarios.

TABLE A-3. ARKANSAS ENERGY EFFICIENCY POTENTIAL STUDY KEY COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Ach Potential	C&I Ach Potential
2016-2025	TRC	Low \$: 5.7% Current \$: 7.8% High \$: 9.0%	Low \$: N/A Current \$: 10.3% High \$: N/A	Low \$: N/A Current \$: 5.2% High \$: N/A

Focus on Energy Wisconsin Energy Efficiency Potential Study (2021)

Wisconsin has a state-wide energy efficiency program that includes all IOUs, most municipal utilities, and many cooperative utilities. In 2021, the Public Service Commission of Wisconsin published its 2021 Focus on Energy Efficiency Potential Study. The study analyzed energy efficiency savings potential for the 2023-2034 time period, reflecting three quadrennial plan periods. For 12-year span, the study found an economic potential of 21 percent of forecasted 2034 electricity sales. Achievable potential used a “current policy potential” to reflect current spending, and a “optimized potential” that reflected more aggressive, though achievable, programs. The overall Current Policy Potential was found to be 13 percent of electricity sales, while the overall Optimized Potential was found to be 17 percent of electricity sales.

For the Focus on Energy study, achievable potentials were defined as:³

Optimized Potential: all theoretical cost-effective savings opportunities that could realistically be realized if program funding were not constrained. It represents the portion of economic potential that might be assumed reasonably attainable over the course of the planning horizon, given minimal implementation barriers to impede customer participation in Focus on Energy programs.

Current Policy Potential: is a subset of optimized potential, constrained by the current annual Focus on Energy budget and in consideration of the equitable balance of current ratepayer program contributions, such as splits between fuels and customer sectors.

Savings are only presented as gross savings and explicitly do not consider net to gross ratios or other considerations for program attribution or spillover. Wisconsin uses a modified TRC test that incorporates a \$15 per ton of carbon value as well as criteria air pollutant emission values reflecting utility costs for avoidance.

Table A-4 summarizes key achievable metrics by sector for the Focus on Energy BAU scenario with sector-level results for each scenario.

³ https://focusonenergy.com/sites/default/files/inline-files/Potential_Study_Report-FoE_Efficiency-2021.pdf, pp. 2-3.

TABLE A-4. FOCUS ON ENERGY WISCONSIN SCENARIO COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Ach Potentials	C&I Ach Potential
2016-2025	Modified TRC	Opt: 17% Current: 13%	Opt: 19.9% Current: 12.8%	Opt: 15.3% Current: 13.4%

ComEd Energy Efficiency Potential Study, 2017-2030

ComEd's distribution arm operates energy efficiency programs across its service territory. In 2016, ComEd published its potential study which forecasted opportunities for energy efficiency spanning the 14 years of 2017-2030. The study found an overall economic potential of roughly 29% at the end of 2030 and a maximum achievable potential of 10%. When constrained by program assumptions that maintained current funding levels, the cumulative achievable potential in 2030 was found to be 7 percent. The share of savings was heavily weighted toward the commercial sector, with 66 percent of the potential savings. The residential sector was estimated to achieve 25 percent of savings, with the industrial sector contributing the remaining eight percent.

In the ComEd study, achievable savings were presented as net savings and defined as:

1. Maximum achievable is the amount of cost-effective program potential that could be achieved absent program budget constraints and with incentives set at 100 percent of incremental cost.
2. Program achievable is based on the maximum budget under a two percent of customers' electricity costs limitation and follow current program budgets.

Net savings were derived from the historical evaluated net to gross ratios developed by program evaluators. The industrial sector does not appear to exclude any existing load from the energy efficiency potential analysis (a provision that exempts certain customers was signed into law in late 2016). Adoption rates were informed by interviews with program managers and often constrained by current participation levels and often assumed some potential decrease over time.

Avoided costs were not presented in the study. Savings by year were not tabulated, though were indicated as being influenced by known code and standards changes as well as the treatment of behavioral programs for persistence year-to-year.

TABLE A-5. COMED 2017-2030 ENERGY EFFICIENCY POTENTIAL COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Share of Savings	Commercial Share of Savings	Industrial Share of Savings
2017-2030	TRC	Max: 10% PP: 7%	Max: 22% PP: 25%	Max: 72% PP: 66%	Max: 6% PP: 8%

Consumers Energy Electric Energy Waste Reduction Potential Study (2021)

In 2021, Consumers Energy (Michigan) completed its most recent energy efficiency potential study. This study presented gross savings across a twenty-year period – 2021-2040. Unlike most studies in this comparison analysis, Consumers Energy utilizes the Utility Cost Test, also known as the Program Administrator Cost Test. The economically achievable potential was estimated at 25.5 percent of baseline sales in 2040. The maximum achievable potential (MAP) was estimated as 16.5 percent, while the potential achievable savings (PAP) was estimated 14.1 percent across the 20-year period.

The chief differences between MAP and PAP are the levels of constraint placed on the potential. MAP is described as unlimited in terms of savings and budgets, focusing primarily on limitations driven by market barriers and customer willingness to adopt measures. Additionally, MAP assumes 60 percent of residential customers will participate in a home energy reports program. Under MAP, savings are expressed in gross

terms. PAP savings are expressed on a net basis and for measures currently offered or have the potential to be offered by Consumers Energy over the forecast horizon. PAP spending and incentives are calibrated to historical budgets. While not explicitly mentioned in the potential study, Michigan’s Public Act 295 of 2008, limited utility expenditures to two percent of retail sales unless approved by the Michigan Public Service Commission.

TABLE A-6. CONSUMERS ENERGY ENERGY EFFICIENCY POTENTIAL STUDY COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Achievable Potential	Commercial Achievable Potential	Industrial Achievable Potential
20121-2040	UCT	MAP: 16.5% PAP: 14.1%	MAP: 15.2% PAP: 12%	MAP: 19.0% PAP: 17%	MAP: 15.1% RAP: 14%

AES Indiana Market Potential Study 2022 (formerly Indianapolis Power and Light)

Conducted by GDS Associates, the AES Indiana Market Potential Study covers the 2024-2042 timeframe, covering an assessment of market potential for the residential, commercial, and industrial sectors. GDS used a bottom-up approach to estimate energy efficiency potential in the residential sector. In the C&I sectors, GDS utilized the bottom-up modeling approach to first estimate measure-level savings and costs, as well as cost-effectiveness, and then applied cost-effective measure savings to all applicable energy shares of load. All savings estimates are provided at the gross level.

Economic potential was determined using the UCT Test. The analysis included estimates of maximum and realistic achievable potential, with definitions of each scenario similar to the 2023 Ameren MPS. Industrial opt-outs were excluded from the estimates of long-term potential baseline load.

In the MAP scenario, incentive levels were assumed to represent 100% of the incremental measure cost. In the RAP scenario, incentives reflected historical levels, though no constraints were placed on overall spending. Achievable potential adoption rates were based on primary WTP data collected as part of the MPS. Similar to the 2023 Ameren Missouri MPS, a share of the measures that reached the end of their useful life were allowed to re-enter the eligible potential market, assuming sustained savings and a new set of measure/program costs.⁴

TABLE A-7. AES INDIANA MARKET POTENTIAL STUDY COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Achievable Potential	C&I Achievable Potential
2024-2042	UCT	MAP: 31% RAP: 19%	MAP: 23% RAP: 18%	MAP: 25% RAP: 20%

Evergy (formerly KCP&L) 2019 DSM Potential Study

In 2020, Evergy (formerly KCP&L) published its 2019 DSM Potential Study, estimating DSM potential from 2023 through 2042. This study considered both energy efficiency and demand response, with energy efficiency savings reflecting net savings. The Evergy energy efficiency technical potential is estimated at 20 percent of overall load, with roughly 75 percent of the technical potential being economic under the TRC cost-effectiveness test. For demand response, the technical potential was estimated as 41 percent of summer peak load and 34 percent of winter peak load. There was no distinction between technical and economic DR potential.

⁴ The remaining share of savings were removed from the incremental annual potential savings and costs to reflect an element of market transformation. Market transformation was assumed to be relatively modest, with only commercial LED lighting equipment measures assumed to be significantly transformed at the end of its useful life. Note, cumulative annual impacts were not impacted by the market transformation/second life adjustment.

The energy efficiency achievable potentials were presented with multiple metrics – three varieties of realistic achievable potential (RAP) reflecting three levels of realistic program performance, a higher MEEIA scenario (higher savings than RAP) and a maximum achievable potential (MAP) scenario with incentives equating to 100 percent of incremental measure costs. Overall energy efficiency MAP and RAP were estimated at 13.2 percent and 7.6 percent across the forecast period and in reference to 2019 electricity sales. Energy efficiency savings were presented as being net of gross savings. In the table below, RAP savings reflect central (reference) program performance levels. For the C&I sectors, MAP reflects the MEEIA case.

Demand response savings potential scenarios were developed along similar logics as the energy efficiency potentials. The maximum achievable demand response scenario reflected an overall 20 percent reduction in peak summer load, with the central RAP scenario reflecting a 12.5 percent load reduction. 2019 peak demand was the reference from which these potentials were developed.

TABLE A-8. EVERGY 2019 DSM POTENTIAL STUDY COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Achievable Potential	Commercial Achievable Potential	Industrial Achievable Potential
2023-2042 Energy Efficiency	TRC	MAP: 13.2% RAP: 7.6%	MAP: 17.2% RAP: 9.7%	MAP: 8.4% RAP: 4.1%	MAP: 17.1% RAP: 12.7%
2023-2042 Demand Response	TRC	MAP: 20% RAP: 12.5%	Not available	Not available	Not available

Louisville Gas and Electric and Kentucky Utilities Demand-Side Potential Study (2017)

In 2017 Louisville Gas and Electric and Kentucky Utilities (LG&E and KU), as one company with two operating units, completed its DSM potential study for the 2019 through 2038 period. Using the TRC cost-effectiveness test, the study found economic energy efficiency potential equal to nine percent of LG&E and KU’s forecasted 2038 loads (technical potential was approximately 33% of baseline sales). The baseline forecast includes the presence of naturally occurring energy efficiency, but otherwise describes savings as gross savings. This study exhibits the lowest economic potential of any of the compared studies. Of note, the analysts modeled avoided energy costs that had decreased 20 percent since the prior 2013 study. Additionally, avoided capacity from energy efficiency was valued at \$0/kW, rather than the \$100/kW value used in the 2013 study. This treatment of avoided costs may explain the lower economic and achievable potential found for LG&E and KU compared to other studies, with a sensitivity analysis showing economic potential increasing to 15 percent of the 2038 forecasted load if capacity values were set at \$100/kW.

Achievable potential was developed using three scenarios, representing varying incentive levels. The scenarios presented incentive levels of 0 percent, 50 percent, and 75 percent of incremental cost coverage. Willingness-to-pay survey results were used to estimate achievable program adoption within the service territory. The outcome were achievable potentials of 4.0 percent, 5.8 percent, and 6.5 percent, increasing along with higher incentives. The study calculated achievable potential savings with only the first ten years allowing for measure retrofits and lost opportunity (natural replacement and new construction) measures. In the second half of the study period, only lost opportunity measures were considered for savings. The effect of this assumption on 2038 cumulative savings is unknown.

Table A-9 presents summary results of the achievable potential estimates, reflecting the three incentive scenarios described above.

TABLE A-9. LG&E AND KU ENERGY EFFICIENCY POTENTIAL COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Achievable Potential	Com & Ind Achievable Potential
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2019-2038	TRC	75%: 6.5%	75%: 6.2%	75%: 6.8%
		50%: 5.8%	50%: 5.5%	50%: 6.1%
		0%: 4.0%	0%: 4.2%	0%: 3.8%

Minnesota Energy Efficiency Potential Study (2018)

The Minnesota Energy Efficiency Potential Study analyzed energy efficiency potential over a 10-year period, beginning in 2020 through 2029. The MN MPS utilizes a “top-down” approach for all sectors. All savings are reported as gross savings.

The MN EE Potential Study used the Societal Test for screening. As such, avoided costs included a value for avoided environmental emissions and overall benefits of energy efficiency to society. Overall economic potential for the state by 2029 was estimated to be 33%.

The definition of maximum achievable potential generally mirrored the 2023 Ameren Missouri MPS with financial incentives representing 100% of the incremental costs of each measure, along with aggressive marketing and program designs. Beyond maximum achievable, the study also provided an estimate of program achievable potential, which assumed a standard incentive that represents 50% of incremental measure costs for program planning purposes. To estimate achievable penetration, the MN MPS utilized a combination of program awareness and willingness-to-adopt factors. The awareness factors were not readily accessible, but the MN MPS does note that willingness-to-adopt factors generally ranged from 60% to 85% for market-driven measures (e.g. replace on failure or major renovation) and 50%-80% for retrofit measures. Maximum penetrations rates were generally met over a period of 5-15 years.

TABLE A-10. MINNESOTA ENERGY EFFICIENCY POTENTIAL COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Achievable Potential	Com & Ind Achievable Potential
2020-2029	Societal	MAP: 21% Prog Pot:14%	Program Potential: 8%	Program Potential: 18%

Pennsylvania Energy Efficiency Potential Study (2020)

Pennsylvania completed its most recent potential study in 2020, spanning a 10-year forecast of potential savings from 2021 through 2030. As a statewide study, it reflects the potential energy efficiency savings from all investor-owned utilities in the State, each of which operate their own programs. Pennsylvania’s study is somewhat different from other studies in this comparison in that it used 2010 as a baseline year – substantially preceding the forecast period. Using the TRC and with no option for opt-out electricity customers, the study found an overall economic potential of 26.4 percent relative to the 2010 baseline year using the TRC cost-effectiveness test. The study presents savings at the gross-level, without net savings effects.

The Pennsylvania potential study presents two levels of achievable potential: Maximum Achievable Potential (MAP) and Program Achievable Potential (BAP). The MAP assumes an aggressive program scenario that includes 100 percent of measure incremental costs being paid for by the program. The PAP restricts the savings potential by using the historical program spending of the Pennsylvania utilities as well as the measure adoption rates evident in prior program years. The overall achievable potential (relative to the 2010 base year loads) is 12.8 percent under MAP and 6.3 percent under PAP.

While sector-level details are available, they only cover 2021-2025, a relatively short period meant to reflect near-term programs. Sector level savings details are not available for the 2021-2030 timeframe.

TABLE A-11. PENNSYLVANIA STATEWIDE ENERGY EFFICIENCY POTENTIAL COMPARISON METRICS

Forecast Period	Benefit-Cost Model	Overall Ach Potential	Residential Achievable Potential	Commercial Achievable Potential	Industrial Achievable Potential
2021-2030	TRC	MAP: 13.2% BAP: 8.3%	Not reported	Not reported	Not reported

APPENDIX B: RESIDENTIAL SECTOR ENERGY EFFICIENCY DETAILS

Appendix B: Residential Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
1001	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	MO	442	10%	44	0.01	17	\$40	100%	84%	REFR-1	167%	25%	0.8	1.0	2.6
1002	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	MO	442	10%	44	0.01	17	\$40	100%	100%	REFR-2	130%	25%	0.8	0.8	2.8
1003	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	ER1	1,028	55%	565	0.07	6	\$753	100%	99%	REFR-2	130%	25%	0.2	0.2	1.5
1004	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	ER2	442	10%	44	0.01	11	\$0	100%	35%	REFR-2	130%	25%	1.0	1.0	1.0
1005	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	ER3	442	10%	44	0.01	17	\$40	100%	100%	REFR-2	130%	25%	0.8	0.8	2.8
1006	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	NC	442	10%	44	0.01	17	\$40	100%	84%	REFR-3	167%	0%	0.8	1.0	2.6
1007	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	MO	442	10%	44	0.01	17	\$40	100%	84%	REFR-4	130%	25%	0.8	1.0	2.6
1008	Appliances	ENERGY STAR Refrigerator	Multifamily Market Rate	MF	ER1	1,028	55%	565	0.07	6	\$753	100%	32%	REFR-4	130%	25%	0.2	0.7	0.9
1009	Appliances	ENERGY STAR Refrigerator	Multifamily Market Rate	MF	ER2	442	10%	44	0.01	11	\$0	100%	35%	REFR-4	130%	25%	1.0	1.0	1.0
1010	Appliances	ENERGY STAR Refrigerator	Multifamily Market Rate	MF	ER3	442	10%	44	0.01	17	\$40	100%	80%	REFR-4	130%	25%	0.8	1.0	2.6
1011	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	MO	442	10%	44	0.01	17	\$40	100%	84%	REFR-5	105%	25%	0.8	1.0	2.6
1012	Appliances	ENERGY STAR Refrigerator	Multifamily Income Eligible	MF	ER1	1,028	55%	563	0.07	6	\$753	100%	32%	REFR-5	130%	25%	0.2	0.7	0.8
1013	Appliances	ENERGY STAR Refrigerator	Multifamily Income Eligible	MF	ER2	442	10%	44	0.01	11	\$0	100%	35%	REFR-5	130%	25%	1.0	1.0	1.0
1014	Appliances	ENERGY STAR Refrigerator	Multifamily Income Eligible	MF	ER3	442	10%	44	0.01	17	\$40	100%	100%	REFR-5	130%	25%	0.8	0.8	2.8
1015	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	NC	442	10%	44	0.01	17	\$40	100%	84%	REFR-6	130%	0%	0.8	1.0	2.6
1016	Appliances	Dehumidifier Recycling	Appliance Recycling	SF	Recycle	139	100%	139	0.06	5	\$43	100%	12%	DEHUM RECY	23%	0%	1.5	12.4	2.1
1017	Appliances	Dehumidifier Recycling	Appliance Recycling	SF	Recycle	139	100%	139	0.06	5	\$43	100%	12%	DEHUM RECY	23%	0%	1.5	12.4	2.1
1018	Appliances	Dehumidifier Recycling	Appliance Recycling	SF	Recycle	139	100%	139	0.06	5	\$43	100%	12%	DEHUM RECY	23%	0%	1.5	12.4	2.1
1019	Appliances	Dehumidifier Recycling	Appliance Recycling	MF	Recycle	139	100%	139	0.06	5	\$43	100%	12%	DEHUM RECY	23%	0%	1.5	12.4	2.1
1020	Appliances	Freezer Recycling	Appliance Recycling	SF	Recycle	767	100%	767	0.13	8	\$140	100%	18%	FR RECY-1	50%	0%	2.3	12.6	5.1
1021	Appliances	Freezer Recycling	Appliance Recycling	SF	Recycle	767	100%	767	0.13	8	\$140	100%	18%	FR RECY-2	50%	0%	2.3	12.6	5.1
1022	Appliances	Freezer Recycling	Appliance Recycling	MF	Recycle	767	100%	767	0.13	8	\$140	100%	18%	FR RECY-3	5%	0%	2.3	12.6	5.1
1023	Appliances	Freezer Recycling	Appliance Recycling	MF	Recycle	767	100%	767	0.13	8	\$140	100%	18%	FR RECY-4	3%	0%	2.3	12.6	5.1
1024	Appliances	Refrigerator recycling (pre-1990)	Appliance Recycling	SF	Recycle	1,178	100%	1,178	0.15	8	\$140	100%	18%	REF RECY-1	167%	0%	3.1	17.4	7.7
1025	Appliances	Refrigerator recycling (pre-1990)	Appliance Recycling	SF	Recycle	1,178	100%	1,178	0.15	8	\$140	100%	18%	REF RECY-2	109%	0%	3.1	17.4	7.7
1026	Appliances	Refrigerator recycling (pre-1990)	Appliance Recycling	MF	Recycle	1,178	100%	1,178	0.15	8	\$140	100%	18%	REF RECY-3	130%	0%	3.1	17.4	7.7
1027	Appliances	Refrigerator recycling (pre-1990)	Appliance Recycling	MF	Recycle	1,178	100%	1,178	0.15	8	\$140	100%	18%	REF RECY-4	105%	0%	3.1	17.4	7.7
1028	Appliances	Refrigerator recycling (post-1990)	Appliance Recycling	SF	Recycle	803	100%	803	0.10	8	\$140	100%	18%	REF RECY-1	167%	0%	2.1	11.9	5.3
1029	Appliances	Refrigerator recycling (post-1990)	Appliance Recycling	SF	Recycle	803	100%	803	0.10	8	\$140	100%	18%	REF RECY-2	109%	0%	2.1	11.9	5.3
1030	Appliances	Refrigerator recycling (post-1990)	Appliance Recycling	MF	Recycle	803	100%	803	0.10	8	\$140	100%	18%	REF RECY-3	130%	0%	2.1	11.9	5.3
1031	Appliances	Refrigerator recycling (post-1990)	Appliance Recycling	MF	Recycle	803	100%	803	0.10	8	\$140	100%	18%	REF RECY-4	105%	0%	2.1	11.9	5.3
1032	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	SF	MO	911	63%	570	0.07	9	\$45	100%	64%	AIR PUR-1	12%	25%	5.0	7.8	13.4
1033	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	SF	MO	911	63%	570	0.07	9	\$45	100%	64%	AIR PUR-2	12%	25%	5.0	7.8	13.4
1034	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	SF	NC	911	63%	570	0.07	9	\$45	100%	64%	AIR PUR-3	12%	0%	5.0	7.8	13.4
1035	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	MF	MO	911	63%	570	0.07	9	\$45	100%	64%	AIR PUR-4	12%	25%	5.0	7.8	13.4
1036	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	MF	MO	911	63%	570	0.07	9	\$45	100%	64%	AIR PUR-5	12%	25%	5.0	7.8	13.4
1037	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	MF	NC	911	63%	570	0.07	9	\$45	100%	64%	AIR PUR-6	12%	0%	5.0	7.8	13.4
1038	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	SF	MO	766	19%	146	0.03	14	\$75	100%	84%	DRYER-1	73%	7%	1.3	1.5	3.6
1039	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	SF	MO	766	19%	146	0.03	14	\$75	100%	84%	DRYER-2	73%	7%	1.3	1.5	3.6
1040	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	SF	NC	766	19%	146	0.03	14	\$75	100%	84%	DRYER-3	73%	0%	1.3	1.5	3.6
1041	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	MF	MO	766	19%	146	0.03	14	\$75	100%	84%	DRYER-4	73%	7%	1.3	1.5	3.6
1042	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	MF	MO	766	19%	146	0.03	14	\$75	100%	84%	DRYER-5	73%	7%	1.3	1.5	3.6
1043	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	MF	NC	766	19%	146	0.03	14	\$75	100%	84%	DRYER-6	73%	0%	1.3	1.5	3.6
1044	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	SF	MO	590	40%	236	0.03	14	\$141	100%	84%	CW-1	22%	74%	1.0	1.2	3.2
1045	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	SF	MO	590	40%	236	0.03	14	\$141	100%	84%	CW-2	30%	74%	1.0	1.2	3.2
1046	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	SF	NC	590	40%	236	0.03	14	\$141	100%	84%	CW-3	22%	0%	1.0	1.2	3.2
1047	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	MF	MO	590	40%	236	0.03	14	\$141	100%	84%	CW-4	17%	74%	1.0	1.2	3.2
1048	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	MF	MO	590	40%	236	0.03	14	\$141	100%	84%	CW-5	34%	74%	1.0	1.2	3.2
1049	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	MF	NC	590	40%	236	0.03	14	\$141	100%	84%	CW-6	17%	0%	1.0	1.2	3.2
1050	Appliances	ENERGY STAR Dehumidifier	Efficient Products	SF	MO	1,095	12%	134	0.03	12	\$10	100%	100%	DEHUM-1	23%	85%	3.4	3.4	7.5
1051	Appliances	ENERGY STAR Dehumidifier	Efficient Products	SF	MO	1,095	12%	134	0.03	12	\$10	100%	100%	DEHUM-2	23%	85%	3.4	3.4	7.5
1052	Appliances	ENERGY STAR Dehumidifier	Efficient Products	SF	NC	1,095	12%	134	0.03	12	\$10	100%	100%	DEHUM-3	23%	0%	3.4	3.4	7.5
1053	Appliances	ENERGY STAR Dehumidifier	Efficient Products	MF	MO	1,095	12%	134	0.03	12	\$10	100%	100%	DEHUM-4	23%	85%	3.4	3.4	7.5
1054	Appliances	ENERGY STAR Dehumidifier	Efficient Products	MF	MO	1,095	12%	134	0.03	12	\$10	100%	100%	DEHUM-5	23%	85%	3.4	3.4	7.5

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
1055	Appliances	ENERGY STAR dehumidifier	Efficient Products	MF	NC	1,095	12%	134	0.03	12	\$10	100%	100%	DEHUM-6	23%	0%	3.4	3.4	7.5
1056	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	MO	307	12%	37	0.00	11	\$76	100%	84%	DISH-1	71%	74%	0.2	0.2	1.4
1057	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	MO	307	12%	37	0.00	11	\$76	100%	84%	DISH-2	71%	74%	0.2	0.2	1.4
1058	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	NC	307	12%	37	0.00	11	\$76	100%	84%	DISH-3	71%	0%	0.2	0.2	1.4
1059	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	MO	307	12%	37	0.00	11	\$76	100%	84%	DISH-4	71%	74%	0.2	0.2	1.4
1060	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	MO	307	12%	37	0.00	11	\$76	100%	84%	DISH-5	71%	74%	0.2	0.2	1.4
1061	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	NC	307	12%	37	0.00	11	\$76	100%	84%	DISH-6	71%	0%	0.2	0.2	1.4
1062	Appliances	Freezers ENERGY STAR	Efficient Products	SF	MO	268	10%	27	0.00	22	\$35	100%	71%	FREEZER-1	50%	19%	0.7	0.9	2.2
1063	Appliances	Freezers ENERGY STAR	Efficient Products	SF	MO	268	10%	27	0.00	22	\$35	100%	71%	FREEZER-2	50%	19%	0.7	0.9	2.2
1064	Appliances	Freezers ENERGY STAR	Efficient Products	SF	NC	268	10%	27	0.00	22	\$35	100%	71%	FREEZER-3	50%	0%	0.7	0.9	2.2
1065	Appliances	Freezers ENERGY STAR	Efficient Products	MF	MO	268	10%	27	0.00	22	\$35	100%	71%	FREEZER-4	5%	19%	0.7	0.9	2.2
1066	Appliances	Freezers ENERGY STAR	Efficient Products	MF	MO	268	10%	27	0.00	22	\$35	100%	71%	FREEZER-5	13%	19%	0.7	0.9	2.2
1067	Appliances	Freezers ENERGY STAR	Efficient Products	MF	NC	268	10%	27	0.00	22	\$35	100%	71%	FREEZER-6	5%	0%	0.7	0.9	2.2
1068	Appliances	Heat Pump Dryer	Efficient Products	SF	MO	766	49%	378	0.14	14	\$900	100%	84%	DRYER-1	73%	7%	0.4	0.5	1.4
1069	Appliances	Heat Pump Dryer	Efficient Products	SF	MO	766	49%	378	0.14	14	\$900	100%	84%	DRYER-2	73%	7%	0.4	0.5	1.4
1070	Appliances	Heat Pump Dryer	Efficient Products	SF	NC	766	49%	378	0.14	14	\$900	100%	84%	DRYER-3	73%	0%	0.4	0.5	1.4
1071	Appliances	Heat Pump Dryer	Efficient Products	MF	MO	766	49%	378	0.14	14	\$900	100%	84%	DRYER-4	73%	7%	0.4	0.5	1.4
1072	Appliances	Heat Pump Dryer	Efficient Products	MF	MO	766	49%	378	0.14	14	\$900	100%	84%	DRYER-5	73%	7%	0.4	0.5	1.4
1073	Appliances	Heat Pump Dryer	Efficient Products	MF	NC	766	49%	378	0.14	14	\$900	100%	84%	DRYER-6	73%	0%	0.4	0.5	1.4
2001	Behavior	Home Energy Report	No program	SF	MO	14,064	1%	140	0.07	1	\$0	100%	35%	HER-1	100%	0%	1.0	1.0	1.0
2002	Behavior	Home Energy Report	No program	SF	MO	14,064	1%	140	0.07	1	\$0	100%	35%	HER-2	100%	0%	1.0	1.0	1.0
2003	Behavior	Home Energy Report	No program	SF	NC	14,064	1%	140	0.07	1	\$0	100%	35%	HER-3	100%	0%	1.0	1.0	1.0
2004	Behavior	Home Energy Report	No program	MF	MO	7,601	2%	140	0.07	1	\$0	100%	35%	HER-4	100%	0%	1.0	1.0	1.0
2005	Behavior	Home Energy Report	No program	MF	MO	7,601	2%	140	0.07	1	\$0	100%	35%	HER-5	100%	0%	1.0	1.0	1.0
2006	Behavior	Home Energy Report	No program	MF	NC	7,601	2%	140	0.07	1	\$0	100%	35%	HER-6	100%	0%	1.0	1.0	1.0
2007	Behavior	Home Energy Management System	Efficient Products	SF	Retrofit	14,064	3%	451	0.05	5	\$90	100%	84%	HEM-1	100%	0%	1.1	1.4	3.8
2008	Behavior	Home Energy Management System	Efficient Products	SF	Retrofit	14,064	3%	451	0.05	5	\$90	100%	84%	HEM-2	100%	0%	1.1	1.4	3.8
2009	Behavior	Home Energy Management System	Efficient Products	SF	NC	14,064	3%	451	0.05	5	\$90	100%	84%	HEM-3	100%	0%	1.1	1.4	3.8
2010	Behavior	Home Energy Management System	Efficient Products	MF	Retrofit	7,601	3%	244	0.03	5	\$90	100%	84%	HEM-4	100%	0%	0.6	0.7	2.5
2011	Behavior	Home Energy Management System	Efficient Products	MF	Retrofit	7,601	3%	244	0.03	5	\$90	100%	84%	HEM-5	100%	0%	0.6	0.7	2.5
2012	Behavior	Home Energy Management System	Efficient Products	MF	NC	7,601	3%	244	0.03	5	\$90	100%	84%	HEM-6	100%	0%	0.6	0.7	2.5
2013	Behavior	AMI Data Portal	No program	SF	MO	14,064	2%	281	0.03	1	\$0	100%	100%	AMI-1	100%	0%	39.4	39.4	112.2
2014	Behavior	AMI Data Portal	No program	SF	MO	14,064	2%	281	0.03	1	\$0	100%	100%	AMI-2	100%	0%	39.4	39.4	112.2
2015	Behavior	AMI Data Portal	No program	SF	NC	14,064	2%	281	0.03	1	\$0	100%	100%	AMI-3	100%	0%	39.4	39.4	112.2
2016	Behavior	AMI Data Portal	No program	MF	MO	7,601	2%	152	0.02	1	\$0	100%	100%	AMI-4	100%	0%	21.3	21.3	61.1
2017	Behavior	AMI Data Portal	No program	MF	MO	7,601	2%	152	0.02	1	\$0	100%	100%	AMI-5	100%	0%	21.3	21.3	61.1
2018	Behavior	AMI Data Portal	No program	MF	NC	7,601	2%	152	0.02	1	\$0	100%	100%	AMI-6	100%	0%	21.3	21.3	61.1
3001	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Elec/AC	PAYS	SF	Retrofit	12,872	2%	246	0.12	15	\$246	100%	100%	AIR-1	27%	57%	0.7	0.6	1.8
3002	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Elec/AC	Single Family Income Eligible	SF	Retrofit	12,872	1%	143	0.07	15	\$143	100%	56%	AIR-2	44%	62%	1.5	2.1	2.3
3003	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Elec/AC	PAYS	MF	Retrofit	3,190	4%	134	0.06	15	\$134	100%	100%	AIR-3	60%	64%	0.4	0.3	1.5
3004	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Elec/AC	Multifamily Income Eligible	MF	Retrofit	3,190	3%	92	0.04	15	\$92	100%	25%	AIR-4	67%	61%	1.5	4.7	2.0
3005	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	PAYS	SF	Retrofit	12,872	4%	493	0.23	15	\$246	100%	100%	AIR-5	27%	73%	1.2	1.1	2.5
3006	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	Single Family Income Eligible	SF	Retrofit	12,872	2%	287	0.13	15	\$143	100%	56%	AIR-6	44%	67%	2.6	4.2	3.8
3007	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	PAYS	MF	Retrofit	3,190	8%	267	0.12	15	\$134	100%	100%	AIR-7	60%	69%	0.7	0.6	1.8
3008	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	Multifamily Income Eligible	MF	Retrofit	3,190	6%	185	0.09	15	\$92	100%	25%	AIR-8	67%	64%	2.6	9.4	3.5
3009	Building Shell	Air Sealing - Tier 3 (poor condition) - Elec/AC	PAYS	SF	Retrofit	12,872	6%	739	0.35	15	\$246	100%	100%	AIR-9	27%	97%	1.8	1.7	3.2
3010	Building Shell	Air Sealing - Tier 3 (poor condition) - Elec/AC	Single Family Income Eligible	SF	Retrofit	12,872	3%	430	0.20	15	\$143	100%	56%	AIR-10	44%	92%	3.8	6.3	5.3
3011	Building Shell	Air Sealing - Tier 3 (poor condition) - Elec/AC	PAYS	MF	Retrofit	3,190	13%	401	0.19	15	\$134	100%	100%	AIR-11	60%	93%	1.0	0.9	2.2
3012	Building Shell	Air Sealing - Tier 3 (poor condition) - Elec/AC	Multifamily Income Eligible	MF	Retrofit	3,190	9%	277	0.13	15	\$92	100%	25%	AIR-12	67%	85%	3.8	14.0	5.0

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
3013	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - HP/HP	PAYS	SF	Retrofit	6,906	3%	212	0.10	15	\$246	100%	100%	AIR-13	5%	57%	0.6	0.5	1.7
3014	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - HP/HP	Single Family Income Eligible	SF	Retrofit	6,906	2%	123	0.06	15	\$143	100%	56%	AIR-14	6%	62%	1.3	1.8	2.1
3015	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - HP/HP	PAYS	MF	Retrofit	2,120	5%	115	0.05	15	\$134	100%	100%	AIR-15	11%	64%	0.3	0.3	1.4
3016	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - HP/HP	Multifamily Income Eligible	MF	Retrofit	2,120	4%	80	0.04	15	\$92	100%	25%	AIR-16	6%	61%	1.3	4.0	1.8
3017	Building Shell	Air Sealing - Tier 2 (fair condition) - HP/HP	PAYS	SF	Retrofit	6,906	6%	424	0.20	15	\$246	100%	100%	AIR-17	5%	73%	1.1	0.9	2.3
3018	Building Shell	Air Sealing - Tier 2 (fair condition) - HP/HP	Single Family Income Eligible	SF	Retrofit	6,906	4%	247	0.12	15	\$143	100%	56%	AIR-18	6%	67%	2.3	3.6	3.4
3019	Building Shell	Air Sealing - Tier 2 (fair condition) - HP/HP	PAYS	MF	Retrofit	2,120	11%	230	0.11	15	\$134	100%	100%	AIR-19	11%	69%	0.6	0.5	1.7
3020	Building Shell	Air Sealing - Tier 2 (fair condition) - HP/HP	Multifamily Income Eligible	MF	Retrofit	2,120	8%	159	0.07	15	\$92	100%	25%	AIR-20	6%	64%	2.3	8.1	3.1
3021	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	PAYS	SF	Retrofit	6,906	9%	637	0.30	15	\$246	100%	100%	AIR-21	5%	97%	1.6	1.4	2.9
3022	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	Single Family Income Eligible	SF	Retrofit	6,906	5%	370	0.17	15	\$143	100%	56%	AIR-22	6%	92%	3.3	5.4	4.7
3023	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	PAYS	MF	Retrofit	2,120	16%	345	0.16	15	\$134	100%	100%	AIR-23	11%	93%	0.8	0.8	2.0
3024	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	Multifamily Income Eligible	MF	Retrofit	2,120	11%	239	0.11	15	\$92	100%	25%	AIR-24	6%	85%	3.3	12.1	4.3
3025	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Gas/AC	PAYS	SF	Retrofit	2,450	2%	41	0.02	15	\$246	100%	100%	AIR-25	64%	57%	0.2	0.1	1.2
3026	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Gas/AC	Single Family Income Eligible	SF	Retrofit	2,450	1%	24	0.01	15	\$143	100%	56%	AIR-26	48%	62%	0.5	0.3	1.1
3027	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Gas/AC	PAYS	MF	Retrofit	874	3%	22	0.01	15	\$134	100%	100%	AIR-27	25%	64%	0.1	0.0	1.1
3028	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Gas/AC	Multifamily Income Eligible	MF	Retrofit	874	2%	15	0.01	15	\$92	100%	25%	AIR-28	23%	61%	0.5	0.8	0.8
3029	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	PAYS	SF	Retrofit	2,450	3%	82	0.04	15	\$246	100%	100%	AIR-29	64%	73%	0.3	0.1	1.3
3030	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	Single Family Income Eligible	SF	Retrofit	2,450	2%	48	0.02	15	\$143	100%	56%	AIR-30	48%	67%	0.7	0.7	1.3
3031	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	PAYS	MF	Retrofit	874	5%	45	0.02	15	\$134	100%	100%	AIR-31	25%	69%	0.1	0.1	1.2
3032	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	Multifamily Income Eligible	MF	Retrofit	874	4%	31	0.01	15	\$92	100%	25%	AIR-32	23%	64%	0.7	1.6	1.0
3033	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	PAYS	SF	Retrofit	2,450	5%	123	0.06	15	\$246	100%	100%	AIR-33	64%	97%	0.3	0.2	1.4
3034	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	Single Family Income Eligible	SF	Retrofit	2,450	3%	72	0.03	15	\$143	100%	56%	AIR-34	48%	92%	0.9	1.0	1.6
3035	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	PAYS	MF	Retrofit	874	8%	67	0.03	15	\$134	100%	100%	AIR-35	25%	93%	0.2	0.1	1.2
3036	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	Multifamily Income Eligible	MF	Retrofit	874	5%	46	0.02	15	\$92	100%	25%	AIR-36	23%	85%	0.9	2.3	1.3
3037	Building Shell	Ceiling Insulation R11-R49 electric furnace base	PAYS	SF	Retrofit	12,872	9%	1,203	0.56	25	\$2,406	100%	17%	CEIL-1	27%	70%	1.1	4.9	1.5
3038	Building Shell	Ceiling Insulation R11-R49 electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	6%	742	0.35	25	\$1,484	100%	86%	CEIL-2	44%	59%	1.1	0.9	2.2
3039	Building Shell	Ceiling Insulation R11-R49 electric furnace base	Multifamily Market Rate	MF	Retrofit	3,190	30%	955	0.45	25	\$1,910	100%	3%	CEIL-3	60%	62%	1.1	27.0	1.3
3040	Building Shell	Ceiling Insulation R11-R49 electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	22%	688	0.32	25	\$1,376	100%	4%	CEIL-4	67%	48%	1.1	20.7	1.4
3041	Building Shell	Ceiling Insulation R5-R30 electric furnace base	PAYS	SF	Retrofit	12,872	15%	1,941	0.90	25	\$1,317	100%	30%	CEIL-1	27%	70%	2.7	7.8	3.6
3042	Building Shell	Ceiling Insulation R5-R30 electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	9%	1,197	0.56	25	\$812	100%	86%	CEIL-2	44%	59%	2.7	2.8	4.2
3043	Building Shell	Ceiling Insulation R5-R30 electric furnace base	Multifamily Market Rate	MF	Retrofit	3,190	48%	1,541	0.72	25	\$1,045	100%	3%	CEIL-3	60%	62%	2.7	79.5	3.3
3044	Building Shell	Ceiling Insulation R5-R30 electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	35%	1,110	0.52	25	\$753	100%	4%	CEIL-4	67%	48%	2.7	61.1	3.3
3045	Building Shell	Ceiling Insulation R5-R38 electric furnace base	PAYS	SF	Retrofit	12,872	16%	2,088	0.97	25	\$1,907	100%	21%	CEIL-1	27%	70%	2.1	8.4	2.7
3046	Building Shell	Ceiling Insulation R5-R38 electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	10%	1,288	0.60	25	\$1,176	100%	86%	CEIL-2	44%	59%	2.1	2.1	3.4
3047	Building Shell	Ceiling Insulation R5-R38 electric furnace base	Multifamily Market Rate	MF	Retrofit	3,190	52%	1,658	0.77	25	\$1,514	100%	3%	CEIL-3	60%	62%	2.1	59.0	2.6

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
3048	Building Shell	Ceiling Insulation R5-R38 electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	37%	1,194	0.56	25	\$1,090	100%	4%	CEIL-4	67%	48%	2.1	45.4	2.6
3049	Building Shell	Ceiling Insulation R5-R49 electric furnace base	PAYS	SF	Retrofit	12,872	17%	2,225	1.04	25	\$2,917	100%	14%	CEIL-1	27%	70%	1.5	9.0	2.0
3050	Building Shell	Ceiling Insulation R5-R49 electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	11%	1,372	0.64	25	\$1,799	100%	86%	CEIL-2	44%	59%	1.5	1.4	2.7
3051	Building Shell	Ceiling Insulation R5-R49 electric furnace base	Multifamily Market Rate	MF	Retrofit	3,190	55%	1,766	0.82	25	\$2,316	100%	3%	CEIL-3	60%	62%	1.5	41.1	1.9
3052	Building Shell	Ceiling Insulation R5-R49 electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	40%	1,272	0.59	25	\$1,668	100%	4%	CEIL-4	67%	48%	1.5	31.6	1.9
3053	Building Shell	Ceiling Insulation R5-R60 electric furnace base	PAYS	SF	Retrofit	12,872	18%	2,304	1.07	25	\$3,882	100%	10%	CEIL-1	27%	70%	1.3	9.3	1.6
3054	Building Shell	Ceiling Insulation R5-R60 electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	11%	1,421	0.66	25	\$2,394	100%	86%	CEIL-2	44%	59%	1.3	1.1	2.4
3055	Building Shell	Ceiling Insulation R5-R60 electric furnace base	Multifamily Market Rate	MF	Retrofit	3,190	57%	1,829	0.85	25	\$3,081	100%	3%	CEIL-3	60%	62%	1.3	32.0	1.5
3056	Building Shell	Ceiling Insulation R5-R60 electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	41%	1,317	0.61	25	\$2,220	100%	4%	CEIL-4	67%	48%	1.3	24.6	1.5
3057	Building Shell	Ceiling Insulation R11-R49 heat pump base	PAYS	SF	Retrofit	6,906	11%	749	0.35	25	\$2,406	100%	17%	CEIL-5	5%	70%	0.8	3.0	1.1
3058	Building Shell	Ceiling Insulation R11-R49 heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	7%	462	0.22	25	\$1,484	100%	86%	CEIL-6	6%	59%	0.8	0.6	1.8
3059	Building Shell	Ceiling Insulation R11-R49 heat pump base	PAYS	MF	Retrofit	2,120	28%	595	0.28	25	\$1,910	100%	21%	CEIL-7	11%	62%	0.8	2.4	1.1
3060	Building Shell	Ceiling Insulation R11-R49 heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	20%	428	0.20	25	\$1,376	100%	4%	CEIL-8	6%	48%	0.8	12.9	1.0
3061	Building Shell	Ceiling Insulation R5-R30 heat pump base	PAYS	SF	Retrofit	6,906	18%	1,214	0.57	25	\$1,317	100%	30%	CEIL-5	5%	70%	1.8	4.9	2.5
3062	Building Shell	Ceiling Insulation R5-R30 heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	11%	749	0.35	25	\$812	100%	86%	CEIL-6	6%	59%	1.8	1.7	3.0
3063	Building Shell	Ceiling Insulation R5-R30 heat pump base	PAYS	MF	Retrofit	2,120	45%	964	0.45	25	\$1,045	100%	38%	CEIL-7	11%	62%	1.8	3.9	2.6
3064	Building Shell	Ceiling Insulation R5-R30 heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	33%	694	0.32	25	\$753	100%	4%	CEIL-8	6%	48%	1.8	38.3	2.2
3065	Building Shell	Ceiling Insulation R5-R38 heat pump base	PAYS	SF	Retrofit	6,906	19%	1,305	0.61	25	\$1,907	100%	21%	CEIL-5	5%	70%	1.4	5.3	1.9
3066	Building Shell	Ceiling Insulation R5-R38 heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	12%	805	0.38	25	\$1,176	100%	86%	CEIL-6	6%	59%	1.4	1.3	2.6
3067	Building Shell	Ceiling Insulation R5-R38 heat pump base	PAYS	MF	Retrofit	2,120	49%	1,036	0.48	25	\$1,514	100%	26%	CEIL-7	11%	62%	1.4	4.2	2.0
3068	Building Shell	Ceiling Insulation R5-R38 heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	35%	746	0.35	25	\$1,090	100%	4%	CEIL-8	6%	48%	1.4	28.4	1.7
3069	Building Shell	Ceiling Insulation R5-R49 heat pump base	PAYS	SF	Retrofit	6,906	20%	1,385	0.65	25	\$2,917	100%	14%	CEIL-5	5%	70%	1.1	5.6	1.4
3070	Building Shell	Ceiling Insulation R5-R49 heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	12%	854	0.40	25	\$1,799	100%	86%	CEIL-6	6%	59%	1.1	0.9	2.1
3071	Building Shell	Ceiling Insulation R5-R49 heat pump base	PAYS	MF	Retrofit	2,120	52%	1,099	0.51	25	\$2,316	100%	17%	CEIL-7	11%	62%	1.1	4.4	1.4
3072	Building Shell	Ceiling Insulation R5-R49 heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	37%	792	0.37	25	\$1,668	100%	4%	CEIL-8	6%	48%	1.1	19.7	1.3
3073	Building Shell	Ceiling Insulation R5-R60 heat pump base	PAYS	SF	Retrofit	6,906	21%	1,441	0.67	25	\$3,882	100%	10%	CEIL-5	5%	70%	0.9	5.8	1.2
3074	Building Shell	Ceiling Insulation R5-R60 heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	13%	889	0.41	25	\$2,394	100%	86%	CEIL-6	6%	59%	0.9	0.7	1.9
3075	Building Shell	Ceiling Insulation R5-R60 heat pump base	PAYS	MF	Retrofit	2,120	54%	1,144	0.53	25	\$3,081	100%	13%	CEIL-7	11%	62%	0.9	4.6	1.2
3076	Building Shell	Ceiling Insulation R5-R60 heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	39%	824	0.38	25	\$2,220	100%	4%	CEIL-8	6%	48%	0.9	15.4	1.1
3077	Building Shell	Ceiling Insulation R11-R49 gas heat and electric cool base	PAYS	SF	Retrofit	2,450	6%	159	0.07	25	\$2,406	100%	17%	CEIL-9	64%	70%	0.4	0.6	0.6
3078	Building Shell	Ceiling Insulation R11-R49 gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	4%	98	0.05	25	\$1,484	100%	86%	CEIL-10	48%	59%	0.4	0.1	1.3
3079	Building Shell	Ceiling Insulation R11-R49 gas heat and electric cool base	Multifamily Market Rate	MF	Retrofit	874	55%	478	0.22	25	\$1,910	100%	3%	CEIL-11	25%	62%	0.7	13.5	0.8
3080	Building Shell	Ceiling Insulation R11-R49 gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	10%	91	0.04	25	\$1,376	100%	4%	CEIL-12	23%	48%	0.4	2.7	0.5
3081	Building Shell	Ceiling Insulation R5-R30 gas heat and electric cool base	PAYS	SF	Retrofit	2,450	11%	261	0.12	25	\$1,317	100%	30%	CEIL-9	64%	70%	0.6	1.1	1.0
3082	Building Shell	Ceiling Insulation R5-R30 gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	7%	161	0.08	25	\$812	100%	86%	CEIL-10	48%	59%	0.6	0.4	1.6

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
3083	Building Shell	Ceiling insulation R5-R30 gas heat and electric cool base	Multifamily Market Rate	MF	Retrofit	874	89%	775	0.36	25	\$1,045	100%	3%	CEIL-11	25%	62%	1.5	40.0	1.8
3084	Building Shell	Ceiling insulation R5-R30 gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	17%	149	0.07	25	\$753	100%	4%	CEIL-12	23%	48%	0.6	8.2	0.7
3085	Building Shell	Ceiling insulation R5-R38 gas heat and electric cool base	PAYS	SF	Retrofit	2,450	12%	284	0.13	25	\$1,907	100%	21%	CEIL-9	64%	70%	0.5	1.1	0.8
3086	Building Shell	Ceiling insulation R5-R38 gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	7%	175	0.08	25	\$1,176	100%	86%	CEIL-10	48%	59%	0.5	0.3	1.5
3087	Building Shell	Ceiling insulation R5-R38 gas heat and electric cool base	Multifamily Market Rate	MF	Retrofit	874	96%	838	0.39	25	\$1,514	100%	3%	CEIL-11	25%	62%	1.2	29.8	1.5
3088	Building Shell	Ceiling insulation R5-R38 gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	19%	162	0.08	25	\$1,090	100%	4%	CEIL-12	23%	48%	0.5	6.2	0.6
3089	Building Shell	Ceiling insulation R5-R49 gas heat and electric cool base	PAYS	SF	Retrofit	2,450	12%	295	0.14	25	\$2,917	100%	14%	CEIL-9	64%	70%	0.5	1.2	0.6
3090	Building Shell	Ceiling insulation R5-R49 gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	7%	182	0.08	25	\$1,799	100%	86%	CEIL-10	48%	59%	0.5	0.2	1.4
3091	Building Shell	Ceiling insulation R5-R49 gas heat and electric cool base	Multifamily Market Rate	MF	Retrofit	874	102%	892	0.42	25	\$2,316	100%	3%	CEIL-11	25%	62%	0.9	20.8	1.1
3092	Building Shell	Ceiling insulation R5-R49 gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	19%	169	0.08	25	\$1,668	100%	4%	CEIL-12	23%	48%	0.5	4.2	0.5
3093	Building Shell	Ceiling insulation R5-R60 gas heat and electric cool base	PAYS	SF	Retrofit	2,450	13%	306	0.14	25	\$3,882	100%	10%	CEIL-9	64%	70%	0.4	1.2	0.6
3094	Building Shell	Ceiling insulation R5-R60 gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	8%	189	0.09	25	\$2,394	100%	86%	CEIL-10	48%	59%	0.4	0.1	1.3
3095	Building Shell	Ceiling insulation R5-R60 gas heat and electric cool base	Multifamily Market Rate	MF	Retrofit	874	105%	919	0.43	25	\$3,081	100%	3%	CEIL-11	25%	62%	0.8	16.1	0.9
3096	Building Shell	Ceiling insulation R5-R60 gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	20%	175	0.08	25	\$2,220	100%	4%	CEIL-12	23%	48%	0.4	3.3	0.5
3097	Building Shell	Duct insulation - electric furnace base	PAYS	SF	Retrofit	12,872	9%	1,146	0.54	20	\$169	100%	100%	DI-1	27%	70%	10.0	9.7	13.4
3098	Building Shell	Duct insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	9%	1,146	0.54	20	\$169	100%	100%	DI-2	44%	59%	3.1	3.0	4.8
3099	Building Shell	Duct insulation - electric furnace base	PAYS	MF	Retrofit	3,190	9%	284	0.13	20	\$84	100%	100%	DI-3	60%	62%	4.8	7.3	7.3
3100	Building Shell	Duct insulation - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	9%	284	0.13	20	\$84	100%	100%	DI-4	67%	48%	3.8	3.6	5.7
3101	Building Shell	Duct insulation - heat pump base	PAYS	SF	Retrofit	6,906	9%	615	0.29	20	\$169	100%	100%	DI-5	5%	70%	5.5	5.2	7.8
3102	Building Shell	Duct insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	9%	615	0.29	20	\$169	100%	100%	DI-6	6%	59%	1.7	1.6	3.1
3103	Building Shell	Duct insulation - heat pump base	PAYS	MF	Retrofit	2,120	9%	189	0.09	20	\$84	100%	100%	DI-7	11%	62%	3.5	3.2	5.3
3104	Building Shell	Duct insulation - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	9%	189	0.09	20	\$84	100%	89%	DI-8	6%	48%	3.5	3.6	5.2
3105	Building Shell	Duct insulation - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	6%	140	0.07	20	\$169	100%	100%	DI-9	64%	70%	1.5	1.2	2.8
3106	Building Shell	Duct insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	6%	140	0.07	20	\$169	100%	100%	DI-10	48%	59%	0.5	0.4	1.5
3107	Building Shell	Duct insulation - gas heat and electric cool base	PAYS	MF	Retrofit	874	6%	50	0.02	20	\$84	100%	100%	DI-11	25%	62%	1.1	0.8	2.4
3108	Building Shell	Duct insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	6%	50	0.02	20	\$84	100%	24%	DI-12	23%	48%	1.1	3.6	1.6
3109	Building Shell	Duct Sealing - electric furnace base	PAYS	SF	Retrofit	12,872	2%	197	0.09	20	\$322	100%	100%	DS-1	27%	70%	0.9	0.7	2.1
3110	Building Shell	Duct Sealing - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	2%	197	0.09	20	\$322	100%	100%	DS-2	44%	59%	0.9	0.7	2.1
3111	Building Shell	Duct Sealing - electric furnace base	PAYS	MF	Retrofit	3,190	3%	82	0.04	20	\$161	100%	100%	DS-3	60%	62%	0.8	0.6	2.0
3112	Building Shell	Duct Sealing - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	3%	82	0.04	20	\$161	100%	100%	DS-4	67%	48%	0.8	0.6	2.0
3113	Building Shell	Duct Sealing - heat pump base	PAYS	SF	Retrofit	6,906	2%	106	0.05	20	\$322	100%	100%	DS-5	5%	70%	0.6	0.4	1.7
3114	Building Shell	Duct Sealing - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	2%	106	0.05	20	\$322	100%	100%	DS-6	6%	59%	0.6	0.4	1.7
3115	Building Shell	Duct Sealing - heat pump base	PAYS	MF	Retrofit	2,120	3%	55	0.03	20	\$161	100%	100%	DS-7	11%	62%	0.6	0.4	1.7
3116	Building Shell	Duct Sealing - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	3%	55	0.03	20	\$161	100%	100%	DS-8	6%	48%	0.6	0.4	1.7
3117	Building Shell	Duct Sealing - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	2%	40	0.02	20	\$322	100%	100%	DS-9	64%	70%	0.4	0.1	1.4
3118	Building Shell	Duct Sealing - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	2%	40	0.02	20	\$322	100%	100%	DS-10	48%	59%	0.4	0.1	1.4
3119	Building Shell	Duct Sealing - gas heat and electric cool base	PAYS	MF	Retrofit	874	2%	17	0.01	20	\$161	100%	100%	DS-11	25%	62%	0.4	0.1	1.4
3120	Building Shell	Duct Sealing - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	2%	17	0.01	20	\$161	100%	100%	DS-12	23%	48%	0.4	0.1	1.4
3121	Building Shell	Floor insulation (R4 base) - electric furnace base	PAYS	SF	Retrofit	12,872	22%	2,781	1.30	25	\$772	100%	100%	FLOOR-1	2%	50%	6.1	5.8	8.6
3122	Building Shell	Floor insulation (R4 base) - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	13%	1,715	0.80	25	\$476	100%	100%	FLOOR-2	5%	47%	3.0	2.8	4.7
3123	Building Shell	Floor insulation (R4 base) - electric furnace base	PAYS	MF	Retrofit	3,190	22%	689	0.32	25	\$772	100%	100%	FLOOR-3	7%	60%	1.7	1.4	3.1

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
3124	Building Shell	Floor Insulation (R4 base) - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	13%	425	0.20	25	\$476	100%	100%	FLOOR-4	2%	60%	1.7	1.4	3.1
3125	Building Shell	Floor Insulation (R4 base) - heat pump base	PAYS	SF	Retrofit	6,906	23%	1,612	0.75	25	\$772	100%	100%	FLOOR-5	0%	50%	3.7	3.4	5.6
3126	Building Shell	Floor Insulation (R4 base) - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	14%	994	0.46	25	\$476	100%	100%	FLOOR-6	1%	47%	1.8	1.6	3.2
3127	Building Shell	Floor Insulation (R4 base) - heat pump base	PAYS	MF	Retrofit	2,120	23%	495	0.23	25	\$772	100%	100%	FLOOR-7	1%	60%	1.3	1.0	2.6
3128	Building Shell	Floor Insulation (R4 base) - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	14%	305	0.14	25	\$476	100%	100%	FLOOR-8	0%	60%	1.3	1.0	2.6
3129	Building Shell	Floor Insulation (R4 base) - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	11%	261	0.12	25	\$772	100%	100%	FLOOR-9	4%	50%	0.8	0.5	2.0
3130	Building Shell	Floor Insulation (R4 base) - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	7%	161	0.07	25	\$476	100%	100%	FLOOR-10	5%	47%	0.4	0.3	1.5
3131	Building Shell	Floor Insulation (R4 base) - gas heat and electric cool base	PAYS	MF	Retrofit	874	11%	93	0.04	25	\$772	100%	100%	FLOOR-11	3%	60%	0.5	0.2	1.5
3132	Building Shell	Floor Insulation (R4 base) - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	7%	57	0.03	25	\$476	100%	100%	FLOOR-12	1%	60%	0.5	0.2	1.5
3133	Building Shell	Floor Insulation (R13 base) - electric furnace base	PAYS	SF	Retrofit	12,872	2%	250	0.12	25	\$772	100%	100%	FLOOR-1	2%	50%	0.8	0.5	2.0
3134	Building Shell	Floor Insulation (R13 base) - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	1%	154	0.07	25	\$476	100%	100%	FLOOR-2	5%	47%	0.4	0.3	1.5
3135	Building Shell	Floor Insulation (R13 base) - electric furnace base	PAYS	MF	Retrofit	3,190	2%	62	0.03	25	\$772	100%	100%	FLOOR-3	7%	60%	0.4	0.1	1.5
3136	Building Shell	Floor Insulation (R13 base) - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	1%	38	0.02	25	\$476	100%	100%	FLOOR-4	2%	60%	0.4	0.1	1.5
3137	Building Shell	Floor Insulation (R13 base) - heat pump base	PAYS	SF	Retrofit	6,906	2%	148	0.07	25	\$772	100%	100%	FLOOR-5	0%	50%	0.6	0.3	1.7
3138	Building Shell	Floor Insulation (R13 base) - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	1%	91	0.04	25	\$476	100%	100%	FLOOR-6	1%	47%	0.3	0.2	1.3
3139	Building Shell	Floor Insulation (R13 base) - heat pump base	PAYS	MF	Retrofit	2,120	2%	45	0.02	25	\$772	100%	100%	FLOOR-7	1%	60%	0.4	0.1	1.4
3140	Building Shell	Floor Insulation (R13 base) - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	1%	28	0.01	25	\$476	100%	100%	FLOOR-8	0%	60%	0.4	0.1	1.4
3141	Building Shell	Floor Insulation (R13 base) - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	1%	23	0.01	25	\$772	100%	100%	FLOOR-9	4%	50%	0.3	0.0	1.4
3142	Building Shell	Floor Insulation (R13 base) - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	1%	14	0.01	25	\$476	100%	100%	FLOOR-10	5%	47%	0.2	0.0	1.2
3143	Building Shell	Floor Insulation (R13 base) - gas heat and electric cool base	PAYS	MF	Retrofit	874	1%	8	0.00	25	\$772	100%	100%	FLOOR-11	3%	60%	0.3	0.0	1.3
3144	Building Shell	Floor Insulation (R13 base) - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	1%	5	0.00	25	\$476	100%	100%	FLOOR-12	1%	60%	0.3	0.0	1.3
3145	Building Shell	Window Insulation	PAYS	SF	Retrofit	6,829	0%	1	0.00	5	\$36	100%	100%	WINDOW INS	100%	16%	0.3	0.0	1.3
3146	Building Shell	Window Insulation	Single Family Income Eligible	SF	Retrofit	6,829	0%	1	0.00	5	\$36	100%	100%	WINDOW INS	100%	16%	0.3	0.0	1.3
3147	Building Shell	Window Insulation	PAYS	MF	Retrofit	1,630	0%	1	0.00	5	\$36	100%	100%	WINDOW INS	100%	16%	0.3	0.0	1.3
3148	Building Shell	Window Insulation	Multifamily Income Eligible	MF	Retrofit	1,630	0%	1	0.00	5	\$36	100%	100%	WINDOW INS	100%	16%	0.3	0.0	1.3
3149	Building Shell	Basement Wall Insulation - electric furnace base	PAYS	SF	Retrofit	12,872	8%	1,024	0.97	20	\$696	100%	100%	BWI-1	27%	65%	3.7	3.4	3.9
3150	Building Shell	Basement Wall Insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	5%	594	0.56	20	\$696	100%	100%	BWI-2	44%	46%	2.3	2.0	2.8
3151	Building Shell	Basement Wall Insulation - electric furnace base	PAYS	MF	Retrofit	3,190	11%	351	0.33	20	\$183	100%	100%	BWI-3	60%	61%	4.7	4.4	4.7
3152	Building Shell	Basement Wall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	8%	241	0.23	20	\$183	100%	100%	BWI-4	67%	61%	3.4	3.1	3.7
3153	Building Shell	Basement Wall Insulation - heat pump base	PAYS	SF	Retrofit	6,906	5%	311	0.29	20	\$696	100%	100%	BWI-5	5%	65%	1.3	1.0	2.1
3154	Building Shell	Basement Wall Insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	3%	180	0.17	20	\$696	100%	100%	BWI-6	6%	46%	0.9	0.6	1.8
3155	Building Shell	Basement Wall Insulation - heat pump base	PAYS	MF	Retrofit	2,120	4%	93	0.09	20	\$183	100%	100%	BWI-7	11%	61%	1.5	1.2	2.2
3156	Building Shell	Basement Wall Insulation - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	3%	64	0.06	20	\$183	100%	100%	BWI-8	6%	61%	1.1	0.8	1.9
3157	Building Shell	Basement Wall Insulation - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	-2%	-49	-0.05	20	\$696	100%	100%	BWI-9	64%	65%	0.3	0.0	1.2
3158	Building Shell	Basement Wall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	-1%	-31	-0.03	20	\$696	100%	100%	BWI-10	48%	46%	0.3	0.0	1.2
3159	Building Shell	Basement Wall Insulation - gas heat and electric cool base	PAYS	MF	Retrofit	874	-5%	-41	-0.04	20	\$183	100%	100%	BWI-11	25%	61%	0.2	0.0	0.9

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
3160	Building Shell	Basement Wall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	-3%	-26	-0.02	20	\$183	100%	100%	BW-12	23%	61%	0.2	0.0	1.0
3161	Building Shell	Foundation Sidewall Insulation - electric furnace base	PAYS	SF	Retrofit	12,872	8%	1,063	1.01	20	\$341	100%	100%	FSI-1	2%	65%	7.5	7.2	6.9
3162	Building Shell	Foundation Sidewall Insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	5%	617	0.58	20	\$341	100%	100%	FSI-2	5%	46%	4.5	4.2	4.5
3163	Building Shell	Foundation Sidewall Insulation - electric furnace base	PAYS	MF	Retrofit	3,190	11%	362	0.34	20	\$91	100%	100%	FSI-3	7%	61%	9.5	9.2	8.4
3164	Building Shell	Foundation Sidewall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	8%	249	0.24	20	\$91	100%	100%	FSI-4	2%	61%	6.6	6.3	6.2
3165	Building Shell	Foundation Sidewall Insulation - heat pump base	PAYS	SF	Retrofit	6,906	5%	314	0.30	20	\$341	100%	100%	FSI-5	0%	65%	2.4	2.1	2.9
3166	Building Shell	Foundation Sidewall Insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	3%	182	0.17	25	\$341	100%	100%	FSI-6	1%	46%	1.7	1.4	2.4
3167	Building Shell	Foundation Sidewall Insulation - heat pump base	PAYS	MF	Retrofit	2,120	5%	100	0.09	25	\$91	100%	100%	FSI-7	1%	61%	3.2	2.9	3.5
3168	Building Shell	Foundation Sidewall Insulation - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	3%	69	0.07	25	\$91	100%	100%	FSI-8	0%	61%	2.3	2.0	2.8
3169	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	-2%	-39	-0.04	25	\$341	100%	100%	FSI-9	4%	65%	0.2	0.0	1.1
3170	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	-1%	-25	-0.02	25	\$341	100%	100%	FSI-10	5%	46%	0.3	0.0	1.1
3171	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	PAYS	MF	Retrofit	874	-3%	-24	-0.02	25	\$91	100%	100%	FSI-11	3%	61%	0.2	0.0	0.8
3172	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	-2%	-15	-0.01	25	\$91	100%	100%	FSI-12	1%	61%	0.2	0.0	1.0
3173	Building Shell	Insulated Cellular Shades - electric furnace base	PAYS	SF	Retrofit	12,872	16%	2,060	0.66	15	\$2,769	100%	7%	CELLULAR-1	27%	16%	0.7	9.8	1.2
3174	Building Shell	Insulated Cellular Shades - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	16%	2,060	0.66	15	\$2,769	100%	7%	CELLULAR-2	44%	16%	0.7	9.8	1.2
3175	Building Shell	Insulated Cellular Shades - electric furnace base	PAYS	MF	Retrofit	3,190	16%	510	0.42	15	\$1,190	100%	17%	CELLULAR-3	60%	16%	0.7	4.4	0.8
3176	Building Shell	Insulated Cellular Shades - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	16%	510	0.42	15	\$1,190	100%	17%	CELLULAR-4	67%	16%	0.7	4.4	0.8
3177	Building Shell	Insulated Cellular Shades - heat pump base	PAYS	SF	Retrofit	6,906	16%	1,105	0.45	15	\$2,769	100%	7%	CELLULAR-5	5%	16%	0.4	6.0	0.7
3178	Building Shell	Insulated Cellular Shades - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	16%	1,105	0.45	15	\$2,769	100%	7%	CELLULAR-6	6%	16%	0.4	6.0	0.7
3179	Building Shell	Insulated Cellular Shades - heat pump base	PAYS	MF	Retrofit	2,120	16%	339	0.29	15	\$1,190	100%	17%	CELLULAR-7	11%	16%	0.5	3.0	0.6
3180	Building Shell	Insulated Cellular Shades - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	16%	339	0.29	15	\$1,190	100%	17%	CELLULAR-8	6%	16%	0.5	3.0	0.6
3181	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	16%	392	0.61	15	\$2,769	100%	7%	CELLULAR-9	64%	16%	0.4	5.6	0.3
3182	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	16%	392	0.61	15	\$2,769	100%	7%	CELLULAR-10	48%	16%	0.4	5.6	0.3
3183	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	PAYS	MF	Retrofit	874	16%	140	0.39	15	\$1,190	100%	17%	CELLULAR-11	25%	16%	0.6	3.3	0.3
3184	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	16%	140	0.39	15	\$1,190	100%	17%	CELLULAR-12	23%	16%	0.6	3.3	0.3
3185	Building Shell	Storm Windows - electric furnace base	PAYS	SF	Retrofit	12,872	6%	738	0.34	20	\$1,161	100%	26%	WINDOW-1	27%	10%	1.2	3.5	1.7
3186	Building Shell	Storm Windows - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	5%	590	0.28	20	\$929	100%	32%	WINDOW-2	44%	10%	1.2	2.8	1.8
3187	Building Shell	Storm Windows - electric furnace base	PAYS	MF	Retrofit	3,190	14%	443	0.21	20	\$696	100%	43%	WINDOW-3	60%	10%	1.2	2.1	1.9
3188	Building Shell	Storm Windows - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	9%	295	0.14	20	\$464	100%	65%	WINDOW-4	67%	10%	1.2	1.4	2.1
3189	Building Shell	Storm Windows - heat pump base	PAYS	SF	Retrofit	6,906	7%	459	0.21	20	\$1,161	100%	26%	WINDOW-5	5%	10%	0.9	2.2	1.3
3190	Building Shell	Storm Windows - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	5%	367	0.17	20	\$929	100%	32%	WINDOW-6	6%	10%	0.9	1.7	1.3
3191	Building Shell	Storm Windows - heat pump base	PAYS	MF	Retrofit	2,120	13%	275	0.13	20	\$696	100%	43%	WINDOW-7	11%	10%	1.4	1.3	1.4
3192	Building Shell	Storm Windows - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	9%	184	0.09	20	\$464	100%	65%	WINDOW-8	6%	10%	0.9	0.9	1.7
3193	Building Shell	Storm Windows - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	6%	144	0.07	20	\$1,161	100%	26%	WINDOW-9	64%	10%	0.5	0.7	0.8
3194	Building Shell	Storm Windows - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	5%	115	0.05	20	\$929	100%	32%	WINDOW-10	48%	10%	0.5	0.5	0.8
3195	Building Shell	Storm Windows - gas heat and electric cool base	PAYS	MF	Retrofit	874	10%	87	0.04	20	\$696	100%	43%	WINDOW-11	25%	10%	0.5	0.4	1.0
3196	Building Shell	Storm Windows - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	7%	58	0.03	20	\$464	100%	65%	WINDOW-12	23%	10%	0.5	0.3	1.2
3197	Building Shell	Wall Insulation - electric furnace base	PAYS	SF	Retrofit	12,872	9%	1,189	0.00	25	\$2,254	100%	100%	WALL-1	27%	93%	0.6	0.3	2.4
3198	Building Shell	Wall Insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	5%	690	0.00	25	\$2,254	100%	100%	WALL-2	44%	65%	0.5	0.2	1.9

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
3199	Building Shell	Wall Insulation - electric furnace base	PAYS	MF	Retrofit	3,190	16%	525	0.00	25	\$969	100%	100%	WALL-3	60%	93%	0.6	0.3	2.4
3200	Building Shell	Wall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	11%	361	0.00	25	\$969	100%	100%	WALL-4	67%	65%	0.5	0.2	2.1
3201	Building Shell	Wall Insulation - heat pump base	PAYS	SF	Retrofit	6,906	8%	556	0.00	25	\$2,254	100%	100%	WALL-5	5%	93%	0.5	0.2	1.8
3202	Building Shell	Wall Insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	5%	323	0.00	25	\$2,254	100%	100%	WALL-6	6%	65%	0.4	0.1	1.6
3203	Building Shell	Wall Insulation - heat pump base	PAYS	MF	Retrofit	2,120	12%	262	0.00	25	\$969	100%	100%	WALL-7	11%	93%	0.5	0.2	1.9
3204	Building Shell	Wall Insulation - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	8%	180	0.00	25	\$969	100%	100%	WALL-8	6%	65%	0.4	0.1	1.7
3205	Building Shell	Wall Insulation - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	3%	73	0.00	25	\$2,254	100%	100%	WALL-9	64%	93%	0.3	0.0	1.4
3206	Building Shell	Wall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	2%	46	0.00	25	\$2,254	100%	100%	WALL-10	48%	65%	0.3	0.0	1.3
3207	Building Shell	Wall Insulation - gas heat and electric cool base	PAYS	MF	Retrofit	874	8%	69	0.00	25	\$969	100%	100%	WALL-11	25%	93%	0.3	0.0	1.4
3208	Building Shell	Wall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	5%	44	0.00	25	\$969	100%	100%	WALL-12	23%	65%	0.3	0.0	1.4
3209	Building Shell	Thin Triple Windows - electric furnace base	PAYS	SF	Retrofit	12,872	7%	903	0.27	40	\$6,350	100%	5%	WINDOW-1	27%	16%	0.3	4.7	0.5
3210	Building Shell	Thin Triple Windows - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	6%	722	0.22	40	\$5,080	100%	6%	WINDOW-2	44%	16%	0.3	3.8	0.5
3211	Building Shell	Thin Triple Windows - electric furnace base	PAYS	MF	Retrofit	3,190	17%	542	0.16	40	\$3,810	100%	8%	WINDOW-3	60%	16%	0.4	2.8	0.6
3212	Building Shell	Thin Triple Windows - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	11%	361	0.11	40	\$2,540	100%	12%	WINDOW-4	67%	16%	0.5	1.9	0.7
3213	Building Shell	Thin Triple Windows - heat pump base	PAYS	SF	Retrofit	6,906	14%	935	0.28	40	\$6,350	100%	5%	WINDOW-5	5%	16%	0.3	4.9	0.5
3214	Building Shell	Thin Triple Windows - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	11%	748	0.22	40	\$5,080	100%	6%	WINDOW-6	6%	16%	0.3	3.9	0.5
3215	Building Shell	Thin Triple Windows - heat pump base	PAYS	MF	Retrofit	2,120	26%	561	0.17	40	\$3,810	100%	8%	WINDOW-7	11%	16%	0.4	2.9	0.6
3216	Building Shell	Thin Triple Windows - heat pump base	Multifamily Income Eligible	MF	Retrofit	2,120	18%	374	0.11	40	\$2,540	100%	12%	WINDOW-8	6%	16%	0.5	2.0	0.7
3217	Building Shell	Thin Triple Windows - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	8%	184	0.06	40	\$6,350	100%	5%	WINDOW-9	64%	16%	0.1	1.0	0.2
3218	Building Shell	Thin Triple Windows - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	6%	147	0.04	40	\$5,080	100%	6%	WINDOW-10	48%	16%	0.2	0.8	0.3
3219	Building Shell	Thin Triple Windows - gas heat and electric cool base	PAYS	MF	Retrofit	874	13%	110	0.03	40	\$3,810	100%	8%	WINDOW-11	25%	16%	0.2	0.6	0.3
3220	Building Shell	Thin Triple Windows - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	8%	74	0.02	40	\$2,540	100%	12%	WINDOW-12	23%	16%	0.3	0.4	0.4
3221	Building Shell	Advanced Walls - electric furnace base	PAYS	SF	Retrofit	12,872	10%	1,287	0.23	25	\$2,470	100%	100%	WALL-1	27%	93%	0.8	0.5	2.4
3222	Building Shell	Advanced Walls - electric furnace base	Single Family Income Eligible	SF	Retrofit	12,872	10%	1,287	0.23	25	\$2,470	100%	100%	WALL-2	44%	65%	0.8	0.5	2.4
3223	Building Shell	Advanced Walls - electric furnace base	PAYS	MF	Retrofit	3,190	10%	319	0.23	25	\$1,581	100%	100%	WALL-3	60%	93%	0.7	0.4	1.7
3224	Building Shell	Advanced Walls - electric furnace base	Multifamily Income Eligible	MF	Retrofit	3,190	10%	319	0.23	25	\$1,581	100%	100%	WALL-4	67%	65%	0.7	0.4	1.7
3225	Building Shell	Advanced Walls - heat pump base	PAYS	SF	Retrofit	6,906	10%	691	0.23	25	\$2,470	100%	100%	WALL-5	5%	93%	0.7	0.4	1.9
3226	Building Shell	Advanced Walls - heat pump base	Single Family Income Eligible	SF	Retrofit	6,906	10%	691	0.23	25	\$2,470	100%	100%	WALL-6	6%	65%	0.7	0.4	1.9
3227	Building Shell	Advanced Walls - heat pump base	PAYS	MF	Retrofit	2,120	10%	212	0.23	25	\$1,581	100%	100%	WALL-7	11%	93%	0.7	0.4	1.6
3228	Building Shell	Advanced Walls - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	2,120	10%	212	0.23	25	\$1,581	100%	100%	WALL-8	6%	65%	0.7	0.4	1.6
3229	Building Shell	Advanced Walls - gas heat and electric cool base	PAYS	SF	Retrofit	2,450	10%	245	0.23	25	\$2,470	100%	100%	WALL-9	64%	93%	0.6	0.3	1.5
3230	Building Shell	Advanced Walls - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	2,450	10%	245	0.23	25	\$2,470	100%	100%	WALL-10	48%	65%	0.6	0.3	1.5
3231	Building Shell	Advanced Walls - gas heat and electric cool base	PAYS	MF	Retrofit	874	10%	87	0.23	25	\$1,581	100%	100%	WALL-11	25%	93%	0.6	0.3	1.4
3232	Building Shell	Advanced Walls - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	874	10%	87	0.23	25	\$1,581	100%	100%	WALL-12	23%	65%	0.6	0.3	1.4
3233	Building Shell	Cool Roof	PAYS	SF	Retrofit	2,115	2%	41	0.13	20	\$509	100%	100%	ROOF-1	100%	5%	0.5	0.5	1.1
3234	Building Shell	Cool Roof	Single Family Income Eligible	SF	Retrofit	2,115	1%	26	0.13	20	\$509	100%	100%	ROOF-2	100%	5%	0.5	0.5	1.1
3235	Building Shell	Cool Roof	PAYS	MF	Retrofit	793	5%	41	0.13	20	\$509	100%	100%	ROOF-3	100%	5%	0.5	0.5	1.1
3236	Building Shell	Cool Roof	Multifamily Income Eligible	MF	Retrofit	793	3%	26	0.13	20	\$509	100%	100%	ROOF-4	100%	5%	0.5	0.5	1.1
3237	Building Shell	Shade Trees	No program	SF	Retrofit	2,115	5%	106	0.14	30	\$85	100%	100%	SHADE-1	100%	50%	4.6	4.6	3.8
3238	Building Shell	Shade Trees	No program	SF	Retrofit	2,115	5%	106	0.14	30	\$85	100%	100%	SHADE-2	100%	50%	4.6	4.6	3.8
3239	Building Shell	Shade Trees	No program	MF	Retrofit	793	5%	40	0.09	30	\$85	100%	100%	SHADE-3	100%	50%	2.8	2.8	2.0
3240	Building Shell	Shade Trees	No program	MF	Retrofit	793	5%	40	0.09	30	\$85	100%	100%	SHADE-4	100%	50%	2.8	2.8	2.0
4001	Custom	MFR Custom	Multifamily Market Rate	MF	Retrofit	1,814	25%	454	0.35	19	\$249	100%	100%	Custom-1	100%	0%	3.4	3.4	4.1
4002	Custom	MFL Custom	Multifamily Income Eligible	MF	Retrofit	1,786	25%	447	0.08	8	\$408	100%	100%	Custom-2	100%	0%	0.4	0.4	2.0
5001	Electronics	Advanced Tier 2 Power Strips	Efficient Products	SF	Retrofit	432	36%	154	0.02	10	\$10	100%	100%	APS-1	100%	23%	2.7	2.7	7.7
5002	Electronics	Advanced Tier 2 Power Strips	Efficient Products	SF	Retrofit	432	36%	154	0.02	10	\$10	100%	100%	APS-2	100%	23%	2.7	2.7	7.7
5003	Electronics	Advanced Tier 2 Power Strips	Single Family Income Eligible	SF	Retrofit	432	36%	154	0.02	10	\$30	100%	100%	APS-2	100%	23%	1.0	1.0	3.4

Appendix B: Residential Measure Assumptions

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
5004	Electronics	Advanced Tier 2 Power Strips	Efficient Products	SF	NC	432	36%	154	0.02	10	\$10	100%	100%	APS-3	100%	0%	2.7	2.7	7.7
5005	Electronics	Advanced Tier 2 Power Strips	Efficient Products	MF	Retrofit	432	36%	154	0.02	10	\$10	100%	100%	APS-4	100%	23%	2.7	2.7	7.7
5006	Electronics	Advanced Tier 2 Power Strips	Multifamily Market Rate	MF	Retrofit	432	36%	154	0.02	10	\$10	100%	100%	APS-4	100%	23%	2.7	2.7	7.7
5007	Electronics	Advanced Tier 2 Power Strips	Efficient Products	MF	Retrofit	432	36%	154	0.02	10	\$10	100%	100%	APS-5	100%	23%	2.7	2.7	7.7
5008	Electronics	Advanced Tier 2 Power Strips	Multifamily Income Eligible	MF	Retrofit	432	36%	154	0.02	10	\$10	100%	100%	APS-5	100%	23%	2.7	2.7	7.7
5009	Electronics	Advanced Tier 2 Power Strips	Efficient Products	MF	NC	432	36%	154	0.02	10	\$10	100%	100%	APS-6	100%	0%	2.7	2.7	7.7
5010	Electronics	Advanced Tier 1 Power Strips	Efficient Products	SF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-1	100%	23%	1.2	1.6	3.8
5011	Electronics	Advanced Tier 1 Power Strips	Energy Efficiency Kits	SF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-1	100%	23%	1.2	1.6	3.8
5012	Electronics	Advanced Tier 1 Power Strips	PAYS	SF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-1	100%	23%	1.2	1.6	3.8
5013	Electronics	Advanced Tier 1 Power Strips	Efficient Products	SF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-2	100%	23%	1.2	1.6	3.8
5014	Electronics	Advanced Tier 1 Power Strips	Energy Efficiency Kits	SF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-2	100%	23%	1.2	1.6	3.8
5015	Electronics	Advanced Tier 1 Power Strips	PAYS	SF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-2	100%	23%	1.2	1.6	3.8
5016	Electronics	Advanced Tier 1 Power Strips	Single Family Income Eligible	SF	Retrofit	432	13%	56	0.01	10	\$30	100%	50%	APS-2	100%	23%	0.8	1.6	2.5
5017	Electronics	Advanced Tier 1 Power Strips	Efficient Products	SF	NC	432	13%	56	0.01	10	\$20	100%	75%	APS-3	100%	0%	1.2	1.6	3.8
5018	Electronics	Advanced Tier 1 Power Strips	Efficient Products	MF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-4	100%	23%	1.2	1.6	3.8
5019	Electronics	Advanced Tier 1 Power Strips	Energy Efficiency Kits	MF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-4	100%	23%	1.2	1.6	3.8
5020	Electronics	Advanced Tier 1 Power Strips	PAYS	MF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-4	100%	23%	1.2	1.6	3.8
5021	Electronics	Advanced Tier 1 Power Strips	Efficient Products	MF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-5	100%	23%	1.2	1.6	3.8
5022	Electronics	Advanced Tier 1 Power Strips	Energy Efficiency Kits	MF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-5	100%	23%	1.2	1.6	3.8
5023	Electronics	Advanced Tier 1 Power Strips	PAYS	MF	Retrofit	432	13%	56	0.01	10	\$20	100%	75%	APS-5	100%	23%	1.2	1.6	3.8
5024	Electronics	Advanced Tier 1 Power Strips	Multifamily Income Eligible	MF	Retrofit	432	13%	56	0.01	10	\$30	100%	50%	APS-5	100%	23%	0.8	1.6	2.5
5025	Electronics	Advanced Tier 1 Power Strips	Efficient Products	MF	NC	432	13%	56	0.01	10	\$20	100%	75%	APS-6	100%	0%	1.2	1.6	3.8
5026	Electronics	ENERGY STAR TV	No program	SF	MO	83	20%	17	0.00	6	\$0	100%	35%	TV-1	236%	74%	1.0	1.0	1.0
5027	Electronics	ENERGY STAR TV	No program	SF	MO	83	20%	17	0.00	6	\$0	100%	35%	TV-2	236%	74%	1.0	1.0	1.0
5028	Electronics	ENERGY STAR TV	No program	SF	NC	83	20%	17	0.00	6	\$0	100%	35%	TV-3	236%	0%	1.0	1.0	1.0
5029	Electronics	ENERGY STAR TV	No program	MF	MO	83	20%	17	0.00	6	\$0	100%	35%	TV-4	236%	74%	1.0	1.0	1.0
5030	Electronics	ENERGY STAR TV	No program	MF	MO	83	20%	17	0.00	6	\$0	100%	35%	TV-5	236%	74%	1.0	1.0	1.0
5031	Electronics	ENERGY STAR TV	No program	SF	NC	83	20%	17	0.00	6	\$0	100%	35%	TV-6	236%	0%	1.0	1.0	1.0
5032	Electronics	Smart Plug	No program	SF	Retrofit	466	6%	28	0.00	7	\$50	100%	100%	PLUG-1	100%	0%	0.2	0.2	1.4
5033	Electronics	Smart Plug	No program	SF	Retrofit	466	6%	28	0.00	7	\$50	100%	100%	PLUG-2	100%	0%	0.2	0.2	1.4
5034	Electronics	Smart Plug	No program	SF	NC	466	6%	28	0.00	7	\$50	100%	100%	PLUG-3	100%	0%	0.2	0.2	1.4
5035	Electronics	Smart Plug	No program	MF	Retrofit	466	6%	28	0.00	7	\$50	100%	100%	PLUG-4	100%	0%	0.2	0.2	1.4
5036	Electronics	Smart Plug	No program	MF	Retrofit	466	6%	28	0.00	7	\$50	100%	100%	PLUG-5	100%	0%	0.2	0.2	1.4
5037	Electronics	Smart Plug	No program	MF	NC	466	6%	28	0.00	7	\$50	100%	100%	PLUG-6	100%	0%	0.2	0.2	1.4
6001	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER1	11,562	34%	3,962	1.99	6	\$669	100%	75%	HP-2	5%	52%	6.3	4.4	7.9
6002	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER2	8,005	2%	150	0.16	12	\$0	100%	35%	HP-2	5%	52%	1.0	1.0	1.0
6003	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER3	8,005	2%	150	0.16	18	\$0	100%	100%	HP-2	5%	52%	0.7	0.7	1.5
6004	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER1	11,562	34%	3,962	1.99	6	\$669	100%	75%	HP-4	6%	25%	6.3	4.4	7.9
6005	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER2	8,005	2%	150	0.16	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6006	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER3	8,005	2%	150	0.16	18	\$0	100%	100%	HP-4	6%	25%	0.7	0.7	1.5
6007	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	MF	ER1	7,733	40%	3,086	1.46	6	\$669	100%	75%	HP-8	11%	52%	5.4	3.3	7.0
6008	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	MF	ER2	4,051	8%	323	0.11	12	\$0	100%	35%	HP-8	11%	52%	1.0	1.0	1.0
6009	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	MF	ER3	4,051	8%	323	0.11	18	\$0	100%	100%	HP-8	11%	52%	0.7	0.7	2.1
6010	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	MF	ER1	7,733	40%	3,086	1.46	6	\$669	100%	75%	HP-10	6%	25%	5.4	3.3	7.0
6011	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	MF	ER2	4,051	8%	323	0.11	12	\$0	100%	35%	HP-10	6%	25%	1.0	1.0	1.0
6012	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	MF	ER3	4,051	8%	323	0.11	18	\$0	100%	100%	HP-10	6%	25%	0.7	0.7	2.1
6013	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER1	11,562	37%	4,251	2.08	6	\$813	100%	62%	HP-2	5%	52%	5.3	4.6	6.7
6014	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER2	8,005	6%	443	0.27	12	\$0	100%	35%	HP-2	5%	52%	1.0	1.0	1.0
6015	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER3	8,005	6%	443	0.27	18	\$135	100%	100%	HP-2	5%	52%	1.3	1.3	2.5
6016	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER1	11,562	37%	4,251	2.08	6	\$813	100%	62%	HP-4	6%	25%	5.3	4.6	6.7
6017	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER2	8,005	6%	443	0.27	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6018	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER3	8,005	6%	443	0.27	18	\$135	100%	100%	HP-4	6%	25%	1.3	1.3	2.5
6019	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER1	7,733	36%	2,817	1.29	6	\$833	100%	60%	HP-8	11%	52%	4.1	2.9	5.4
6020	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER2	4,051	9%	381	0.18	12	\$0	100%	35%	HP-8	11%	52%	1.0	1.0	1.0
6021	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER3	4,051	9%	381	0.18	18	\$135	100%	100%	HP-8	11%	52%	1.0	1.0	2.3
6022	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER1	7,733	36%	2,817	1.29	6	\$833	100%	60%	HP-10	6%	25%	4.1	2.9	5.4
6023	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER2	4,051	9%	381	0.18	12	\$0	100%	35%	HP-10	6%	25%	1.0	1.0	1.0
6024	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER3	4,051	9%	381	0.18	18	\$135	100%	100%	HP-10	6%	25%	1.0	1.0	2.3

Appendix B: Residential Measure Assumptions

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6025	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER1	11,562	40%	4,659	2.10	6	\$1,008	100%	69%	HP-2	5%	52%	4.4	3.4	5.9
6026	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER2	8,005	11%	847	0.41	12	\$0	100%	35%	HP-2	5%	52%	1.0	1.0	1.0
6027	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER3	8,005	11%	847	0.41	18	\$286	100%	100%	HP-2	5%	52%	1.6	1.6	3.0
6028	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER1	11,562	40%	4,659	2.10	6	\$1,008	100%	69%	HP-4	6%	25%	4.4	3.4	5.9
6029	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER2	8,005	11%	847	0.41	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6030	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER3	8,005	11%	847	0.41	18	\$286	100%	100%	HP-4	6%	25%	1.6	1.6	3.0
6031	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	MF	ER1	7,733	41%	3,168	1.30	6	\$814	100%	86%	HP-8	11%	52%	4.3	2.2	6.0
6032	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	MF	ER2	4,051	15%	604	0.27	12	\$0	100%	35%	HP-8	11%	52%	1.0	1.0	1.0
6033	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	MF	ER3	4,051	15%	604	0.27	18	\$286	100%	100%	HP-8	11%	52%	1.1	1.1	2.4
6034	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	MF	ER1	7,733	41%	3,168	1.30	6	\$814	100%	86%	HP-10	6%	25%	4.3	2.2	6.0
6035	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	MF	ER2	4,051	15%	604	0.27	12	\$0	100%	35%	HP-10	6%	25%	1.0	1.0	1.0
6036	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	MF	ER3	4,051	15%	604	0.27	18	\$286	100%	100%	HP-10	6%	25%	1.1	1.1	2.4
6037	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	SF	ER1	11,562	45%	5,242	2.24	6	\$1,120	100%	71%	HP-2	5%	52%	4.1	3.2	5.8
6038	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	SF	ER2	8,005	17%	1,329	0.50	12	\$0	100%	35%	HP-2	5%	52%	1.0	1.0	1.0
6039	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	SF	ER3	8,005	17%	1,329	0.50	18	\$380	100%	100%	HP-2	5%	52%	1.8	1.8	3.8
6040	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	SF	ER1	11,562	45%	5,242	2.24	6	\$1,120	100%	71%	HP-4	6%	25%	4.1	3.2	5.8
6041	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	SF	ER2	8,005	17%	1,329	0.50	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6042	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	SF	ER3	8,005	17%	1,329	0.50	18	\$380	100%	100%	HP-4	6%	25%	1.8	1.8	3.8
6043	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	MF	ER1	7,733	40%	3,118	1.52	6	\$749	100%	100%	HP-8	11%	52%	4.6	2.1	6.2
6044	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	MF	ER2	4,051	16%	667	0.25	12	\$0	100%	35%	HP-8	11%	52%	1.0	1.0	1.0
6045	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	MF	ER3	4,051	16%	667	0.25	18	\$380	100%	100%	HP-8	11%	52%	0.9	0.9	2.4
6046	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	MF	ER1	7,733	40%	3,118	1.52	6	\$749	100%	100%	HP-10	6%	25%	4.6	2.1	6.2
6047	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	MF	ER2	4,051	16%	667	0.25	12	\$0	100%	35%	HP-10	6%	25%	1.0	1.0	1.0
6048	HVAC	ASHP 18 SEER - hp baseline ER	HVAC	MF	ER3	4,051	16%	667	0.25	18	\$380	100%	100%	HP-10	6%	25%	0.9	0.9	2.4
6049	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	SF	ER1	11,562	58%	6,672	3.11	6	\$1,404	100%	64%	HP-2	5%	52%	3.9	3.9	5.4
6050	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	SF	ER2	8,005	20%	1,613	0.77	12	\$0	100%	35%	HP-2	5%	52%	1.0	1.0	1.0
6051	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	SF	ER3	8,005	20%	1,613	0.77	18	\$475	100%	100%	HP-2	5%	52%	2.3	2.3	4.0
6052	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	SF	ER1	11,562	58%	6,672	3.11	6	\$1,404	100%	64%	HP-4	6%	25%	3.9	3.9	5.4
6053	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	SF	ER2	8,005	20%	1,613	0.77	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6054	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	SF	ER3	8,005	20%	1,613	0.77	18	\$475	100%	100%	HP-4	6%	25%	2.3	2.3	4.0
6055	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	MF	ER1	7,733	43%	3,307	1.43	6	\$1,003	100%	90%	HP-8	11%	52%	3.6	1.8	5.2
6056	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	MF	ER2	4,051	18%	743	0.40	12	\$0	100%	35%	HP-8	11%	52%	1.0	1.0	1.0
6057	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	MF	ER3	4,051	18%	743	0.40	18	\$475	100%	100%	HP-8	11%	52%	1.1	1.1	2.4
6058	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	MF	ER1	7,733	43%	3,307	1.43	6	\$1,003	100%	90%	HP-10	6%	25%	3.6	1.8	5.2
6059	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	MF	ER2	4,051	18%	743	0.40	12	\$0	100%	35%	HP-10	6%	25%	1.0	1.0	1.0
6060	HVAC	ASHP 19 SEER - hp baseline ER	HVAC	MF	ER3	4,051	18%	743	0.40	18	\$475	100%	100%	HP-10	6%	25%	1.1	1.1	2.4
6061	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	SF	ER1	11,562	45%	5,257	2.46	6	\$1,255	100%	96%	HP-2	5%	52%	3.8	2.3	5.5
6062	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	SF	ER2	8,005	18%	1,435	0.65	12	\$0	100%	35%	HP-2	5%	52%	1.0	1.0	1.0
6063	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	SF	ER3	8,005	18%	1,435	0.65	18	\$571	100%	100%	HP-2	5%	52%	1.5	1.5	3.0
6064	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	SF	ER1	11,562	45%	5,257	2.46	6	\$1,255	100%	96%	HP-4	6%	25%	3.8	2.3	5.5
6065	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	SF	ER2	8,005	18%	1,435	0.65	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6066	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	SF	ER3	8,005	18%	1,435	0.65	18	\$571	100%	100%	HP-4	6%	25%	1.5	1.5	3.0
6067	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	MF	ER1	7,733	44%	3,366	1.48	6	\$1,098	100%	100%	HP-8	11%	52%	3.1	1.4	4.6
6068	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	MF	ER2	4,051	20%	802	0.45	12	\$0	100%	35%	HP-8	11%	52%	1.0	1.0	1.0
6069	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	MF	ER3	4,051	20%	802	0.45	18	\$571	100%	100%	HP-8	11%	52%	1.0	1.0	1.0
6070	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	MF	ER1	7,733	44%	3,366	1.48	6	\$1,098	100%	100%	HP-10	6%	25%	3.1	1.4	4.6
6071	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	MF	ER2	4,051	20%	802	0.45	12	\$0	100%	35%	HP-10	6%	25%	1.0	1.0	1.0
6072	HVAC	ASHP 20 SEER - hp baseline ER	HVAC	MF	ER3	4,051	20%	802	0.45	18	\$571	100%	100%	HP-10	6%	25%	1.0	1.0	1.0
6073	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	SF	ER1	11,562	56%	6,494	2.80	6	\$1,492	100%	74%	HP-2	5%	52%	3.5	2.9	5.1
6074	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	SF	ER2	8,005	26%	2,106	0.83	12	\$0	100%	35%	HP-2	5%	52%	1.0	1.0	1.0
6075	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	SF	ER3	8,005	26%	2,106	0.83	18	\$668	100%	100%	HP-2	5%	52%	2.2	2.2	4.2
6076	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	SF	ER1	11,562	56%	6,494	2.80	6	\$1,492	100%	74%	HP-4	6%	25%	3.5	2.9	5.1
6077	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	SF	ER2	8,005	26%	2,106	0.83	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6078	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	SF	ER3	8,005	26%	2,106	0.83	18	\$668	100%	100%	HP-4	6%	25%	2.2	2.2	4.2
6079	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	MF	ER1	7,733	44%	3,419	1.53	6	\$1,195	100%	92%	HP-8	11%	52%	3.1	1.6	4.6
6080	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	MF	ER2	4,051	21%	855	0.50	12	\$0	100%	35%	HP-8	11%	52%	1.0	1.0	1.0
6081	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	MF	ER3	4,051	21%	855	0.50	18	\$668	100%	100%	HP-8	11%	52%	1.2	1.2	2.3
6082	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	MF	ER1	7,733	44%	3,419	1.53	6	\$1,195	100%	92%	HP-10	6%	25%	3.1	1.6	4.6

Appendix B: Residential Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6083	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	MF	ER2	4,051	21%	855	0.50	12	\$0	100%	35%	HP-10	6%	25%	1.0	1.0	1.0
6084	HVAC	ASHP 21 SEER - hp baseline ER	HVAC	MF	ER3	4,051	21%	855	0.50	18	\$668	100%	100%	HP-10	6%	25%	1.2	1.2	2.3
6085	HVAC	ASHP 15 SEER - hp baseline MO	HVAC	SF	MO	8,005	2%	151	0.17	18	\$0	100%	100%	HP-2	5%	52%	4.7	0.7	5.5
6086	HVAC	ASHP 15 SEER - hp baseline MO	HVAC	SF	MO	8,005	2%	151	0.17	18	\$0	100%	100%	HP-4	6%	25%	4.7	0.7	5.5
6087	HVAC	ASHP 15 SEER - hp baseline MO	HVAC	SF	NC	8,005	2%	151	0.17	18	\$0	100%	100%	HP-6	5%	0%	4.7	0.7	5.5
6088	HVAC	ASHP 15 SEER - hp baseline MO	HVAC	MF	MO	4,051	-1%	-21	0.08	18	\$0	100%	100%	HP-8	11%	52%	4.2	0.2	4.9
6089	HVAC	ASHP 15 SEER - hp baseline MO	HVAC	MF	MO	4,051	-1%	-21	0.08	18	\$0	100%	100%	HP-10	6%	25%	4.2	0.2	4.9
6090	HVAC	ASHP 15 SEER - hp baseline MO	HVAC	MF	NC	4,051	-1%	-21	0.08	18	\$0	100%	100%	HP-12	11%	0%	4.2	0.2	4.9
6091	HVAC	ASHP 16 SEER - hp baseline MO	HVAC	SF	MO	8,005	7%	535	0.28	18	\$135	100%	100%	HP-2	5%	52%	5.5	1.5	6.8
6092	HVAC	ASHP 16 SEER - hp baseline MO	HVAC	SF	MO	8,005	7%	535	0.28	18	\$135	100%	100%	HP-4	6%	25%	5.5	1.5	6.8
6093	HVAC	ASHP 16 SEER - hp baseline MO	HVAC	SF	NC	8,005	7%	535	0.28	18	\$135	100%	100%	HP-6	5%	0%	5.5	1.5	6.8
6094	HVAC	ASHP 16 SEER - hp baseline MO	HVAC	MF	MO	4,051	5%	202	0.13	18	\$135	100%	100%	HP-8	11%	52%	4.6	0.6	5.7
6095	HVAC	ASHP 16 SEER - hp baseline MO	HVAC	MF	MO	4,051	5%	202	0.13	18	\$135	100%	100%	HP-10	6%	25%	4.6	0.6	5.7
6096	HVAC	ASHP 16 SEER - hp baseline MO	HVAC	MF	NC	4,051	5%	202	0.13	18	\$135	100%	100%	HP-12	11%	0%	4.6	0.6	5.7
6097	HVAC	ASHP 17 SEER - hp baseline MO	HVAC	SF	MO	8,005	10%	825	0.41	18	\$286	100%	100%	HP-2	5%	52%	4.4	1.5	5.8
6098	HVAC	ASHP 17 SEER - hp baseline MO	HVAC	SF	MO	8,005	10%	825	0.41	18	\$286	100%	100%	HP-4	6%	25%	4.4	1.5	5.8
6099	HVAC	ASHP 17 SEER - hp baseline MO	HVAC	SF	NC	8,005	10%	825	0.41	18	\$286	100%	100%	HP-6	5%	0%	4.4	1.5	5.8
6100	HVAC	ASHP 17 SEER - hp baseline MO	HVAC	MF	MO	4,051	18%	728	0.27	18	\$286	100%	100%	HP-8	11%	52%	4.0	1.1	5.6
6101	HVAC	ASHP 17 SEER - hp baseline MO	HVAC	MF	MO	4,051	18%	728	0.27	18	\$286	100%	100%	HP-10	6%	25%	4.0	1.1	5.6
6102	HVAC	ASHP 17 SEER - hp baseline MO	HVAC	MF	NC	4,051	18%	728	0.27	18	\$286	100%	100%	HP-12	11%	0%	4.0	1.1	5.6
6103	HVAC	ASHP 18 SEER - hp baseline MO	HVAC	SF	MO	8,005	17%	1,369	0.49	18	\$380	100%	100%	HP-2	5%	52%	4.4	1.9	6.4
6104	HVAC	ASHP 18 SEER - hp baseline MO	HVAC	SF	MO	8,005	17%	1,369	0.49	18	\$380	100%	100%	HP-4	6%	25%	4.4	1.9	6.4
6105	HVAC	ASHP 18 SEER - hp baseline MO	HVAC	SF	NC	8,005	17%	1,369	0.49	18	\$380	100%	100%	HP-6	5%	0%	4.4	1.9	6.4
6106	HVAC	ASHP 18 SEER - hp baseline MO	HVAC	MF	MO	4,051	20%	802	0.34	18	\$380	100%	100%	HP-8	11%	52%	3.7	1.2	5.2
6107	HVAC	ASHP 18 SEER - hp baseline MO	HVAC	MF	MO	4,051	20%	802	0.34	18	\$380	100%	100%	HP-10	6%	25%	3.7	1.2	5.2
6108	HVAC	ASHP 18 SEER - hp baseline MO	HVAC	MF	NC	4,051	20%	802	0.34	18	\$380	100%	100%	HP-12	11%	0%	3.7	1.2	5.2
6109	HVAC	ASHP 19 SEER - hp baseline MO	HVAC	SF	MO	8,005	19%	1,493	0.66	18	\$475	100%	100%	HP-2	5%	52%	4.3	2.0	6.0
6110	HVAC	ASHP 19 SEER - hp baseline MO	HVAC	SF	MO	8,005	19%	1,493	0.66	18	\$475	100%	100%	HP-4	6%	25%	4.3	2.0	6.0
6111	HVAC	ASHP 19 SEER - hp baseline MO	HVAC	SF	NC	8,005	19%	1,493	0.66	18	\$475	100%	100%	HP-6	5%	0%	4.3	2.0	6.0
6112	HVAC	ASHP 19 SEER - hp baseline MO	HVAC	MF	MO	4,051	21%	867	0.40	18	\$475	100%	100%	HP-8	11%	52%	3.4	1.2	4.8
6113	HVAC	ASHP 19 SEER - hp baseline MO	HVAC	MF	MO	4,051	21%	867	0.40	18	\$475	100%	100%	HP-10	6%	25%	3.4	1.2	4.8
6114	HVAC	ASHP 19 SEER - hp baseline MO	HVAC	MF	NC	4,051	21%	867	0.40	18	\$475	100%	100%	HP-12	11%	0%	3.4	1.2	4.8
6115	HVAC	ASHP 20 SEER - hp baseline MO	HVAC	SF	MO	8,005	20%	1,625	0.68	18	\$571	100%	100%	HP-2	5%	52%	3.9	1.9	5.7
6116	HVAC	ASHP 20 SEER - hp baseline MO	HVAC	SF	MO	8,005	20%	1,625	0.68	18	\$571	100%	100%	HP-4	6%	25%	3.9	1.9	5.7
6117	HVAC	ASHP 20 SEER - hp baseline MO	HVAC	SF	NC	8,005	20%	1,625	0.68	18	\$571	100%	100%	HP-6	5%	0%	3.9	1.9	5.7
6118	HVAC	ASHP 20 SEER - hp baseline MO	HVAC	MF	MO	4,051	23%	926	0.45	18	\$571	100%	100%	HP-8	11%	52%	3.2	1.2	4.5
6119	HVAC	ASHP 20 SEER - hp baseline MO	HVAC	MF	MO	4,051	23%	926	0.45	18	\$571	100%	100%	HP-10	6%	25%	3.2	1.2	4.5
6120	HVAC	ASHP 20 SEER - hp baseline MO	HVAC	MF	NC	4,051	23%	926	0.45	18	\$571	100%	100%	HP-12	11%	0%	3.2	1.2	4.5
6121	HVAC	ASHP 21 SEER - hp baseline MO	HVAC	SF	MO	8,005	29%	2,341	0.88	18	\$668	100%	100%	HP-2	5%	52%	4.2	2.4	6.4
6122	HVAC	ASHP 21 SEER - hp baseline MO	HVAC	SF	MO	8,005	29%	2,341	0.88	18	\$668	100%	100%	HP-4	6%	25%	4.2	2.4	6.4
6123	HVAC	ASHP 21 SEER - hp baseline MO	HVAC	SF	NC	8,005	29%	2,341	0.88	18	\$668	100%	100%	HP-6	5%	0%	4.2	2.4	6.4
6124	HVAC	ASHP 21 SEER - hp baseline MO	HVAC	MF	MO	4,051	24%	979	0.50	18	\$668	100%	100%	HP-8	11%	52%	3.0	1.2	4.3
6125	HVAC	ASHP 21 SEER - hp baseline MO	HVAC	MF	MO	4,051	24%	979	0.50	18	\$668	100%	100%	HP-10	6%	25%	3.0	1.2	4.3
6126	HVAC	ASHP 21 SEER - hp baseline MO	HVAC	MF	NC	4,051	24%	979	0.50	18	\$668	100%	100%	HP-12	11%	0%	3.0	1.2	4.3
6127	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	59%	10,855	1.99	6	\$669	100%	100%	HP-1	27%	0%	7.8	4.9	14.7
6128	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	52%	8,914	0.16	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6129	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	52%	8,914	0.16	18	\$0	100%	100%	HP-1	27%	0%	6.2	6.2	22.2
6130	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	59%	10,855	1.99	6	\$669	100%	100%	HP-3	27%	0%	7.8	4.9	14.7
6131	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	52%	8,914	0.16	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6132	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	52%	8,914	0.16	18	\$0	100%	100%	HP-3	27%	0%	6.2	6.2	22.2
6133	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	Single Family Income Eligible	SF	ER1	18,455	59%	10,855	1.99	6	\$669	100%	100%	HP-3	27%	0%	0.8	0.5	2.3
6134	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	Single Family Income Eligible	SF	ER2	17,078	52%	8,914	0.16	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6135	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	Single Family Income Eligible	SF	ER3	17,078	52%	8,914	0.16	18	\$0	100%	100%	HP-3	27%	0%	14.5	14.5	50.5
6136	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	60%	7,987	1.46	6	\$732	100%	96%	HP-7	60%	0%	6.2	3.6	11.4
6137	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	76%	6,555	0.11	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6138	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	76%	6,555	0.11	18	\$0	100%	100%	HP-7	60%	0%	4.5	4.5	16.6
6139	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER1	13,204	60%	7,987	1.46	6	\$732	100%	100%	HP-7	60%	0%	5.8	3.2	10.7
6140	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER2	8,682	76%	6,555	0.11	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6141	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER3	8,682	76%	6,555	0.11	18	\$0	100%	100%	HP-7	60%	0%	10.6	10.6	37.4
6142	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	60%	7,987	1.46	6	\$732	100%	96%	HP-9	67%	0%	6.2	3.6	11.4
6143	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	76%	6,555	0.11	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6144	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	76%	6,555	0.11	18	\$0	100%	100%	HP-9	67%	0%	4.5	4.5	16.6
6145	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER1	13,204	60%	7,987	1.46	6	\$732	100%	100%	HP-9	67%	0%	1.4	0.8	3.3
6146	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER2	8,682	76%	6,555	0.11	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6147	HVAC	ASHP 15 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER3	8,682	76%	6,555	0.11	18	\$0	100%	100%	HP-9	67%	0%	10.6	10.6	37.4
6148	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	61%	11,236	2.08	6	\$813	100%	86%	HP-1	27%	0%	6.8	5.1	13.0
6149	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	55%	9,324	0.27	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6150	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	55%	9,324	0.27	18	\$135	100%	100%	HP-1	27%	0%	6.8	6.8	23.2
6151	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	SF	ER1	18,455	61%	11,236	2.08	6	\$813	100%	37%	HP-1	27%	0%	6.8	11.9	12.5
6152	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	SF	ER2	17,078	55%	9,324	0.27	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6153	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	SF	ER3	17,078	55%	9,324	0.27	18	\$135	100%	100%	HP-1	27%	0%	15.8	15.8	52.8
6154	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	61%	11,236	2.08	6	\$813	100%	86%	HP-3	27%	0%	6.8	5.1	13.0
6155	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	55%	9,324	0.27	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6156	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	55%	9,324	0.27	18	\$135	100%	100%	HP-3	27%	0%	6.8	6.8	23.2
6157	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	SF	ER1	18,455	61%	11,236	2.08	6	\$813	100%	37%	HP-3	27%	0%	6.8	11.9	12.5
6158	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	SF	ER2	17,078	55%	9,324	0.27	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6159	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	SF	ER3	17,078	55%	9,324	0.27	18	\$135	100%	100%	HP-3	27%	0%	15.8	15.8	52.8
6160	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	Single Family Income Eligible	SF	ER1	18,455	61%	11,236	2.08	6	\$813	100%	100%	HP-3	27%	0%	0.8	0.5	2.4
6161	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	Single Family Income Eligible	SF	ER2	17,078	55%	9,324	0.27	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6162	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	Single Family Income Eligible	SF	ER3	17,078	55%	9,324	0.27	18	\$135	100%	100%	HP-3	27%	0%	15.8	15.8	52.8
6163	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER1	13,204	57%	7,497	1.29	6	\$833	100%	100%	HP-7	60%	0%	4.7	2.5	9.0
6164	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER2	8,682	73%	6,331	0.18	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6165	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER3	8,682	73%	6,331	0.18	18	\$135	100%	100%	HP-7	60%	0%	10.7	10.7	36.2
6166	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	57%	7,497	1.29	6	\$833	100%	84%	HP-7	60%	0%	5.2	3.3	9.6
6167	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	73%	6,331	0.18	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6168	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	73%	6,331	0.18	18	\$135	100%	100%	HP-7	60%	0%	4.6	4.6	16.1
6169	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	MF	ER1	13,204	57%	7,497	1.29	6	\$833	100%	36%	HP-7	60%	0%	5.2	7.7	9.1

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6170	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	MF	ER2	8,682	73%	6,331	0.18	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6171	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	MF	ER3	8,682	73%	6,331	0.18	18	\$135	100%	100%	HP-7	60%	0%	10.7	10.7	36.2
6172	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	57%	7,497	1.29	6	\$833	100%	84%	HP-9	67%	0%	5.2	3.3	9.6
6173	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	73%	6,331	0.18	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6174	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	73%	6,331	0.18	18	\$135	100%	100%	HP-9	67%	0%	4.6	4.6	16.1
6175	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	MF	ER1	13,204	57%	7,497	1.29	6	\$833	100%	36%	HP-9	67%	0%	5.2	7.7	9.1
6176	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	MF	ER2	8,682	73%	6,331	0.18	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6177	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	PAYS	MF	ER3	8,682	73%	6,331	0.18	18	\$135	100%	100%	HP-9	67%	0%	10.7	10.7	36.2
6178	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER1	13,204	57%	7,497	1.29	6	\$833	100%	100%	HP-9	67%	0%	1.3	0.7	3.2
6179	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER2	8,682	73%	6,331	0.18	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6180	HVAC	ASHP 16 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER3	8,682	73%	6,331	0.18	18	\$135	100%	100%	HP-9	67%	0%	10.7	10.7	36.2
6181	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	66%	12,102	2.10	6	\$1,008	100%	89%	HP-1	27%	0%	5.7	4.1	11.3
6182	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	60%	10,311	0.41	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6183	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	60%	10,311	0.41	18	\$286	100%	100%	HP-1	27%	0%	6.0	6.0	20.1
6184	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	66%	12,102	2.10	6	\$1,008	100%	89%	HP-3	27%	0%	5.7	4.1	11.3
6185	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	60%	10,311	0.41	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6186	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	60%	10,311	0.41	18	\$286	100%	100%	HP-3	27%	0%	6.0	6.0	20.1
6187	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER1	13,204	61%	8,046	1.22	6	\$814	100%	100%	HP-7	60%	0%	3.9	2.1	7.9
6188	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER2	8,682	81%	7,025	0.25	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6189	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER3	8,682	81%	7,025	0.25	18	\$286	100%	100%	HP-7	60%	0%	12.2	12.2	40.0
6190	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	61%	8,046	1.22	6	\$814	100%	100%	HP-7	60%	0%	4.8	2.6	9.5
6191	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	81%	7,025	0.25	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6192	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	81%	7,025	0.25	18	\$286	100%	100%	HP-7	60%	0%	4.1	4.1	14.0
6193	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	61%	8,046	1.22	6	\$814	100%	100%	HP-9	67%	0%	4.8	2.6	9.5
6194	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	81%	7,025	0.25	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6195	HVAC	ASHP 17 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	81%	7,025	0.25	18	\$286	100%	100%	HP-9	67%	0%	4.1	4.1	14.0
6196	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	70%	12,870	2.24	6	\$1,120	100%	89%	HP-1	27%	0%	5.3	4.0	10.7
6197	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	65%	11,027	0.50	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6198	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	65%	11,027	0.50	18	\$380	100%	100%	HP-1	27%	0%	5.9	5.9	19.4
6199	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	70%	12,870	2.24	6	\$1,120	100%	89%	HP-3	27%	0%	5.3	4.0	10.7
6200	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	65%	11,027	0.50	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6201	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	65%	11,027	0.50	18	\$380	100%	100%	HP-3	27%	0%	5.9	5.9	19.4
6202	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER1	13,204	36%	4,695	1.24	6	\$749	100%	100%	HP-7	60%	0%	3.4	1.6	5.8
6203	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER2	8,682	41%	3,544	0.15	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6204	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	Multifamily Market Rate	MF	ER3	8,682	41%	3,544	0.15	18	\$380	100%	79%	HP-7	60%	0%	5.0	6.3	16.3

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6205	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	36%	4,695	1.24	6	\$749	100%	100%	HP-7	60%	0%	3.8	1.8	6.3
6206	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	41%	3,544	0.15	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6207	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	41%	3,544	0.15	18	\$380	100%	100%	HP-7	60%	0%	1.9	1.9	6.9
6208	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	36%	4,695	1.24	6	\$749	100%	100%	HP-9	67%	0%	3.8	1.8	6.3
6209	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	41%	3,544	0.15	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6210	HVAC	ASHP 18 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	41%	3,544	0.15	18	\$380	100%	100%	HP-9	67%	0%	1.9	1.9	6.9
6211	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	88%	16,242	3.11	6	\$1,404	100%	78%	HP-1	27%	0%	5.1	4.7	10.3
6212	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	81%	13,779	0.77	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6213	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	81%	13,779	0.77	18	\$475	100%	100%	HP-1	27%	0%	7.0	7.0	21.9
6214	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	88%	16,242	3.11	6	\$1,404	100%	78%	HP-3	27%	0%	5.1	4.7	10.3
6215	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	81%	13,779	0.77	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6216	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	81%	13,779	0.77	18	\$475	100%	100%	HP-3	27%	0%	7.0	7.0	21.9
6217	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	62%	8,176	1.34	6	\$971	100%	100%	HP-7	60%	0%	4.1	2.2	8.0
6218	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	82%	7,155	0.37	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6219	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	82%	7,155	0.37	18	\$475	100%	100%	HP-7	60%	0%	3.6	3.6	11.8
6220	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER1	13,204	62%	8,176	1.34	6	\$971	100%	100%	HP-9	67%	0%	0.9	0.5	2.6
6221	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER2	8,682	82%	7,155	0.37	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6222	HVAC	ASHP 19 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER3	8,682	82%	7,155	0.37	18	\$475	100%	63%	HP-9	67%	0%	8.3	13.1	25.7
6223	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	67%	12,313	2.46	6	\$1,255	100%	96%	HP-1	27%	0%	4.8	3.4	9.4
6224	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	61%	10,405	0.65	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6225	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	61%	10,405	0.65	18	\$571	100%	100%	HP-1	27%	0%	4.9	4.9	15.5
6226	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	67%	12,313	2.46	6	\$1,255	100%	96%	HP-3	27%	0%	4.8	3.4	9.4
6227	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	61%	10,405	0.65	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6228	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	61%	10,405	0.65	18	\$571	100%	100%	HP-3	27%	0%	4.9	4.9	15.5
6229	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	62%	8,232	1.39	6	\$1,066	100%	100%	HP-7	60%	0%	3.8	2.1	7.5
6230	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	83%	7,210	0.43	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6231	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	83%	7,210	0.43	18	\$571	100%	100%	HP-7	60%	0%	3.4	3.4	11.0
6232	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER1	13,204	62%	8,232	1.39	6	\$1,066	100%	100%	HP-9	67%	0%	0.9	0.5	2.6
6233	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER2	8,682	83%	7,210	0.43	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6234	HVAC	ASHP 20 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER3	8,682	83%	7,210	0.43	18	\$571	100%	53%	HP-9	67%	0%	7.1	13.5	21.6
6235	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	81%	14,996	2.80	6	\$1,492	100%	87%	HP-1	27%	0%	4.5	3.7	9.3
6236	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	76%	12,915	0.83	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6237	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	76%	12,915	0.83	18	\$668	100%	100%	HP-1	27%	0%	5.7	5.7	17.6
6238	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	HVAC	SF	ER1	18,455	81%	14,996	2.80	6	\$1,492	100%	87%	HP-3	27%	0%	4.5	3.7	9.3
6239	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	HVAC	SF	ER2	17,078	76%	12,915	0.83	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6240	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	HVAC	SF	ER3	17,078	76%	12,915	0.83	18	\$668	100%	100%	HP-3	27%	0%	5.7	5.7	17.6
6241	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	HVAC	MF	ER1	13,204	63%	8,282	1.44	6	\$1,163	100%	100%	HP-7	60%	0%	3.5	2.0	7.0
6242	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	HVAC	MF	ER2	8,682	84%	7,260	0.47	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6243	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	HVAC	MF	ER3	8,682	84%	7,260	0.47	18	\$668	100%	100%	HP-7	60%	0%	3.2	3.2	10.3
6244	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER1	13,204	63%	8,282	1.44	6	\$1,163	100%	100%	HP-9	67%	0%	0.9	0.5	2.6
6245	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER2	8,682	84%	7,260	0.47	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6246	HVAC	ASHP 21 SEER - elec resis furnace baseline ER	Multifamily Income Eligible	MF	ER3	8,682	84%	7,260	0.47	18	\$668	100%	45%	HP-9	67%	0%	6.2	13.8	18.6
6247	HVAC	ASHP 15 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	54%	9,224	0.17	18	\$0	100%	100%	HP-1	27%	0%	9.3	6.4	25.8
6248	HVAC	ASHP 15 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	54%	9,224	0.17	18	\$0	100%	100%	HP-3	27%	0%	9.3	6.4	25.8
6249	HVAC	ASHP 15 SEER - elec resis furnace baseline MO	HVAC	SF	NC	17,078	54%	9,224	0.17	18	\$0	100%	100%	HP-5	27%	0%	9.3	6.4	25.8
6250	HVAC	ASHP 15 SEER - elec resis furnace baseline MO	HVAC	MF	MO	8,682	52%	4,555	0.08	18	\$0	100%	100%	HP-7	60%	0%	6.0	3.2	14.7
6251	HVAC	ASHP 15 SEER - elec resis furnace baseline MO	Multifamily Income Eligible	MF	MO	8,682	52%	4,555	0.08	18	\$0	100%	100%	HP-9	67%	0%	14.1	7.4	33.0
6252	HVAC	ASHP 15 SEER - elec resis furnace baseline MO	HVAC	MF	NC	8,682	52%	4,555	0.08	18	\$0	100%	100%	HP-11	60%	0%	6.0	3.2	14.7
6253	HVAC	ASHP 16 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	59%	10,112	0.28	18	\$135	100%	100%	HP-1	27%	0%	10.2	7.3	27.9
6254	HVAC	ASHP 16 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	59%	10,112	0.28	18	\$135	100%	100%	HP-3	27%	0%	10.2	7.3	27.9
6255	HVAC	ASHP 16 SEER - elec resis furnace baseline MO	HVAC	SF	NC	17,078	59%	10,112	0.28	18	\$135	100%	100%	HP-5	27%	0%	10.2	7.3	27.9
6256	HVAC	ASHP 16 SEER - elec resis furnace baseline MO	Multifamily Market Rate	MF	MO	8,682	56%	4,883	0.13	18	\$135	100%	100%	HP-7	60%	0%	14.9	8.2	34.8
6257	HVAC	ASHP 16 SEER - elec resis furnace baseline MO	HVAC	MF	MO	8,682	56%	4,883	0.13	18	\$135	100%	100%	HP-7	60%	0%	6.4	3.5	15.5
6258	HVAC	ASHP 16 SEER - elec resis furnace baseline MO	HVAC	MF	MO	8,682	56%	4,883	0.13	18	\$135	100%	100%	HP-9	67%	0%	6.4	3.5	15.5
6259	HVAC	ASHP 16 SEER - elec resis furnace baseline MO	HVAC	MF	NC	8,682	56%	4,883	0.13	18	\$135	100%	100%	HP-11	60%	0%	6.4	3.5	15.5
6260	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	61%	10,338	0.41	18	\$286	100%	100%	HP-1	27%	0%	8.3	6.0	22.4
6261	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	61%	10,338	0.41	18	\$286	100%	100%	HP-3	27%	0%	8.3	6.0	22.4
6262	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	HVAC	SF	NC	17,078	61%	10,338	0.41	18	\$286	100%	100%	HP-5	27%	0%	8.3	6.0	22.4
6263	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	Multifamily Market Rate	MF	MO	8,682	74%	6,452	0.23	18	\$286	100%	100%	HP-7	60%	0%	17.8	11.2	43.5
6264	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	Multifamily Income Eligible	MF	MO	8,682	74%	6,452	0.23	18	\$286	100%	100%	HP-9	67%	0%	17.8	11.2	43.5
6265	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	HVAC	MF	NC	8,682	74%	6,452	0.23	18	\$286	100%	100%	HP-11	60%	0%	5.9	3.7	15.2
6266	HVAC	ASHP 18 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	67%	11,440	0.49	18	\$380	100%	100%	HP-1	27%	0%	8.1	6.1	22.1
6267	HVAC	ASHP 18 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	67%	11,440	0.49	18	\$380	100%	100%	HP-3	27%	0%	8.1	6.1	22.1
6268	HVAC	ASHP 18 SEER - elec resis furnace baseline MO	HVAC	SF	NC	17,078	67%	11,440	0.49	18	\$380	100%	100%	HP-5	27%	0%	8.1	6.1	22.1
6269	HVAC	ASHP 18 SEER - elec resis furnace baseline MO	Multifamily Market Rate	MF	MO	8,682	80%	6,904	0.31	18	\$380	100%	79%	HP-7	60%	0%	15.0	12.3	36.3
6270	HVAC	ASHP 18 SEER - elec resis furnace baseline MO	Multifamily Income Eligible	MF	MO	8,682	80%	6,904	0.31	18	\$380	100%	79%	HP-9	67%	0%	15.0	12.3	36.3
6271	HVAC	ASHP 18 SEER - elec resis furnace baseline MO	HVAC	MF	NC	8,682	80%	6,904	0.31	18	\$380	100%	100%	HP-11	60%	0%	5.7	3.7	14.5
6272	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	65%	11,141	0.66	18	\$475	100%	100%	HP-1	27%	0%	7.5	5.7	19.7
6273	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	65%	11,141	0.66	18	\$475	100%	100%	HP-3	27%	0%	7.5	5.7	19.7
6274	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	SF	NC	17,078	65%	11,141	0.66	18	\$475	100%	100%	HP-5	27%	0%	7.5	5.7	19.7

Appendix B: Residential Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6275	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	MF	MO	8,682	76%	6,595	0.36	18	\$475	100%	100%	HP-7	60%	0%	5.1	3.3	12.8
6276	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	MF	MO	8,682	76%	6,595	0.36	18	\$475	100%	100%	HP-9	67%	0%	5.1	3.3	12.8
6277	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	MF	NC	8,682	76%	6,595	0.36	18	\$475	100%	100%	HP-11	60%	0%	5.1	3.3	12.8
6278	HVAC	ASHP 20 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	64%	10,935	0.68	18	\$571	100%	100%	HP-1	27%	0%	6.8	5.2	17.9
6279	HVAC	ASHP 20 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	64%	10,935	0.68	18	\$571	100%	100%	HP-3	27%	0%	6.8	5.2	17.9
6280	HVAC	ASHP 20 SEER - elec resis furnace baseline MO	HVAC	SF	NC	17,078	64%	10,935	0.68	18	\$571	100%	100%	HP-5	27%	0%	6.8	5.2	17.9
6281	HVAC	ASHP 20 SEER - elec resis furnace baseline MO	HVAC	MF	MO	8,682	87%	7,565	0.44	18	\$571	100%	100%	HP-7	60%	0%	5.2	3.5	13.2
6282	HVAC	ASHP 20 SEER - elec resis furnace baseline MO	Multifamily Income Eligible	MF	MO	8,682	87%	7,565	0.44	18	\$571	100%	53%	HP-9	67%	0%	10.9	14.1	26.1
6283	HVAC	ASHP 20 SEER - elec resis furnace baseline MO	HVAC	MF	NC	8,682	87%	7,565	0.44	18	\$571	100%	100%	HP-11	60%	0%	5.2	3.5	13.2
6284	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	79%	13,530	0.88	18	\$668	100%	100%	HP-1	27%	0%	7.5	5.9	19.9
6285	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	SF	MO	17,078	79%	13,530	0.88	18	\$668	100%	100%	HP-3	27%	0%	7.5	5.9	19.9
6286	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	SF	NC	17,078	79%	13,530	0.88	18	\$668	100%	100%	HP-5	27%	0%	7.5	5.9	19.9
6287	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	MF	MO	8,682	77%	6,665	0.43	18	\$668	100%	100%	HP-7	60%	0%	4.5	2.9	11.1
6288	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	MF	MO	8,682	77%	6,665	0.43	18	\$668	100%	100%	HP-9	67%	0%	4.5	2.9	11.1
6289	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	SF	NC	8,682	77%	6,665	0.43	18	\$668	100%	100%	HP-11	60%	0%	4.5	2.9	11.1
6290	HVAC	Dual Fuel HP - 19 SEER	HVAC	SF	MO	8,005	14%	1,085	0.41	18	\$2,937	100%	57%	HP-2	5%	52%	1.1	0.7	1.9
6291	HVAC	Dual Fuel HP - 19 SEER	HVAC	SF	MO	8,005	14%	1,085	0.41	18	\$2,937	100%	57%	HP-4	6%	25%	1.1	0.7	1.9
6292	HVAC	Dual Fuel HP - 19 SEER	HVAC	SF	NC	8,005	14%	1,085	0.41	18	\$2,937	100%	57%	HP-6	5%	0%	1.1	0.7	1.9
6293	HVAC	Dual Fuel HP - 19 SEER	HVAC	MF	MO	4,051	27%	1,085	0.41	18	\$2,937	100%	31%	HP-8	11%	52%	1.1	1.3	1.6
6294	HVAC	Dual Fuel HP - 19 SEER	HVAC	MF	MO	4,051	27%	1,085	0.41	18	\$2,937	100%	31%	HP-10	6%	25%	1.1	1.3	1.6
6295	HVAC	Dual Fuel HP - 19 SEER	HVAC	MF	NC	4,051	27%	1,085	0.41	18	\$2,937	100%	31%	HP-12	11%	0%	1.1	1.3	1.6
6296	HVAC	Dual Fuel HP - 20 SEER	HVAC	SF	MO	8,005	20%	1,630	0.61	18	\$3,177	100%	57%	HP-2	5%	52%	1.2	1.0	2.1
6297	HVAC	Dual Fuel HP - 20 SEER	HVAC	SF	MO	8,005	20%	1,630	0.61	18	\$3,177	100%	57%	HP-4	6%	25%	1.2	1.0	2.1
6298	HVAC	Dual Fuel HP - 20 SEER	HVAC	SF	NC	8,005	20%	1,630	0.61	18	\$3,177	100%	57%	HP-6	5%	0%	1.2	1.0	2.1
6299	HVAC	Dual Fuel HP - 20 SEER	HVAC	MF	MO	4,051	40%	1,630	0.61	18	\$3,177	100%	31%	HP-8	11%	52%	1.2	1.8	1.8
6300	HVAC	Dual Fuel HP - 20 SEER	HVAC	MF	MO	4,051	40%	1,630	0.61	18	\$3,177	100%	31%	HP-10	6%	25%	1.2	1.8	1.8
6301	HVAC	Dual Fuel HP - 20 SEER	HVAC	MF	NC	4,051	40%	1,630	0.61	18	\$3,177	100%	31%	HP-12	11%	0%	1.2	1.8	1.8
6302	HVAC	Dual Fuel HP - 21 SEER	HVAC	SF	MO	8,005	28%	2,255	0.83	18	\$3,627	100%	57%	HP-2	5%	52%	1.2	2.2	2.2
6303	HVAC	Dual Fuel HP - 21 SEER	HVAC	SF	MO	8,005	28%	2,255	0.83	18	\$3,627	100%	57%	HP-4	6%	25%	1.2	2.2	2.2
6304	HVAC	Dual Fuel HP - 21 SEER	HVAC	SF	NC	8,005	28%	2,255	0.83	18	\$3,627	100%	57%	HP-6	5%	0%	1.2	2.2	2.2
6305	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	MO	4,051	56%	2,255	0.83	18	\$3,627	100%	30%	HP-8	11%	52%	1.2	2.2	1.9
6306	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	MO	4,051	56%	2,255	0.83	18	\$3,627	100%	30%	HP-10	6%	25%	1.2	2.2	1.9
6307	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	NC	4,051	56%	2,255	0.83	18	\$3,627	100%	30%	HP-12	11%	0%	1.2	2.2	1.9
6308	HVAC	Central AC 15 SEER ER	HVAC	SF	ER1	3,731	60%	2,222	2.11	6	\$576	100%	52%	CAC-1	114%	52%	4.6	6.8	4.3
6309	HVAC	Central AC 15 SEER ER	HVAC	SF	ER2	2,278	7%	165	0.16	12	\$0	100%	35%	CAC-1	114%	52%	1.0	1.0	1.0
6310	HVAC	Central AC 15 SEER ER	HVAC	SF	ER3	2,278	7%	165	0.16	18	\$108	100%	100%	CAC-1	114%	52%	1.2	1.2	1.9
6311	HVAC	Central AC 15 SEER ER	HVAC	SF	ER1	3,731	60%	2,222	2.11	6	\$576	100%	52%	CAC-2	79%	25%	4.6	6.8	4.3
6312	HVAC	Central AC 15 SEER ER	HVAC	SF	ER2	2,278	7%	165	0.16	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6313	HVAC	Central AC 15 SEER ER	HVAC	SF	ER3	2,278	7%	165	0.16	18	\$108	100%	100%	CAC-2	79%	25%	1.2	1.2	1.9
6314	HVAC	Central AC 15 SEER ER	Single Family Income Eligible	SF	ER1	3,731	60%	2,222	2.11	6	\$576	100%	100%	CAC-2	79%	25%	0.5	0.4	1.4
6315	HVAC	Central AC 15 SEER ER	Single Family Income Eligible	SF	ER2	2,278	7%	165	0.16	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6316	HVAC	Central AC 15 SEER ER	Single Family Income Eligible	SF	ER3	2,278	7%	165	0.16	18	\$108	100%	100%	CAC-2	79%	25%	1.2	1.2	1.9
6317	HVAC	Central AC 15 SEER ER	HVAC	MF	ER1	2,504	53%	1,323	1.25	6	\$576	100%	52%	CAC-4	100%	52%	3.2	4.1	3.2
6318	HVAC	Central AC 15 SEER ER	HVAC	MF	ER2	1,127	5%	55	0.05	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6319	HVAC	Central AC 15 SEER ER	HVAC	MF	ER3	1,127	5%	55	0.05	18	\$108	100%	100%	CAC-4	100%	52%	0.4	0.4	1.3
6320	HVAC	Central AC 15 SEER ER	Multifamily Market Rate	MF	ER1	2,504	53%	1,323	1.25	6	\$576	100%	52%	CAC-4	100%	52%	3.2	4.1	3.2
6321	HVAC	Central AC 15 SEER ER	Multifamily Market Rate	MF	ER2	1,127	5%	55	0.05	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6322	HVAC	Central AC 15 SEER ER	Multifamily Market Rate	MF	ER3	1,127	5%	55	0.05	18	\$108	100%	100%	CAC-4	100%	52%	0.4	0.4	1.3

Appendix B: Residential Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KWh	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6323	HVAC	Central AC15 SEER ER	HVAC	MF	ER1	2,504	53%	1,323	1.25	6	\$576	100%	52%	CAC-5	63%	25%	3.2	4.1	3.2
6324	HVAC	Central AC15 SEER ER	HVAC	MF	ER2	1,127	5%	55	0.05	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6325	HVAC	Central AC15 SEER ER	HVAC	MF	ER3	1,127	5%	55	0.05	18	\$108	100%	100%	CAC-5	63%	25%	0.4	0.4	1.3
6326	HVAC	Central AC15 SEER ER	Multifamily Income Eligible	MF	ER1	2,504	53%	1,323	1.25	6	\$576	100%	100%	CAC-5	63%	25%	2.0	1.3	2.7
6327	HVAC	Central AC15 SEER ER	Multifamily Income Eligible	MF	ER2	1,127	5%	55	0.05	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6328	HVAC	Central AC15 SEER ER	Multifamily Income Eligible	MF	ER3	1,127	5%	55	0.05	18	\$108	100%	100%	CAC-5	63%	25%	0.4	0.4	1.3
6329	HVAC	Central AC16 SEER ER	HVAC	SF	ER1	3,731	58%	2,164	2.05	6	\$655	100%	46%	CAC-1	114%	52%	4.0	6.7	3.7
6330	HVAC	Central AC16 SEER ER	HVAC	SF	ER2	2,278	12%	284	0.27	12	\$0	100%	35%	CAC-1	114%	52%	1.0	1.0	1.0
6331	HVAC	Central AC16 SEER ER	HVAC	SF	ER3	2,278	12%	284	0.27	18	\$221	100%	100%	CAC-1	114%	52%	2.1	2.1	2.6
6332	HVAC	Central AC16 SEER ER	PAYS	SF	ER1	3,731	58%	2,164	2.05	6	\$655	100%	46%	CAC-1	114%	52%	4.0	6.7	3.7
6333	HVAC	Central AC16 SEER ER	PAYS	SF	ER2	2,278	12%	284	0.27	12	\$0	100%	35%	CAC-1	114%	52%	1.0	1.0	1.0
6334	HVAC	Central AC16 SEER ER	PAYS	SF	ER3	2,278	12%	284	0.27	18	\$221	100%	100%	CAC-1	114%	52%	2.1	2.1	2.6
6335	HVAC	Central AC16 SEER ER	HVAC	SF	ER1	3,731	58%	2,164	2.05	6	\$655	100%	46%	CAC-2	79%	25%	4.0	6.7	3.7
6336	HVAC	Central AC16 SEER ER	HVAC	SF	ER2	2,278	12%	284	0.27	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6337	HVAC	Central AC16 SEER ER	HVAC	SF	ER3	2,278	12%	284	0.27	18	\$221	100%	100%	CAC-2	79%	25%	2.1	2.1	2.6
6338	HVAC	Central AC16 SEER ER	PAYS	SF	ER1	3,731	58%	2,164	2.05	6	\$655	100%	46%	CAC-2	79%	25%	4.0	6.7	3.7
6339	HVAC	Central AC16 SEER ER	PAYS	SF	ER2	2,278	12%	284	0.27	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6340	HVAC	Central AC16 SEER ER	PAYS	SF	ER3	2,278	12%	284	0.27	18	\$221	100%	100%	CAC-2	79%	25%	2.1	2.1	2.6
6341	HVAC	Central AC16 SEER ER	Single Family Income Eligible	SF	ER1	3,731	58%	2,164	2.05	6	\$655	100%	100%	CAC-2	79%	25%	0.5	0.4	1.4
6342	HVAC	Central AC16 SEER ER	Single Family Income Eligible	SF	ER2	2,278	12%	284	0.27	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6343	HVAC	Central AC16 SEER ER	Single Family Income Eligible	SF	ER3	2,278	12%	284	0.27	18	\$221	100%	100%	CAC-2	79%	25%	2.1	2.1	2.6
6344	HVAC	Central AC16 SEER ER	HVAC	MF	ER1	2,504	63%	1,566	1.48	6	\$546	100%	55%	CAC-4	100%	52%	3.7	4.8	3.7
6345	HVAC	Central AC16 SEER ER	HVAC	MF	ER2	1,127	23%	258	0.24	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6346	HVAC	Central AC16 SEER ER	HVAC	MF	ER3	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-4	100%	52%	1.9	1.9	2.4
6347	HVAC	Central AC16 SEER ER	Multifamily Market Rate	MF	ER1	2,504	63%	1,566	1.48	6	\$546	100%	55%	CAC-4	100%	52%	3.7	4.8	3.7
6348	HVAC	Central AC16 SEER ER	Multifamily Market Rate	MF	ER2	1,127	23%	258	0.24	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6349	HVAC	Central AC16 SEER ER	Multifamily Market Rate	MF	ER3	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-4	100%	52%	1.9	1.9	2.4
6350	HVAC	Central AC16 SEER ER	PAYS	MF	ER1	2,504	63%	1,566	1.48	6	\$546	100%	55%	CAC-4	100%	52%	3.7	4.8	3.7
6351	HVAC	Central AC16 SEER ER	PAYS	MF	ER2	1,127	23%	258	0.24	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6352	HVAC	Central AC16 SEER ER	PAYS	MF	ER3	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-4	100%	52%	1.9	1.9	2.4
6353	HVAC	Central AC16 SEER ER	HVAC	MF	ER1	2,504	63%	1,566	1.48	6	\$546	100%	55%	CAC-5	63%	25%	3.7	4.8	3.7
6354	HVAC	Central AC16 SEER ER	HVAC	MF	ER2	1,127	23%	258	0.24	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6355	HVAC	Central AC16 SEER ER	HVAC	MF	ER3	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-5	63%	25%	1.9	1.9	2.4
6356	HVAC	Central AC16 SEER ER	PAYS	MF	ER1	2,504	63%	1,566	1.48	6	\$546	100%	55%	CAC-5	63%	25%	3.7	4.8	3.7
6357	HVAC	Central AC16 SEER ER	PAYS	MF	ER2	1,127	23%	258	0.24	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6358	HVAC	Central AC16 SEER ER	PAYS	MF	ER3	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-5	63%	25%	1.9	1.9	2.4
6359	HVAC	Central AC16 SEER ER	Multifamily Income Eligible	MF	ER1	2,504	63%	1,566	1.48	6	\$546	100%	100%	CAC-5	63%	25%	2.2	1.6	2.9
6360	HVAC	Central AC16 SEER ER	Multifamily Income Eligible	MF	ER2	1,127	23%	258	0.24	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6361	HVAC	Central AC16 SEER ER	Multifamily Income Eligible	MF	ER3	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-5	63%	25%	1.9	1.9	2.4
6362	HVAC	Central AC17 SEER ER	HVAC	SF	ER1	3,731	61%	2,273	2.15	6	\$1,059	100%	47%	CAC-1	114%	52%	2.6	4.2	2.5
6363	HVAC	Central AC17 SEER ER	HVAC	SF	ER2	2,278	17%	392	0.37	12	\$0	100%	35%	CAC-1	114%	52%	1.0	1.0	1.0
6364	HVAC	Central AC17 SEER ER	HVAC	SF	ER3	2,278	17%	392	0.37	18	\$620	100%	81%	CAC-1	114%	52%	1.4	1.7	1.9
6365	HVAC	Central AC17 SEER ER	HVAC	SF	ER1	3,731	61%	2,273	2.15	6	\$1,059	100%	47%	CAC-2	79%	25%	2.6	4.2	2.5
6366	HVAC	Central AC17 SEER ER	HVAC	SF	ER2	2,278	17%	392	0.37	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6367	HVAC	Central AC17 SEER ER	HVAC	SF	ER3	2,278	17%	392	0.37	18	\$620	100%	81%	CAC-2	79%	25%	1.4	1.7	1.9
6368	HVAC	Central AC17 SEER ER	Single Family Income Eligible	SF	ER1	3,731	61%	2,273	2.15	6	\$1,059	100%	100%	CAC-2	79%	25%	0.5	0.4	1.4
6369	HVAC	Central AC17 SEER ER	Single Family Income Eligible	SF	ER2	2,278	17%	392	0.37	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6370	HVAC	Central AC17 SEER ER	Single Family Income Eligible	SF	ER3	2,278	17%	392	0.37	18	\$620	100%	81%	CAC-2	79%	25%	1.4	1.7	1.9
6371	HVAC	Central AC17 SEER ER	HVAC	MF	ER1	2,504	87%	2,166	2.05	6	\$1,026	100%	49%	CAC-4	100%	52%	2.5	4.0	2.6
6372	HVAC	Central AC17 SEER ER	HVAC	MF	ER2	1,127	32%	361	0.34	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6373	HVAC	Central AC17 SEER ER	HVAC	MF	ER3	1,127	32%	361	0.34	18	\$620	100%	81%	CAC-4	100%	52%	1.3	1.6	1.8
6374	HVAC	Central AC17 SEER ER	Multifamily Market Rate	MF	ER1	2,504	87%	2,166	2.05	6	\$1,026	100%	49%	CAC-4	100%	52%	2.5	4.0	2.6
6375	HVAC	Central AC17 SEER ER	Multifamily Market Rate	MF	ER2	1,127	32%	361	0.34	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6376	HVAC	Central AC17 SEER ER	Multifamily Market Rate	MF	ER3	1,127	32%	361	0.34	18	\$620	100%	81%	CAC-4	100%	52%	1.3	1.6	1.8
6377	HVAC	Central AC17 SEER ER	HVAC	MF	ER1	2,504	87%	2,166	2.05	6	\$1,026	100%	49%	CAC-5	63%	25%	2.5	4.0	2.6
6378	HVAC	Central AC17 SEER ER	HVAC	MF	ER2	1,127	32%	361	0.34	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6379	HVAC	Central AC17 SEER ER	HVAC	MF	ER3	1,127	32%	361	0.34	18	\$620	100%	81%	CAC-5	63%	25%	1.3	1.6	1.8
6380	HVAC	Central AC17 SEER ER	HVAC	SF	ER1	3,731	67%	2,518	2.29	6	\$1,323	100%	53%	CAC-1	114%	52%	2.2	3.3	2.3

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6378	HVAC	Central AC18 SEER ER	HVAC	SF	ER2	2,278	25%	561	0.53	12	\$0	100%	35%	CAC-1	114%	52%	1.0	1.0	1.0
6379	HVAC	Central AC18 SEER ER	HVAC	SF	ER3	2,278	25%	561	0.53	18	\$827	100%	85%	CAC-1	114%	52%	1.5	1.8	2.0
6380	HVAC	Central AC18 SEER ER	HVAC	SF	ER1	3,731	67%	2,518	2.39	6	\$1,323	100%	53%	CAC-2	79%	25%	2.2	3.3	2.3
6381	HVAC	Central AC18 SEER ER	HVAC	SF	ER2	2,278	25%	561	0.53	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6382	HVAC	Central AC18 SEER ER	HVAC	SF	ER3	2,278	25%	561	0.53	18	\$827	100%	85%	CAC-2	79%	25%	1.5	1.8	2.0
6383	HVAC	Central AC18 SEER ER	Single Family Income Eligible	SF	ER1	3,731	67%	2,518	2.39	6	\$1,323	100%	100%	CAC-2	79%	25%	0.6	0.4	1.4
6384	HVAC	Central AC18 SEER ER	Single Family Income Eligible	SF	ER2	2,278	25%	561	0.53	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6385	HVAC	Central AC18 SEER ER	Single Family Income Eligible	SF	ER3	2,278	25%	561	0.53	18	\$827	100%	85%	CAC-2	79%	25%	1.5	1.8	2.0
6386	HVAC	Central AC18 SEER ER	HVAC	MF	ER1	2,504	85%	2,129	2.02	6	\$1,312	100%	53%	CAC-4	100%	52%	2.0	2.8	2.1
6387	HVAC	Central AC18 SEER ER	HVAC	MF	ER2	1,127	29%	330	0.31	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6388	HVAC	Central AC18 SEER ER	HVAC	MF	ER3	1,127	29%	330	0.31	18	\$827	100%	85%	CAC-4	100%	52%	0.9	1.0	1.5
6389	HVAC	Central AC18 SEER ER	HVAC	MF	ER1	2,504	85%	2,129	2.02	6	\$1,312	100%	53%	CAC-5	100%	52%	2.0	2.8	2.1
6390	HVAC	Central AC18 SEER ER	HVAC	MF	ER2	1,127	29%	330	0.31	12	\$0	100%	35%	CAC-5	100%	52%	1.0	1.0	1.0
6391	HVAC	Central AC18 SEER ER	HVAC	MF	ER3	1,127	29%	330	0.31	18	\$827	100%	85%	CAC-5	100%	52%	0.9	1.0	1.5
6392	HVAC	Central AC19 SEER ER	HVAC	SF	ER1	3,731	90%	3,354	3.18	6	\$1,676	100%	48%	CAC-1	114%	52%	2.2	3.9	2.2
6393	HVAC	Central AC19 SEER ER	HVAC	SF	ER2	2,278	38%	871	0.83	12	\$0	100%	35%	CAC-1	114%	52%	1.0	1.0	1.0
6394	HVAC	Central AC19 SEER ER	HVAC	SF	ER3	2,278	38%	871	0.83	18	\$1,033	100%	77%	CAC-1	114%	52%	1.9	2.4	2.2
6395	HVAC	Central AC19 SEER ER	HVAC	SF	ER1	3,731	90%	3,354	3.18	6	\$1,676	100%	48%	CAC-2	79%	25%	2.2	3.9	2.2
6396	HVAC	Central AC19 SEER ER	HVAC	SF	ER2	2,278	38%	871	0.83	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6397	HVAC	Central AC19 SEER ER	HVAC	SF	ER3	2,278	38%	871	0.83	18	\$1,033	100%	77%	CAC-2	79%	25%	1.9	2.4	2.2
6398	HVAC	Central AC19 SEER ER	Single Family Income Eligible	SF	ER1	3,731	90%	3,354	3.18	6	\$1,676	100%	100%	CAC-2	79%	25%	0.7	0.6	1.6
6399	HVAC	Central AC19 SEER ER	Single Family Income Eligible	SF	ER2	2,278	38%	871	0.83	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6400	HVAC	Central AC19 SEER ER	Single Family Income Eligible	SF	ER3	2,278	38%	871	0.83	18	\$1,033	100%	77%	CAC-2	79%	25%	1.9	2.4	2.2
6401	HVAC	Central AC19 SEER ER	HVAC	MF	ER1	2,504	56%	1,403	1.33	6	\$1,331	100%	60%	CAC-4	100%	52%	1.4	1.6	1.8
6402	HVAC	Central AC19 SEER ER	HVAC	MF	ER2	1,127	35%	391	0.37	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6403	HVAC	Central AC19 SEER ER	HVAC	MF	ER3	1,127	35%	391	0.37	18	\$1,033	100%	77%	CAC-4	100%	52%	0.8	1.1	1.4
6404	HVAC	Central AC19 SEER ER	HVAC	MF	ER1	2,504	56%	1,403	1.33	6	\$1,331	100%	60%	CAC-5	63%	25%	1.4	1.6	1.8
6405	HVAC	Central AC19 SEER ER	HVAC	MF	ER2	1,127	35%	391	0.37	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6406	HVAC	Central AC19 SEER ER	HVAC	MF	ER3	1,127	35%	391	0.37	18	\$1,033	100%	77%	CAC-5	63%	25%	0.8	1.1	1.4
6407	HVAC	Central AC20 SEER ER	HVAC	SF	ER1	3,731	78%	2,896	2.74	6	\$1,748	100%	51%	CAC-1	114%	52%	1.9	3.0	2.0
6408	HVAC	Central AC20 SEER ER	HVAC	SF	ER2	2,278	33%	759	0.72	12	\$0	100%	35%	CAC-1	114%	52%	1.0	1.0	1.0
6409	HVAC	Central AC20 SEER ER	HVAC	SF	ER3	2,278	33%	759	0.72	18	\$1,240	100%	73%	CAC-1	114%	52%	1.4	1.9	1.7
6410	HVAC	Central AC20 SEER ER	HVAC	SF	ER1	3,731	78%	2,896	2.74	6	\$1,748	100%	51%	CAC-2	79%	25%	1.9	3.0	2.0
6411	HVAC	Central AC20 SEER ER	HVAC	SF	ER2	2,278	33%	759	0.72	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6412	HVAC	Central AC20 SEER ER	HVAC	SF	ER3	2,278	33%	759	0.72	18	\$1,240	100%	73%	CAC-2	79%	25%	1.4	1.9	1.7
6413	HVAC	Central AC20 SEER ER	Single Family Income Eligible	SF	ER1	3,731	78%	2,896	2.74	6	\$1,748	100%	100%	CAC-2	79%	25%	0.6	0.5	1.5
6414	HVAC	Central AC20 SEER ER	Single Family Income Eligible	SF	ER2	2,278	33%	759	0.72	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6415	HVAC	Central AC20 SEER ER	Single Family Income Eligible	SF	ER3	2,278	33%	759	0.72	18	\$1,240	100%	73%	CAC-2	79%	25%	1.4	1.9	1.7
6416	HVAC	Central AC20 SEER ER	HVAC	MF	ER1	2,504	57%	1,436	1.36	6	\$1,538	100%	59%	CAC-4	100%	52%	1.3	1.5	1.6
6417	HVAC	Central AC20 SEER ER	HVAC	MF	ER2	1,127	40%	446	0.42	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6418	HVAC	Central AC20 SEER ER	HVAC	MF	ER3	1,127	40%	446	0.42	18	\$1,240	100%	73%	CAC-4	100%	52%	0.8	1.1	1.3
6419	HVAC	Central AC20 SEER ER	HVAC	MF	ER1	2,504	57%	1,436	1.36	6	\$1,538	100%	59%	CAC-5	63%	25%	1.3	1.5	1.6
6420	HVAC	Central AC20 SEER ER	HVAC	MF	ER2	1,127	40%	446	0.42	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6421	HVAC	Central AC20 SEER ER	HVAC	MF	ER3	1,127	40%	446	0.42	18	\$1,240	100%	73%	CAC-5	63%	25%	0.8	1.1	1.3
6422	HVAC	Central AC21 SEER ER	HVAC	SF	ER1	3,731	76%	2,849	2.70	6	\$1,929	100%	52%	CAC-1	114%	52%	1.7	2.6	1.9
6423	HVAC	Central AC21 SEER ER	HVAC	SF	ER2	2,278	39%	887	0.84	12	\$0	100%	35%	CAC-1	114%	52%	1.0	1.0	1.0
6424	HVAC	Central AC21 SEER ER	HVAC	SF	ER3	2,278	39%	887	0.84	18	\$1,447	100%	69%	CAC-1	114%	52%	1.4	2.0	1.7
6425	HVAC	Central AC21 SEER ER	HVAC	SF	ER1	3,731	76%	2,849	2.70	6	\$1,929	100%	52%	CAC-2	79%	25%	1.7	2.6	1.9
6426	HVAC	Central AC21 SEER ER	HVAC	SF	ER2	2,278	39%	887	0.84	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6427	HVAC	Central AC21 SEER ER	HVAC	SF	ER3	2,278	39%	887	0.84	18	\$1,447	100%	69%	CAC-2	79%	25%	1.4	2.0	1.7
6428	HVAC	Central AC21 SEER ER	Single Family Income Eligible	SF	ER1	3,731	76%	2,849	2.70	6	\$1,929	100%	100%	CAC-2	79%	25%	0.6	0.5	1.5
6429	HVAC	Central AC21 SEER ER	Single Family Income Eligible	SF	ER2	2,278	39%	887	0.84	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6430	HVAC	Central AC21 SEER ER	Single Family Income Eligible	SF	ER3	2,278	39%	887	0.84	18	\$1,447	100%	69%	CAC-2	79%	25%	1.4	2.0	1.7
6431	HVAC	Central AC21 SEER ER	HVAC	MF	ER1	2,504	60%	1,508	1.43	6	\$1,745	100%	57%	CAC-4	100%	52%	1.1	1.4	1.5
6432	HVAC	Central AC21 SEER ER	HVAC	MF	ER2	1,127	44%	496	0.47	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6433	HVAC	Central AC21 SEER ER	HVAC	MF	ER3	1,127	44%	496	0.47	18	\$1,447	100%	69%	CAC-4	100%	52%	0.8	1.1	1.3
6434	HVAC	Central AC21 SEER ER	HVAC	MF	ER1	2,504	60%	1,508	1.43	6	\$1,745	100%	57%	CAC-5	63%	25%	1.1	1.4	1.5
6435	HVAC	Central AC21 SEER ER	HVAC	MF	ER2	1,127	44%	496	0.47	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6436	HVAC	Central AC 21 SEER ER	HVAC	MF	ER3	1,127	44%	496	0.47	18	\$1,447	100%	69%	CAC-5	63%	25%	0.8	1.1	1.3
6437	HVAC	Central AC 15 SEER MO	HVAC	SF	MO	2,278	7%	165	0.16	18	\$108	100%	100%	CAC-1	114%	52%	3.2	1.2	3.9
6438	HVAC	Central AC 15 SEER MO	HVAC	SF	MO	2,278	7%	165	0.16	18	\$108	100%	100%	CAC-2	79%	25%	3.2	1.2	3.9
6439	HVAC	Central AC 15 SEER MO	Single Family Income Eligible	SF	MO	2,278	7%	165	0.16	18	\$108	100%	100%	CAC-2	79%	25%	3.2	1.2	3.9
6440	HVAC	Central AC 15 SEER MO	HVAC	SF	NC	2,278	7%	165	0.16	18	\$108	100%	100%	CAC-3	114%	0%	3.2	1.2	3.9
6441	HVAC	Central AC 15 SEER MO	Multifamily Market Rate	MF	MO	1,127	5%	55	0.05	18	\$108	100%	100%	CAC-4	100%	52%	3.6	0.6	4.5
6442	HVAC	Central AC 15 SEER MO	HVAC	MF	MO	1,127	5%	55	0.05	18	\$108	100%	100%	CAC-4	100%	52%	2.4	0.4	3.3
6443	HVAC	Central AC 15 SEER MO	HVAC	MF	MO	1,127	5%	55	0.05	18	\$108	100%	100%	CAC-5	63%	25%	2.4	0.4	3.3
6444	HVAC	Central AC 15 SEER MO	HVAC	MF	NC	1,127	5%	55	0.05	18	\$108	100%	100%	CAC-6	100%	0%	2.4	0.4	3.3
6445	HVAC	Central AC 16 SEER MO	HVAC	SF	MO	2,278	12%	284	0.27	18	\$221	100%	100%	CAC-1	114%	52%	4.1	2.1	4.6
6446	HVAC	Central AC 16 SEER MO	HVAC	SF	MO	2,278	12%	284	0.27	18	\$221	100%	100%	CAC-2	79%	25%	4.1	2.1	4.6
6447	HVAC	Central AC 16 SEER MO	Single Family Income Eligible	SF	MO	2,278	12%	284	0.27	18	\$221	100%	100%	CAC-2	79%	25%	4.1	2.1	4.6
6448	HVAC	Central AC 16 SEER MO	HVAC	SF	NC	2,278	12%	284	0.27	18	\$221	100%	100%	CAC-3	114%	0%	4.1	2.1	4.6
6449	HVAC	Central AC 16 SEER MO	Multifamily Market Rate	MF	MO	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-4	100%	52%	3.9	1.9	4.4
6450	HVAC	Central AC 16 SEER MO	HVAC	MF	MO	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-4	100%	52%	3.9	1.9	4.4
6451	HVAC	Central AC 16 SEER MO	HVAC	MF	MO	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-5	63%	25%	3.9	1.9	4.4
6452	HVAC	Central AC 16 SEER MO	HVAC	MF	NC	1,127	23%	258	0.24	18	\$221	100%	100%	CAC-6	100%	0%	3.9	1.9	4.4
6453	HVAC	Central AC 17 SEER MO	HVAC	SF	MO	2,278	17%	392	0.37	18	\$620	100%	81%	CAC-1	114%	52%	2.4	1.7	2.8
6454	HVAC	Central AC 17 SEER MO	HVAC	SF	MO	2,278	17%	392	0.37	18	\$620	100%	81%	CAC-2	79%	25%	2.4	1.7	2.8
6455	HVAC	Central AC 17 SEER MO	Single Family Income Eligible	SF	MO	2,278	17%	392	0.37	18	\$620	100%	81%	CAC-2	79%	25%	2.4	1.7	2.8
6456	HVAC	Central AC 17 SEER MO	HVAC	SF	NC	2,278	17%	392	0.37	18	\$620	100%	81%	CAC-3	114%	0%	2.4	1.7	2.8
6457	HVAC	Central AC 17 SEER MO	Multifamily Market Rate	MF	MO	1,127	32%	361	0.34	18	\$620	100%	81%	CAC-4	100%	52%	2.3	1.6	2.7
6458	HVAC	Central AC 17 SEER MO	HVAC	MF	MO	1,127	32%	361	0.34	18	\$620	100%	81%	CAC-4	100%	52%	2.3	1.6	2.7
6459	HVAC	Central AC 17 SEER MO	HVAC	MF	MO	1,127	32%	361	0.34	18	\$620	100%	81%	CAC-5	63%	25%	2.3	1.6	2.7
6460	HVAC	Central AC 17 SEER MO	HVAC	MF	NC	1,127	32%	361	0.34	18	\$620	100%	81%	CAC-6	100%	0%	2.3	1.6	2.7
6461	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	2,278	25%	561	0.53	18	\$827	100%	85%	CAC-1	114%	52%	2.2	1.8	2.7
6462	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	2,278	25%	561	0.53	18	\$827	100%	85%	CAC-2	79%	25%	2.2	1.8	2.7
6463	HVAC	Central AC 18 SEER MO	Single Family Income Eligible	SF	MO	2,278	25%	561	0.53	18	\$827	100%	85%	CAC-2	79%	25%	2.2	1.8	2.7
6464	HVAC	Central AC 18 SEER MO	HVAC	SF	NC	2,278	25%	561	0.53	18	\$827	100%	85%	CAC-3	114%	0%	2.2	1.8	2.7
6465	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	1,127	29%	330	0.31	18	\$827	100%	85%	CAC-4	100%	52%	1.6	1.0	2.2
6466	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	1,127	29%	330	0.31	18	\$827	100%	85%	CAC-5	63%	25%	1.6	1.0	2.2
6467	HVAC	Central AC 18 SEER MO	HVAC	MF	NC	1,127	29%	330	0.31	18	\$827	100%	85%	CAC-6	100%	0%	1.6	1.0	2.2
6468	HVAC	Central AC 19 SEER MO	HVAC	SF	MO	2,278	38%	871	0.83	18	\$1,676	100%	48%	CAC-1	114%	52%	1.5	2.4	1.7
6469	HVAC	Central AC 19 SEER MO	HVAC	SF	MO	2,278	38%	871	0.83	18	\$1,676	100%	48%	CAC-2	79%	25%	1.5	2.4	1.7
6470	HVAC	Central AC 19 SEER MO	Single Family Income Eligible	SF	MO	2,278	38%	871	0.83	18	\$1,676	100%	48%	CAC-2	79%	25%	1.5	2.4	1.7
6471	HVAC	Central AC 19 SEER MO	HVAC	SF	NC	2,278	38%	871	0.83	18	\$1,676	100%	48%	CAC-3	114%	0%	1.5	2.4	1.7
6472	HVAC	Central AC 19 SEER MO	HVAC	MF	MO	1,127	35%	391	0.37	18	\$1,676	100%	48%	CAC-4	100%	52%	0.9	1.1	1.2
6473	HVAC	Central AC 19 SEER MO	HVAC	MF	MO	1,127	35%	391	0.37	18	\$1,676	100%	48%	CAC-5	63%	25%	0.9	1.1	1.2
6474	HVAC	Central AC 19 SEER MO	HVAC	MF	NC	1,127	35%	391	0.37	18	\$1,676	100%	48%	CAC-6	100%	0%	0.9	1.1	1.2
6475	HVAC	Central AC 20 SEER MO	HVAC	SF	MO	2,278	33%	759	0.72	18	\$1,240	100%	73%	CAC-1	114%	52%	1.8	1.9	2.2
6476	HVAC	Central AC 20 SEER MO	HVAC	SF	MO	2,278	33%	759	0.72	18	\$1,240	100%	73%	CAC-2	79%	25%	1.8	1.9	2.2
6477	HVAC	Central AC 20 SEER MO	Single Family Income Eligible	SF	MO	2,278	33%	759	0.72	18	\$1,240	100%	73%	CAC-2	79%	25%	1.8	1.9	2.2
6478	HVAC	Central AC 20 SEER MO	HVAC	SF	NC	2,278	33%	759	0.72	18	\$1,240	100%	73%	CAC-3	114%	0%	1.8	1.9	2.2
6479	HVAC	Central AC 20 SEER MO	HVAC	MF	MO	1,127	42%	446	0.42	18	\$1,240	100%	73%	CAC-4	100%	52%	3.1	3.5	3.1
6480	HVAC	Central AC 20 SEER MO	HVAC	MF	MO	1,127	40%	446	0.42	18	\$1,240	100%	73%	CAC-5	63%	25%	1.3	1.1	1.8
6481	HVAC	Central AC 20 SEER MO	HVAC	MF	NC	1,127	40%	446	0.42	18	\$1,240	100%	73%	CAC-6	100%	0%	1.3	1.1	1.8
6482	HVAC	Central AC 21 SEER MO	HVAC	SF	MO	2,278	39%	887	0.84	18	\$1,447	100%	69%	CAC-1	114%	52%	1.8	2.0	2.1
6483	HVAC	Central AC 21 SEER MO	HVAC	SF	MO	2,278	39%	887	0.84	18	\$1,447	100%	69%	CAC-2	79%	25%	1.8	2.0	2.1
6484	HVAC	Central AC 21 SEER MO	Single Family Income Eligible	SF	MO	2,278	39%	887	0.84	18	\$1,447	100%	69%	CAC-2	79%	25%	1.8	2.0	2.1
6485	HVAC	Central AC 21 SEER MO	HVAC	SF	NC	2,278	39%	887	0.84	18	\$1,447	100%	69%	CAC-3	114%	0%	1.8	2.0	2.1
6486	HVAC	Central AC 21 SEER MO	HVAC	MF	MO	1,127	44%	496	0.47	18	\$1,447	100%	69%	CAC-4	100%	52%	1.2	1.1	1.7
6487	HVAC	Central AC 21 SEER MO	HVAC	MF	MO	1,127	44%	496	0.47	18	\$1,447	100%	69%	CAC-5	63%	25%	1.2	1.1	1.7
6488	HVAC	Central AC 21 SEER MO	HVAC	MF	NC	1,127	44%	496	0.47	18	\$1,447	100%	69%	CAC-6	100%	0%	1.2	1.1	1.7
6489	HVAC	ECM Fan	HVAC	SF	Retrofit	1,455	40%	582	0.27	6	\$322	100%	100%	ECM-1	100%	52%	0.6	0.6	1.8
6490	HVAC	ECM Fan	HVAC	SF	Retrofit	1,455	40%	582	0.27	6	\$322	100%	100%	ECM-2	100%	52%	0.6	0.6	1.8
6491	HVAC	ECM Fan	Single Family Income Eligible	SF	Retrofit	1,455	40%	582	0.27	6	\$322	100%	100%	ECM-2	100%	52%	0.4	0.4	1.6
6492	HVAC	ECM Fan	HVAC	MF	Retrofit	1,455	40%	582	0.27	6	\$322	100%	100%	ECM-3	100%	52%	0.6	0.6	1.8
6493	HVAC	ECM Fan	Multifamily Market Rate	MF	Retrofit	1,455	40%	582	0.27	6	\$322	100%	100%	ECM-3	100%	52%	0.6	0.6	1.8

Appendix B: Residential Measure Assumptions

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6494	HVAC	ECM Fan	HVAC	MF	Retrofit	1,455	40%	582	0.27	6	\$322	100%	100%	ECM-4	100%	25%	0.6	0.6	1.8
6495	HVAC	ECM Fan	Multifamily Income Eligible	MF	Retrofit	1,455	40%	582	0.27	6	\$322	100%	100%	ECM-4	100%	25%	0.4	0.4	1.6
6496	HVAC	Ductless ACER	HVAC	SF	ER1	3,731	33%	1,227	1.16	6	\$1,409	100%	14%	CAC-1	114%	52%	2.2	5.7	2.2
6497	HVAC	Ductless ACER	HVAC	SF	ER2	2,278	9%	215	0.20	12	\$0	100%	35%	CAC-1	114%	52%	1.0	1.0	2.0
6498	HVAC	Ductless ACER	HVAC	SF	ER3	2,278	9%	215	0.20	18	\$365	100%	55%	CAC-1	114%	52%	1.3	2.4	1.5
6499	HVAC	Ductless ACER	HVAC	SF	ER1	3,731	33%	1,227	1.16	6	\$1,409	100%	14%	CAC-2	79%	25%	2.2	5.7	2.2
6500	HVAC	Ductless ACER	HVAC	SF	ER2	2,278	9%	215	0.20	12	\$0	100%	35%	CAC-2	79%	25%	1.0	1.0	1.0
6501	HVAC	Ductless ACER	HVAC	SF	ER3	2,278	9%	215	0.20	18	\$365	100%	55%	CAC-2	79%	25%	1.3	2.4	1.5
6502	HVAC	Ductless ACER	HVAC	MF	ER1	2,504	56%	1,403	1.33	6	\$1,558	100%	13%	CAC-4	100%	52%	2.1	6.5	2.0
6503	HVAC	Ductless ACER	HVAC	MF	ER2	1,127	36%	407	0.39	12	\$0	100%	35%	CAC-4	100%	52%	1.0	1.0	1.0
6504	HVAC	Ductless ACER	HVAC	MF	ER3	1,127	36%	407	0.39	18	\$365	100%	55%	CAC-4	100%	52%	2.5	4.5	2.4
6505	HVAC	Ductless ACER	HVAC	MF	ER1	2,504	56%	1,403	1.33	6	\$1,558	100%	13%	CAC-5	63%	25%	2.1	6.5	2.0
6506	HVAC	Ductless ACER	HVAC	MF	ER2	1,127	36%	407	0.39	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6507	HVAC	Ductless ACER	HVAC	MF	ER3	1,127	36%	407	0.39	18	\$365	100%	55%	CAC-5	63%	25%	2.5	4.5	2.4
6508	HVAC	Ductless ACER	Multifamily Income Eligible	MF	ER1	2,504	56%	1,403	1.33	6	\$1,558	100%	27%	CAC-5	63%	25%	2.1	3.1	2.2
6509	HVAC	Ductless ACER	Multifamily Income Eligible	MF	ER2	1,127	28%	320	0.30	12	\$0	100%	35%	CAC-5	63%	25%	1.0	1.0	1.0
6510	HVAC	Ductless ACER	Multifamily Income Eligible	MF	ER3	1,127	28%	320	0.30	18	\$365	100%	55%	CAC-5	63%	25%	2.0	3.6	2.0
6511	HVAC	Ductless ACROB	HVAC	SF	MO	2,278	9%	215	0.20	18	\$365	100%	55%	CAC-1	114%	52%	6.8	2.4	7.0
6512	HVAC	Ductless ACROB	HVAC	SF	MO	2,278	9%	215	0.20	18	\$365	100%	55%	CAC-2	79%	25%	6.8	2.4	7.0
6513	HVAC	Ductless ACROB	HVAC	SF	NC	2,278	9%	215	0.20	18	\$365	100%	55%	CAC-3	114%	0%	6.8	2.4	7.0
6514	HVAC	Ductless ACROB	HVAC	SF	MO	1,127	36%	407	0.39	18	\$365	100%	55%	CAC-4	100%	52%	8.0	4.5	7.9
6515	HVAC	Ductless ACROB	HVAC	MF	MO	1,127	36%	407	0.39	18	\$365	100%	55%	CAC-5	63%	25%	8.0	4.5	7.9
6516	HVAC	Ductless ACROB	HVAC	MF	NC	1,127	36%	407	0.39	18	\$365	100%	55%	CAC-6	100%	0%	8.0	4.5	7.9
6517	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER1	18,455	31%	5,805	1.03	6	\$2,769	100%	18%	HP-1	27%	0%	1.4	3.6	2.4
6518	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER2	17,078	26%	4,458	0.29	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6519	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER3	17,078	26%	4,458	0.29	18	\$365	100%	100%	HP-1	27%	0%	5.1	5.1	15.9
6520	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER1	18,455	31%	5,805	1.03	6	\$2,769	100%	18%	HP-3	27%	0%	1.4	3.6	2.4
6521	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER2	17,078	26%	4,458	0.29	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6522	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER3	17,078	26%	4,458	0.29	18	\$365	100%	100%	HP-3	27%	0%	5.1	5.1	15.9
6523	HVAC	Ductless ASHP - Resistance ER	Single Family Income Eligible	SF	ER1	18,455	31%	5,805	1.03	6	\$2,769	100%	36%	HP-3	27%	0%	1.4	1.8	2.6
6524	HVAC	Ductless ASHP - Resistance ER	Single Family Income Eligible	SF	ER2	17,078	26%	4,458	0.29	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6525	HVAC	Ductless ASHP - Resistance ER	Single Family Income Eligible	SF	ER3	17,078	26%	4,458	0.29	18	\$365	100%	100%	HP-3	27%	0%	5.1	5.1	15.9
6526	HVAC	Ductless ASHP - Resistance ER	Multifamily Market Rate	MF	ER1	13,204	32%	4,218	0.74	6	\$2,769	100%	34%	HP-7	60%	0%	1.2	1.4	2.1
6527	HVAC	Ductless ASHP - Resistance ER	Multifamily Market Rate	MF	ER2	8,682	42%	3,661	0.21	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6528	HVAC	Ductless ASHP - Resistance ER	Multifamily Market Rate	MF	ER3	8,682	42%	3,661	0.21	18	\$365	100%	89%	HP-7	60%	0%	5.6	6.3	17.6
6529	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER1	13,204	32%	4,218	0.74	6	\$2,769	100%	18%	HP-7	60%	0%	1.2	2.6	2.0
6530	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER2	8,682	42%	3,661	0.21	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6531	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER3	8,682	42%	3,661	0.21	18	\$365	100%	100%	HP-7	60%	0%	4.1	4.1	13.2
6532	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER1	13,204	32%	4,218	0.74	6	\$2,769	100%	18%	HP-9	67%	0%	1.2	2.6	2.0
6533	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER2	8,682	42%	3,661	0.21	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6534	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER3	8,682	42%	3,661	0.21	18	\$365	100%	100%	HP-9	67%	0%	4.1	4.1	13.2
6535	HVAC	Ductless ASHP - Resistance ER	Multifamily Income Eligible	MF	ER1	13,204	32%	4,218	0.74	6	\$2,769	100%	15%	HP-9	67%	0%	1.2	3.1	1.9
6536	HVAC	Ductless ASHP - Resistance ER	Multifamily Income Eligible	MF	ER2	8,682	42%	3,661	0.21	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6537	HVAC	Ductless ASHP - Resistance ER	Multifamily Income Eligible	MF	ER3	8,682	42%	3,661	0.21	18	\$365	100%	100%	HP-9	67%	0%	4.1	4.1	13.2
6538	HVAC	Ductless ASHP - Resistance MO	HVAC	SF	MO	17,078	26%	4,458	0.29	18	\$365	100%	100%	HP-1	27%	0%	9.1	5.1	19.9
6539	HVAC	Ductless ASHP - Resistance MO	HVAC	SF	MO	17,078	26%	4,458	0.29	18	\$365	100%	100%	HP-3	27%	0%	9.1	5.1	19.9
6540	HVAC	Ductless ASHP - Resistance MO	Multifamily Market Rate	MF	MO	17,078	26%	4,458	0.29	18	\$365	100%	100%	HP-5	27%	0%	9.1	5.1	19.9
6541	HVAC	Ductless ASHP - Resistance MO	HVAC	MF	MO	8,682	42%	3,661	0.21	18	\$365	100%	89%	HP-7	60%	0%	11.1	6.3	23.1
6542	HVAC	Ductless ASHP - Resistance MO	HVAC	MF	MO	8,682	42%	3,661	0.21	18	\$365	100%	100%	HP-7	60%	0%	8.1	4.1	17.2
6543	HVAC	Ductless ASHP - Resistance MO	HVAC	MF	MO	8,682	42%	3,661	0.21	18	\$365	100%	100%	HP-9	67%	0%	8.1	4.1	17.2
6544	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER1	11,562	28%	3,262	1.03	6	\$2,769	100%	18%	HP-11	60%	0%	1.2	2.7	1.7
6545	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER2	8,005	10%	834	0.29	12	\$0	100%	35%	HP-2	5%	52%	1.0	1.0	1.0
6546	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER3	8,005	10%	834	0.29	18	\$365	100%	100%	HP-2	5%	52%	1.8	1.8	3.8
6547	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER1	11,562	28%	3,262	1.03	6	\$2,769	100%	18%	HP-4	6%	25%	1.2	2.7	1.7
6548	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER2	8,005	10%	834	0.29	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6549	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER3	8,005	10%	834	0.29	18	\$365	100%	100%	HP-4	6%	25%	1.8	1.8	3.8
6550	HVAC	Ductless ASHP - ASHP ER	Multifamily Income Eligible	SF	ER1	11,562	28%	3,262	1.03	6	\$2,769	100%	36%	HP-4	6%	25%	1.2	1.3	1.9

Appendix B: Residential Measure Assumptions

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6552	HVAC	Ductless ASHP - ASHP ER	Single Family Income Eligible	SF	ER2	8,005	10%	834	0.29	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6553	HVAC	Ductless ASHP - ASHP ER	Single Family Income Eligible	SF	ER3	8,005	10%	834	0.29	18	\$365	100%	100%	HP-4	6%	25%	0.9	0.9	2.4
6554	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER1	7,733	32%	2,455	0.74	6	\$2,769	100%	18%	HP-8	11%	52%	1.1	2.0	1.5
6555	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER2	4,051	19%	767	0.21	12	\$0	100%	35%	HP-8	11%	52%	1.0	1.0	1.0
6556	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER3	4,051	19%	767	0.21	18	\$365	100%	100%	HP-8	11%	52%	1.4	1.4	3.6
6557	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER1	7,733	32%	2,455	0.74	6	\$2,769	100%	18%	HP-10	6%	25%	1.1	2.0	1.5
6558	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER2	4,051	19%	767	0.21	12	\$0	100%	35%	HP-10	6%	25%	1.0	1.0	1.0
6559	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER3	4,051	19%	767	0.21	18	\$365	100%	100%	HP-10	6%	25%	1.4	1.4	3.6
6560	HVAC	Ductless ASHP - ASHP MO	HVAC	SF	MO	8,005	10%	834	0.29	18	\$365	100%	100%	HP-2	5%	52%	5.8	1.8	7.8
6561	HVAC	Ductless ASHP - ASHP MO	HVAC	SF	MO	8,005	10%	834	0.29	18	\$365	100%	100%	HP-4	6%	25%	5.8	1.8	7.8
6562	HVAC	Ductless ASHP - ASHP MO	HVAC	SF	NC	8,005	10%	834	0.29	18	\$365	100%	100%	HP-6	5%	0%	5.8	1.8	7.8
6563	HVAC	Ductless ASHP - ASHP MO	HVAC	SF	MO	4,051	19%	767	0.21	18	\$365	100%	100%	HP-8	11%	52%	5.4	1.4	7.6
6564	HVAC	Ductless ASHP - ASHP MO	HVAC	MF	MO	4,051	19%	767	0.21	18	\$365	100%	100%	HP-10	6%	25%	5.4	1.4	7.6
6565	HVAC	Ductless ASHP - ASHP MO	HVAC	SF	NC	4,051	19%	767	0.21	18	\$365	100%	100%	HP-12	11%	0%	5.4	1.4	7.6
6566	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER1	18,455	78%	14,303	1.43	6	\$5,250	100%	34%	HP-1	27%	0%	1.0	2.0	2.6
6567	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER2	17,078	74%	12,655	1.43	12	\$0	100%	35%	HP-1	27%	0%	1.0	1.0	1.0
6568	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER3	17,078	74%	12,655	1.43	18	\$3,200	100%	56%	HP-1	27%	0%	2.6	4.6	7.2
6569	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER1	18,455	78%	14,303	1.43	6	\$5,250	100%	34%	HP-3	27%	0%	1.0	2.0	2.6
6570	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER2	17,078	74%	12,655	1.43	12	\$0	100%	35%	HP-3	27%	0%	1.0	1.0	1.0
6571	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER3	17,078	74%	12,655	1.43	18	\$3,200	100%	56%	HP-3	27%	0%	2.6	4.6	7.2
6572	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER1	13,204	77%	10,232	1.43	6	\$5,250	100%	34%	HP-7	60%	0%	0.9	1.6	2.0
6573	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER2	8,682	74%	6,433	1.43	12	\$0	100%	35%	HP-7	60%	0%	1.0	1.0	1.0
6574	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER3	8,682	74%	6,433	1.43	18	\$3,200	100%	56%	HP-7	60%	0%	1.7	3.0	3.9
6575	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER1	13,204	77%	10,232	1.43	6	\$5,250	100%	34%	HP-9	67%	0%	0.9	1.6	2.0
6576	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER2	8,682	74%	6,433	1.43	12	\$0	100%	35%	HP-9	67%	0%	1.0	1.0	1.0
6577	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER3	8,682	74%	6,447	1.43	18	\$3,200	100%	56%	HP-9	67%	0%	1.7	3.0	3.9
6578	HVAC	GSHHP 23 EER - Resistance MO	HVAC	SF	MO	17,078	74%	12,689	1.43	18	\$4,717	100%	38%	HP-1	27%	0%	2.1	4.6	5.2
6579	HVAC	GSHHP 23 EER - Resistance MO	HVAC	SF	MO	17,078	74%	12,689	1.43	18	\$4,717	100%	38%	HP-3	27%	0%	2.1	4.6	5.2
6580	HVAC	GSHHP 23 EER - Resistance MO	HVAC	SF	NC	17,078	74%	12,689	1.43	18	\$4,717	100%	38%	HP-5	27%	0%	2.1	4.6	5.2
6581	HVAC	GSHHP 23 EER - Resistance MO	HVAC	MF	MO	8,682	74%	6,447	1.43	18	\$4,717	100%	38%	HP-7	60%	0%	1.5	3.0	3.0
6582	HVAC	GSHHP 23 EER - Resistance MO	HVAC	MF	MO	8,682	74%	6,447	1.43	18	\$4,717	100%	38%	HP-9	67%	0%	1.5	3.0	3.0
6583	HVAC	GSHHP 23 EER - Resistance MO	HVAC	MF	NC	8,682	74%	6,447	1.43	18	\$4,717	100%	38%	HP-11	60%	0%	1.5	3.0	3.0
6584	HVAC	GSHHP 23 EER - ASHP ER	HVAC	SF	ER1	11,562	51%	5,887	1.43	6	\$5,250	100%	13%	HP-2	5%	52%	0.7	3.0	1.2
6585	HVAC	GSHHP 23 EER - ASHP ER	HVAC	SF	ER2	8,005	36%	2,895	1.43	12	\$0	100%	32%	HP-2	5%	52%	1.0	1.0	1.0
6586	HVAC	GSHHP 23 EER - ASHP ER	HVAC	SF	ER3	8,005	36%	2,895	1.43	18	\$3,200	100%	25%	HP-2	5%	52%	1.2	5.4	1.7
6587	HVAC	GSHHP 23 EER - ASHP ER	HVAC	SF	ER1	11,562	51%	5,887	1.43	6	\$5,250	100%	13%	HP-4	6%	25%	0.7	3.0	1.2
6588	HVAC	GSHHP 23 EER - ASHP ER	HVAC	SF	ER2	8,005	36%	2,895	1.43	12	\$0	100%	35%	HP-4	6%	25%	1.0	1.0	1.0
6589	HVAC	GSHHP 23 EER - ASHP ER	HVAC	SF	ER3	8,005	36%	2,895	1.43	18	\$3,200	100%	22%	HP-4	6%	25%	1.2	5.4	1.7
6590	HVAC	GSHHP 23 EER - ASHP ER	HVAC	MF	ER1	7,733	51%	3,938	1.43	6	\$5,250	100%	13%	HP-8	11%	52%	0.6	2.5	1.0
6591	HVAC	GSHHP 23 EER - ASHP ER	HVAC	MF	ER2	4,051	36%	1,465	1.43	12	\$0	100%	35%	HP-8	11%	52%	1.0	1.0	1.0
6592	HVAC	GSHHP 23 EER - ASHP ER	HVAC	MF	ER3	4,051	36%	1,465	1.43	18	\$3,200	100%	22%	HP-8	11%	52%	1.0	4.5	1.0
6593	HVAC	GSHHP 23 EER - ASHP ER	HVAC	MF	ER1	7,733	51%	3,938	1.43	6	\$5,250	100%	13%	HP-10	6%	25%	0.6	2.5	1.0
6594	HVAC	GSHHP 23 EER - ASHP ER	HVAC	MF	ER2	4,051	36%	1,465	1.43	12	\$0	100%	35%	HP-10	6%	25%	1.0	1.0	1.0
6595	HVAC	GSHHP 23 EER - ASHP ER	HVAC	MF	ER3	4,051	36%	1,465	1.43	18	\$3,200	100%	22%	HP-10	6%	25%	1.0	4.5	1.0
6596	HVAC	GSHHP 23 EER - ASHP MO	HVAC	SF	MO	8,005	37%	2,927	1.43	18	\$3,200	100%	22%	HP-2	5%	52%	1.7	5.5	2.2
6597	HVAC	GSHHP 23 EER - ASHP MO	HVAC	SF	MO	8,005	37%	2,927	1.43	18	\$3,200	100%	22%	HP-4	6%	25%	1.7	5.5	2.2
6598	HVAC	GSHHP 23 EER - ASHP MO	HVAC	SF	NC	8,005	37%	2,927	1.43	18	\$3,200	100%	22%	HP-6	5%	0%	1.7	5.5	2.2
6599	HVAC	GSHHP 23 EER - ASHP MO	HVAC	MF	MO	4,051	37%	1,481	1.43	18	\$3,200	100%	22%	HP-8	11%	52%	1.5	4.5	1.5
6600	HVAC	GSHHP 23 EER - ASHP MO	HVAC	MF	MO	4,051	37%	1,481	1.43	18	\$3,200	100%	22%	HP-10	6%	25%	1.5	4.5	1.5
6601	HVAC	GSHHP 23 EER - ASHP MO	HVAC	MF	NC	4,051	37%	1,481	1.43	18	\$3,200	100%	22%	HP-12	11%	0%	1.5	4.5	1.5
6602	HVAC	Learning Thermostat - ASHP	HVAC	SF	Retrofit	6,906	8%	552	0.13	10	\$125	100%	80%	T-STAT-1	5%	12%	2.5	3.1	5.6
6603	HVAC	Learning Thermostat - ASHP	Efficient Products	SF	Retrofit	6,906	8%	552	0.13	10	\$125	100%	77%	T-STAT-1	5%	12%	2.5	3.2	5.6
6604	HVAC	Learning Thermostat - ASHP	PAYS	SF	Retrofit	6,906	8%	552	0.13	10	\$125	100%	80%	T-STAT-1	5%	12%	2.5	3.1	5.6
6605	HVAC	Learning Thermostat - ASHP	HVAC	SF	Retrofit	6,906	8%	552	0.13	10	\$125	100%	80%	T-STAT-2	6%	12%	2.5	3.1	5.6
6606	HVAC	Learning Thermostat - ASHP	Efficient Products	SF	Retrofit	6,906	8%	552	0.13	10	\$125	100%	77%	T-STAT-2	6%	12%	2.5	3.2	5.6
6607	HVAC	Learning Thermostat - ASHP	PAYS	SF	Retrofit	6,906	8%	552	0.13	10	\$125	100%	80%	T-STAT-2	6%	12%	2.5	3.1	5.6
6608	HVAC	Learning Thermostat - ASHP	Single Family Income Eligible	SF	Retrofit	6,906	8%	552	0.13	10	\$125	100%	100%	T-STAT-2	6%	12%	1.6	1.6	4.1
6609	HVAC	Learning Thermostat - ASHP	New Construction	SF	NC	6,906	8%	552	0.13	10	\$125	100%	40%	T-STAT-3	5%	0%	2.5	6.2	5.2

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6610	HVAC	Learning Thermostat - ASHP	Efficient Products	SF	NC	6,906	8%	552	0.13	10	\$125	100%	77%	T-STAT-3	5%	0%	2.5	3.2	5.6
6611	HVAC	Learning Thermostat - ASHP	HVAC	MF	Retrofit	2,120	8%	170	0.04	10	\$125	100%	80%	T-STAT-4	11%	12%	0.8	1.0	2.3
6612	HVAC	Learning Thermostat - ASHP	Efficient Products	MF	Retrofit	2,120	8%	170	0.04	10	\$125	100%	77%	T-STAT-4	11%	12%	0.8	1.0	2.2
6613	HVAC	Learning Thermostat - ASHP	PAYS	MF	Retrofit	2,120	8%	170	0.04	10	\$125	100%	80%	T-STAT-4	11%	12%	0.8	1.0	2.3
6614	HVAC	Learning Thermostat - ASHP	Multifamily Market Rate	MF	Retrofit	2,120	8%	170	0.04	10	\$125	100%	80%	T-STAT-4	11%	12%	0.8	1.0	2.3
6615	HVAC	Learning Thermostat - ASHP	HVAC	MF	Retrofit	2,120	8%	170	0.04	10	\$125	100%	80%	T-STAT-5	6%	12%	0.8	1.0	2.3
6616	HVAC	Learning Thermostat - ASHP	Efficient Products	MF	Retrofit	2,120	8%	170	0.04	10	\$125	100%	77%	T-STAT-5	6%	12%	0.8	1.0	2.2
6617	HVAC	Learning Thermostat - ASHP	PAYS	MF	Retrofit	2,120	8%	170	0.04	10	\$125	100%	80%	T-STAT-5	6%	12%	0.8	1.0	2.3
6618	HVAC	Learning Thermostat - ASHP	Multifamily Income Eligible	MF	Retrofit	2,120	8%	170	0.04	10	\$125	100%	100%	T-STAT-5	6%	12%	0.3	0.3	1.6
6619	HVAC	Learning Thermostat - ASHP	New Construction	MF	NC	2,120	8%	170	0.04	10	\$125	100%	40%	T-STAT-6	11%	0%	0.8	1.9	1.9
6620	HVAC	Learning Thermostat - ASHP	Efficient Products	MF	NC	2,120	8%	170	0.04	10	\$125	100%	77%	T-STAT-6	11%	0%	0.8	1.0	2.2
6621	HVAC	Learning Thermostat - Electric Furnace Heating	HVAC	SF	Retrofit	12,872	8%	1,030	0.25	10	\$125	100%	80%	T-STAT-7	27%	12%	4.6	5.8	9.7
6622	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	SF	Retrofit	12,872	8%	1,030	0.25	10	\$125	100%	77%	T-STAT-7	27%	12%	4.6	6.0	9.7
6623	HVAC	Learning Thermostat - Electric Furnace Heating	PAYS	SF	Retrofit	12,872	8%	1,030	0.25	10	\$125	100%	80%	T-STAT-7	27%	12%	4.6	5.8	9.7
6624	HVAC	Learning Thermostat - Electric Furnace Heating	HVAC	SF	Retrofit	12,872	8%	1,030	0.25	10	\$125	100%	80%	T-STAT-8	44%	12%	4.6	5.8	9.7
6625	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	SF	Retrofit	12,872	8%	1,030	0.25	10	\$125	100%	77%	T-STAT-8	44%	12%	4.6	6.0	9.7
6626	HVAC	Learning Thermostat - Electric Furnace Heating	PAYS	SF	Retrofit	12,872	8%	1,030	0.25	10	\$125	100%	80%	T-STAT-8	44%	12%	4.6	5.8	9.7
6627	HVAC	Learning Thermostat - Electric Furnace Heating	Single Family Income Eligible	SF	Retrofit	12,872	8%	1,030	0.25	10	\$125	100%	100%	T-STAT-8	44%	12%	3.0	3.0	6.8
6628	HVAC	Learning Thermostat - Electric Furnace Heating	New Construction	SF	NC	12,872	8%	1,030	0.25	10	\$125	100%	40%	T-STAT-9	27%	0%	4.6	11.6	9.3
6629	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	SF	NC	12,872	8%	1,030	0.25	10	\$125	100%	77%	T-STAT-9	27%	0%	4.6	6.0	9.7
6630	HVAC	Learning Thermostat - Electric Furnace Heating	HVAC	MF	Retrofit	3,190	8%	255	0.06	10	\$125	100%	80%	T-STAT-10	60%	12%	1.2	1.4	3.0
6631	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	MF	Retrofit	3,190	8%	255	0.06	10	\$125	100%	77%	T-STAT-10	60%	12%	1.2	1.5	3.0
6632	HVAC	Learning Thermostat - Electric Furnace Heating	PAYS	MF	Retrofit	3,190	8%	255	0.06	10	\$125	100%	80%	T-STAT-10	60%	12%	1.2	1.4	3.0
6633	HVAC	Learning Thermostat - Electric Furnace Heating	Multifamily Market Rate	MF	Retrofit	3,190	8%	255	0.06	10	\$125	100%	100%	T-STAT-10	60%	12%	1.2	1.4	3.0
6634	HVAC	Learning Thermostat - Electric Furnace Heating	HVAC	MF	Retrofit	3,190	8%	255	0.06	10	\$125	100%	80%	T-STAT-11	67%	12%	1.2	1.4	3.0
6635	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	MF	Retrofit	3,190	8%	255	0.06	10	\$125	100%	77%	T-STAT-11	67%	12%	1.2	1.5	3.0
6636	HVAC	Learning Thermostat - Electric Furnace Heating	PAYS	MF	Retrofit	3,190	8%	255	0.06	10	\$125	100%	80%	T-STAT-11	60%	12%	1.2	1.4	3.0
6637	HVAC	Learning Thermostat - Electric Furnace Heating	Multifamily Income Eligible	MF	Retrofit	3,190	8%	255	0.06	10	\$125	100%	100%	T-STAT-11	67%	12%	0.5	0.5	1.9
6638	HVAC	Learning Thermostat - Electric Furnace Heating	New Construction	MF	NC	3,190	8%	255	0.06	10	\$125	100%	40%	T-STAT-12	60%	0%	1.2	2.9	2.6
6639	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	MF	NC	3,190	8%	255	0.06	10	\$125	100%	77%	T-STAT-12	60%	0%	1.2	1.5	3.0
6640	HVAC	Learning Thermostat - Gas Heated	HVAC	SF	Retrofit	2,450	8%	196	0.05	10	\$125	100%	80%	T-STAT-13	64%	12%	1.0	1.3	2.5
6641	HVAC	Learning Thermostat - Gas Heated	Efficient Products	SF	Retrofit	2,450	8%	196	0.05	10	\$125	100%	77%	T-STAT-13	64%	12%	1.0	1.3	2.5
6642	HVAC	Learning Thermostat - Gas Heated	PAYS	SF	Retrofit	2,450	8%	196	0.05	10	\$125	100%	80%	T-STAT-13	64%	12%	1.0	1.3	2.5
6643	HVAC	Learning Thermostat - Gas Heated	HVAC	SF	Retrofit	2,450	8%	196	0.05	10	\$125	100%	80%	T-STAT-14	48%	12%	1.0	1.3	2.5
6644	HVAC	Learning Thermostat - Gas Heated	Efficient Products	SF	Retrofit	2,450	8%	196	0.05	10	\$125	100%	77%	T-STAT-14	48%	12%	1.0	1.3	2.5
6645	HVAC	Learning Thermostat - Gas Heated	PAYS	SF	Retrofit	2,450	8%	196	0.05	10	\$125	100%	80%	T-STAT-14	64%	12%	1.0	1.3	2.5
6646	HVAC	Learning Thermostat - Gas Heated	Single Family Income Eligible	SF	Retrofit	2,450	8%	196	0.05	10	\$125	100%	100%	T-STAT-14	48%	12%	0.7	0.7	2.1
6647	HVAC	Learning Thermostat - Gas Heated	New Construction	SF	NC	2,450	8%	196	0.05	10	\$125	100%	40%	T-STAT-15	64%	0%	1.0	2.5	2.1
6648	HVAC	Learning Thermostat - Gas Heated	Efficient Products	SF	NC	2,450	8%	196	0.05	10	\$125	100%	77%	T-STAT-15	64%	0%	1.0	1.3	2.5
6649	HVAC	Learning Thermostat - Gas Heated	HVAC	MF	Retrofit	874	8%	70	0.02	10	\$125	100%	80%	T-STAT-16	25%	6%	0.4	0.4	1.4
6650	HVAC	Learning Thermostat - Gas Heated	Efficient Products	MF	Retrofit	874	8%	70	0.02	10	\$125	100%	77%	T-STAT-16	25%	6%	0.4	0.5	1.4
6651	HVAC	Learning Thermostat - Gas Heated	PAYS	MF	Retrofit	874	8%	70	0.02	10	\$125	100%	80%	T-STAT-16	25%	6%	0.4	0.4	1.4
6652	HVAC	Learning Thermostat - Gas Heated	Multifamily Market Rate	MF	Retrofit	874	8%	70	0.02	10	\$125	100%	80%	T-STAT-16	25%	6%	0.4	0.4	1.4
6653	HVAC	Learning Thermostat - Gas Heated	HVAC	MF	Retrofit	874	8%	70	0.02	10	\$125	100%	80%	T-STAT-17	23%	6%	0.4	0.4	1.4
6654	HVAC	Learning Thermostat - Gas Heated	Efficient Products	MF	Retrofit	874	8%	70	0.02	10	\$125	100%	77%	T-STAT-17	23%	6%	0.4	0.5	1.4
6655	HVAC	Learning Thermostat - Gas Heated	PAYS	MF	Retrofit	874	8%	70	0.02	10	\$125	100%	80%	T-STAT-17	23%	6%	0.4	0.4	1.4

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6656	HVAC	Learning Thermostat - Gas Heated	Multifamily Income Eligible	MF	Retrofit	874	8%	70	0.02	10	\$125	100%	69%	T-STAT-17	23%	6%	0.4	0.5	1.3
6657	HVAC	Learning Thermostat - Gas Heated	New Construction	MF	NC	874	8%	70	0.02	10	\$125	100%	40%	T-STAT-18	25%	0%	0.4	0.9	1.0
6658	HVAC	Learning Thermostat - Gas Heated	Efficient Products	MF	NC	874	8%	70	0.02	10	\$125	100%	77%	T-STAT-18	23%	0%	0.4	0.5	1.4
6659	HVAC	ENERGY STAR Room AC	Efficient Products	SF	MO	794	9%	73	0.07	9	\$20	100%	100%	RAC-1	23%	68%	4.8	4.8	4.6
6660	HVAC	ENERGY STAR Room AC	Efficient Products	SF	MO	794	9%	73	0.07	9	\$20	100%	100%	RAC-2	23%	68%	4.8	4.8	4.6
6661	HVAC	ENERGY STAR Room AC	Single Family Income Eligible	SF	MO	794	9%	73	0.07	9	\$20	100%	100%	RAC-2	23%	68%	4.8	4.8	4.2
6662	HVAC	ENERGY STAR Room AC	Efficient Products	SF	NC	794	9%	73	0.07	9	\$20	100%	100%	RAC-3	23%	68%	4.8	4.8	4.6
6663	HVAC	ENERGY STAR Room AC	Efficient Products	MF	MO	794	6%	49	0.15	9	\$20	100%	100%	RAC-4	14%	68%	8.8	8.8	3.4
6664	HVAC	ENERGY STAR Room AC	Efficient Products	MF	MO	794	6%	49	0.15	9	\$20	100%	100%	RAC-5	14%	68%	8.8	8.8	3.4
6665	HVAC	ENERGY STAR Room AC	Multifamily Income Eligible	MF	MO	794	6%	49	0.15	9	\$20	100%	100%	RAC-5	14%	68%	0.5	0.5	1.1
6666	HVAC	ENERGY STAR Room AC	Efficient Products	SF	NC	794	6%	49	0.15	9	\$20	100%	100%	RAC-6	14%	8%	8.8	8.8	3.4
6667	HVAC	AC Tune-Up	HVAC	SF	Retrofit	3,731	16%	595	0.56	2	\$81	100%	57%	ACTUNE-1	114%	89%	2.4	4.2	2.4
6668	HVAC	AC Tune-Up	Single Family Income Eligible	SF	Retrofit	3,731	16%	595	0.56	2	\$81	100%	100%	ACTUNE-2	79%	89%	0.9	0.9	1.7
6669	HVAC	AC Tune-Up	Multifamily Market Rate	MF	Retrofit	2,504	15%	387	0.37	2	\$81	100%	100%	ACTUNE-3	100%	89%	1.3	1.3	2.0
6670	HVAC	AC Tune-Up	Multifamily Income Eligible	MF	Retrofit	2,504	15%	387	0.37	2	\$81	100%	100%	ACTUNE-4	63%	89%	1.3	1.3	2.0
6671	HVAC	Dirty Filter Alarm	Energy Efficiency Kits	SF	Retrofit	5,569	1%	54	0.03	14	\$5	100%	100%	ALARM-1	100%	35%	9.4	9.4	13.3
6672	HVAC	Dirty Filter Alarm	Single Family Income Eligible	SF	Retrofit	5,569	2%	98	0.05	14	\$5	100%	100%	ALARM-2	100%	35%	17.1	17.1	23.6
6673	HVAC	Dirty Filter Alarm	Multifamily Market Rate	MF	Retrofit	2,461	3%	79	0.04	14	\$5	100%	100%	ALARM-3	100%	39%	13.8	13.8	19.2
6674	HVAC	Dirty Filter Alarm	Multifamily Income Eligible	MF	Retrofit	2,461	2%	38	0.02	14	\$5	100%	100%	ALARM-4	100%	39%	0.6	0.6	1.8
6675	HVAC	HP Tune-Up	HVAC	SF	Retrofit	11,562	10%	1,140	0.56	2	\$81	100%	57%	HP TUNE-1	5%	89%	2.7	4.7	4.2
6676	HVAC	HP Tune-Up	Single Family Income Eligible	SF	Retrofit	11,562	10%	1,140	0.56	2	\$81	100%	100%	HP TUNE-2	6%	89%	1.0	1.0	2.3
6677	HVAC	HP Tune-Up	Multifamily Market Rate	MF	Retrofit	5,187	7%	380	0.25	2	\$81	100%	100%	HP TUNE-3	11%	89%	0.9	0.9	2.0
6678	HVAC	HP Tune-Up	Multifamily Income Eligible	MF	Retrofit	5,187	7%	380	0.25	2	\$81	100%	100%	HP TUNE-4	6%	89%	0.2	0.2	1.3
6679	HVAC	Setback Thermostat - ASHP	Efficient Products	SF	Retrofit	6,906	4%	249	0.20	10	\$70	100%	100%	T-STAT-1	5%	2%	2.6	2.6	3.3
6680	HVAC	Setback Thermostat - ASHP	Single Family Income Eligible	SF	Retrofit	6,906	4%	249	0.20	10	\$70	100%	100%	T-STAT-2	6%	2%	2.6	2.6	3.3
6681	HVAC	Setback Thermostat - ASHP	Efficient Products	SF	NC	6,906	4%	249	0.20	10	\$70	100%	84%	T-STAT-3	5%	0%	4.2	5.0	4.7
6682	HVAC	Setback Thermostat - ASHP	Multifamily Market Rate	MF	Retrofit	2,120	4%	76	0.06	10	\$70	100%	11%	T-STAT-4	11%	6%	1.3	11.9	1.3
6683	HVAC	Setback Thermostat - ASHP	Multifamily Income Eligible	MF	Retrofit	2,120	4%	76	0.06	10	\$70	100%	100%	T-STAT-5	6%	0%	0.8	0.8	1.7
6684	HVAC	Setback Thermostat - ASHP	Multifamily Market Rate	MF	NC	2,120	4%	76	0.06	10	\$70	100%	11%	T-STAT-6	11%	0%	1.3	11.9	1.3
6685	HVAC	Setback Thermostat - Electric Furnace Heating	Efficient Products	SF	Retrofit	12,872	4%	463	0.37	10	\$70	100%	84%	T-STAT-7	27%	7%	7.9	9.4	8.0
6686	HVAC	Setback Thermostat - Electric Furnace Heating	Single Family Income Eligible	SF	Retrofit	12,872	4%	463	0.37	10	\$70	100%	100%	T-STAT-8	44%	2%	4.8	4.8	5.3
6687	HVAC	Setback Thermostat - Electric Furnace Heating	Efficient Products	SF	NC	12,872	4%	463	0.37	10	\$70	100%	84%	T-STAT-9	27%	0%	7.9	9.4	8.0
6688	HVAC	Setback Thermostat - Electric Furnace Heating	Multifamily Market Rate	MF	Retrofit	3,190	4%	115	0.09	10	\$70	100%	16%	T-STAT-10	60%	6%	2.0	11.9	1.9
6689	HVAC	Setback Thermostat - Electric Furnace Heating	Multifamily Income Eligible	MF	Retrofit	3,190	4%	115	0.09	10	\$70	100%	100%	T-STAT-11	67%	0%	1.2	1.2	2.1
6690	HVAC	Setback Thermostat - Electric Furnace Heating	Multifamily Market Rate	MF	NC	3,190	4%	115	0.09	10	\$70	100%	16%	T-STAT-12	60%	0%	2.0	11.9	1.9
6691	HVAC	Setback Thermostat - Gas Heated	Efficient Products	SF	Retrofit	2,450	6%	147	0.12	10	\$70	100%	84%	T-STAT-13	64%	12%	2.7	3.2	3.1
6692	HVAC	Setback Thermostat - Gas Heated	Single Family Income Eligible	SF	Retrofit	2,450	6%	147	0.12	10	\$70	100%	100%	T-STAT-14	48%	2%	1.6	1.6	2.4
6693	HVAC	Setback Thermostat - Gas Heated	Efficient Products	SF	NC	2,450	6%	147	0.12	10	\$70	100%	84%	T-STAT-15	64%	0%	2.7	3.2	3.1
6694	HVAC	Setback Thermostat - Gas Heated	Multifamily Market Rate	MF	Retrofit	874	6%	52	0.04	10	\$70	100%	7%	T-STAT-16	25%	6%	1.0	12.7	0.9
6695	HVAC	Setback Thermostat - Gas Heated	Multifamily Income Eligible	MF	Retrofit	874	6%	52	0.04	10	\$70	100%	100%	T-STAT-17	23%	0%	0.6	0.6	1.5
6696	HVAC	Setback Thermostat - Gas Heated	Multifamily Market Rate	MF	NC	874	6%	52	0.04	10	\$70	100%	7%	T-STAT-18	25%	0%	1.0	12.7	0.9
6697	HVAC	Room AC recycling - Primary	Appliance Recycling	SF	Recycle	303	100%	303	0.29	4	\$65	100%	15%	RACRECY-1	4%	0%	3.0	19.2	2.4
6698	HVAC	Room AC recycling - Primary	Appliance Recycling	MF	Recycle	303	100%	303	0.29	4	\$65	100%	15%	RACRECY-2	4%	0%	3.0	19.2	2.4
6699	HVAC	Room AC recycling - Secondary	Appliance Recycling	SF	Recycle	196	100%	196	0.19	4	\$65	100%	15%	RACRECY-3	4%	0%	1.9	12.4	1.6
6700	HVAC	Room AC recycling - Secondary	Appliance Recycling	MF	Recycle	196	100%	196	0.19	4	\$65	100%	15%	RACRECY-4	4%	0%	1.9	12.4	1.6
6701	HVAC	Energy Recovery Ventilator	HVAC	SF	Retrofit	5,569	40%	2,228	0.30	15	\$3,000	100%	57%	ERV-1	100%	0%	0.5	0.8	1.7
6702	HVAC	Energy Recovery Ventilator	HVAC	SF	NC	5,569	40%	2,228	0.30	15	\$3,000	100%	57%	ERV-2	100%	0%	0.5	0.8	1.7
6703	HVAC	Energy Recovery Ventilator	HVAC	SF	NC	5,569	40%	2,228	0.30	15	\$3,000	100%	57%	ERV-3	100%	0%	0.5	0.8	1.7
6704	HVAC	Energy Recovery Ventilator	HVAC	MF	Retrofit	2,461	40%	984	0.30	15	\$3,000	100%	57%	ERV-4	100%	0%	0.3	0.5	1.1
6705	HVAC	Energy Recovery Ventilator	HVAC	MF	Retrofit	2,461	40%	984	0.30	15	\$3,000	100%	57%	ERV-5	100%	0%	0.3	0.5	1.1
6706	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	NC	2,461	40%	984	0.30	15	\$3,000	100%	57%	ERV-6	100%	0%	0.3	0.5	1.1
6707	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	SF	Retrofit	12,872	5%	644	0.14	15	\$1,625	100%	57%	SVS-1	27%	5%	0.3	0.5	1.2
6708	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	SF	Retrofit	12,872	5%	644	0.14	15	\$1,625	100%	57%	SVS-2	44%	5%	0.3	0.5	1.2

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
6709	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	SF	NC	12,872	5%	644	0.14	15	\$1,625	100%	57%	SVS-3	27%	0%	0.3	0.5	1.2
6710	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	Retrofit	3,190	5%	159	0.09	15	\$1,040	100%	57%	SVS-4	60%	5%	0.2	0.3	0.8
6711	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	Retrofit	3,190	5%	159	0.09	15	\$1,040	100%	57%	SVS-5	67%	5%	0.2	0.3	0.8
6712	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	NC	3,190	5%	159	0.09	15	\$1,040	100%	57%	SVS-6	60%	0%	0.2	0.3	0.8
6713	HVAC	Smart Vents/Sensors - HP	HVAC	SF	Retrofit	6,906	5%	345	0.14	15	\$1,625	100%	57%	SVS-7	5%	5%	0.2	0.4	0.9
6714	HVAC	Smart Vents/Sensors - HP	HVAC	SF	Retrofit	6,906	5%	345	0.14	15	\$1,625	100%	57%	SVS-8	6%	5%	0.2	0.4	0.9
6715	HVAC	Smart Vents/Sensors - HP	HVAC	SF	NC	6,906	5%	345	0.14	15	\$1,625	100%	57%	SVS-9	5%	0%	0.2	0.4	0.9
6716	HVAC	Smart Vents/Sensors - HP	HVAC	MF	Retrofit	2,120	5%	106	0.09	15	\$1,040	100%	57%	SVS-10	11%	5%	0.2	0.3	0.7
6717	HVAC	Smart Vents/Sensors - HP	HVAC	MF	Retrofit	2,120	5%	106	0.09	15	\$1,040	100%	57%	SVS-11	6%	5%	0.2	0.3	0.7
6718	HVAC	Smart Vents/Sensors - HP	HVAC	MF	NC	2,120	5%	106	0.09	15	\$1,040	100%	57%	SVS-12	11%	0%	0.2	0.3	0.7
6719	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	SF	Retrofit	2,450	5%	122	0.14	15	\$1,625	100%	57%	SVS-13	64%	5%	0.2	0.3	0.7
6720	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	SF	Retrofit	2,450	5%	122	0.14	15	\$1,625	100%	57%	SVS-14	48%	5%	0.2	0.3	0.7
6721	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	SF	NC	2,450	5%	122	0.14	15	\$1,625	100%	57%	SVS-15	64%	0%	0.2	0.3	0.7
6722	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	MF	Retrofit	874	5%	44	0.09	15	\$1,040	100%	57%	SVS-16	25%	5%	0.2	0.3	0.6
6723	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	MF	Retrofit	874	5%	44	0.09	15	\$1,040	100%	57%	SVS-17	23%	5%	0.2	0.3	0.6
6724	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	MF	NC	874	5%	44	0.09	15	\$1,040	100%	57%	SVS-18	25%	0%	0.2	0.3	0.6
6725	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	SF	Retrofit	100	10%	10	0.00	19	\$11	100%	91%	BFAN-1	100%	25%	0.6	0.7	2.5
6726	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	SF	NC	100	10%	10	0.00	19	\$11	100%	91%	BFAN-2	100%	0%	0.6	0.7	2.5
6727	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	MF	Retrofit	100	10%	10	0.00	19	\$11	100%	91%	BFAN-3	100%	25%	0.6	0.7	2.5
6728	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	MF	NC	100	10%	10	0.00	19	\$11	100%	91%	BFAN-4	100%	0%	0.6	0.7	2.5
7001	Lighting	LED - 6W (CFL baseline) (310-749 lumens)	PAYS	SF	MO	8	70%	5	0.00	19	\$2	100%	100%	A-LINE-1	3727%	75%	1.7	1.4	4.4
7002	Lighting	LED - 6W (CFL baseline) (310-749 lumens)	Single Family Income Eligible	SF	MO	8	49%	4	0.00	19	\$7	100%	43%	A-LINE-2	3727%	75%	0.6	1.0	1.5
7003	Lighting	LED - 6W (CFL baseline) (310-749 lumens)	Multifamily Market Rate	MF	MO	8	49%	4	0.00	19	\$2	100%	37%	A-LINE-3	1854%	75%	1.8	3.9	4.0
7004	Lighting	LED - 6W (CFL baseline) (310-749 lumens)	Multifamily Income Eligible	MF	MO	8	49%	4	0.00	19	\$7	100%	43%	A-LINE-4	1854%	75%	0.6	1.0	1.5
7005	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	PAYS	SF	MO	12	24%	3	0.00	19	\$2	100%	100%	A-LINE-1	3727%	75%	1.2	0.9	3.3
7006	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	Single Family Income Eligible	SF	MO	12	24%	3	0.00	19	\$6	100%	52%	A-LINE-2	3727%	75%	0.5	0.7	1.5
7007	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	Multifamily Market Rate	MF	MO	12	35%	4	0.00	19	\$2	100%	41%	A-LINE-3	1854%	75%	2.0	3.9	4.3
7008	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	Multifamily Income Eligible	MF	MO	12	24%	3	0.00	19	\$6	100%	100%	A-LINE-4	1854%	75%	0.5	0.3	1.9
7009	Lighting	LED - 15W (CFL baseline) (1050-1489 lumens)	PAYS	SF	MO	12	44%	5	0.00	19	\$8	100%	28%	A-LINE-1	3727%	75%	0.6	1.9	1.5
7010	Lighting	LED - 15W (CFL baseline) (1050-1489 lumens)	Single Family Income Eligible	SF	MO	12	44%	5	0.00	19	\$8	100%	83%	A-LINE-2	3727%	75%	0.7	0.6	2.1
7011	Lighting	LED - 15W (CFL baseline) (1050-1489 lumens)	Multifamily Market Rate	MF	MO	12	44%	5	0.00	19	\$6	100%	100%	A-LINE-3	1854%	75%	0.6	0.5	2.1
7012	Lighting	LED - 15W (CFL baseline) (1050-1489 lumens)	Multifamily Income Eligible	MF	MO	12	44%	5	0.00	19	\$8	100%	83%	A-LINE-4	1854%	75%	0.7	0.6	2.1
7013	Lighting	LED - 20W (CFL baseline) (1490-2600 lumens)	PAYS	SF	MO	16	40%	6	0.00	19	\$8	100%	16%	A-LINE-1	3727%	75%	1.7	3.9	2.6
7014	Lighting	LED - 20W (CFL baseline) (1490-2600 lumens)	Single Family Income Eligible	SF	MO	16	40%	6	0.00	19	\$8	100%	63%	A-LINE-2	3727%	75%	1.6	1.0	3.0
7015	Lighting	LED - 20W (CFL baseline) (1490-2600 lumens)	Multifamily Market Rate	MF	MO	16	40%	6	0.00	19	\$8	100%	16%	A-LINE-3	1854%	75%	2.0	3.9	3.0
7016	Lighting	LED - 20W (CFL baseline) (1490-2600 lumens)	Multifamily Income Eligible	MF	MO	16	40%	6	0.00	19	\$8	100%	63%	A-LINE-4	1854%	75%	2.0	1.0	3.4
7017	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	PAYS	SF	MO	14	62%	9	0.00	19	\$6	100%	37%	REFLECTOR-	788%	75%	1.3	3.0	3.0
7018	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	Single Family Income Eligible	SF	MO	14	62%	9	0.00	19	\$6	100%	37%	REFLECTOR-	788%	75%	1.3	3.0	3.1
7019	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	Multifamily Market Rate	MF	MO	14	62%	9	0.00	19	\$6	100%	62%	REFLECTOR-	391%	75%	1.3	1.8	3.3

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
7020	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	Multifamily Income Eligible	MF	MO	14	62%	9	0.00	19	\$6	100%	37%	REFLECTOR-	391%	75%	1.3	3.0	3.1
7021	Lighting	LED - 11W Flood Light BR30 Bulb (CFL baseline)	PAYS	SF	MO	12	60%	7	0.00	19	\$2	100%	62%	REFLECTOR-	788%	75%	4.3	5.6	9.1
7022	Lighting	LED - 11W Flood Light BR30 Bulb (CFL baseline)	Single Family Income Eligible	SF	MO	12	42%	5	0.00	19	\$10	100%	45%	REFLECTOR-	788%	75%	0.5	0.9	1.5
7023	Lighting	LED - 11W Flood Light BR30 Bulb (CFL baseline)	Multifamily Market Rate	MF	MO	12	41%	5	0.00	19	\$2	100%	62%	REFLECTOR-	391%	75%	3.2	3.9	6.8
7024	Lighting	LED - 11W Flood Light BR30 Bulb (CFL baseline)	Multifamily Income Eligible	MF	MO	12	42%	5	0.00	19	\$10	100%	100%	REFLECTOR-	391%	75%	0.5	0.4	2.0
7025	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	PAYS	SF	MO	9	66%	6	0.00	19	\$3	100%	100%	REFLECTOR-	788%	75%	1.3	1.0	3.6
7026	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	Single Family Income Eligible	SF	MO	9	37%	3	0.00	19	\$10	100%	100%	REFLECTOR-	788%	75%	0.3	0.2	1.6
7027	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	Multifamily Market Rate	MF	MO	9	37%	3	0.00	19	\$3	100%	100%	REFLECTOR-	391%	75%	0.9	0.6	2.6
7028	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	Multifamily Income Eligible	MF	MO	9	37%	3	0.00	19	\$10	100%	100%	REFLECTOR-	391%	75%	0.3	0.2	1.6
7029	Lighting	LED - 18W Flood Light PAR38 Bulb (CFL baseline)	PAYS	SF	MO	15	22%	3	0.00	19	\$15	100%	81%	REFLECTOR-	788%	75%	0.3	0.2	1.3
7030	Lighting	LED - 18W Flood Light PAR38 Bulb (CFL baseline)	Single Family Income Eligible	SF	MO	15	22%	3	0.00	19	\$15	100%	81%	REFLECTOR-	788%	75%	0.3	0.2	1.3
7031	Lighting	LED - 18W Flood Light PAR38 Bulb (CFL baseline)	Multifamily Market Rate	MF	MO	15	22%	3	0.00	19	\$15	100%	81%	REFLECTOR-	391%	75%	0.3	0.2	1.3
7032	Lighting	LED - 18W Flood Light PAR38 Bulb (CFL baseline)	Multifamily Income Eligible	MF	MO	15	22%	3	0.00	19	\$15	100%	81%	REFLECTOR-	391%	75%	0.3	0.2	1.3
7033	Lighting	LED - 4W Candelabra (CFL baseline)	PAYS	SF	MO	6	78%	5	0.00	19	\$7	100%	31%	SPECIALTY-1	1099%	75%	0.9	1.7	1.8
7034	Lighting	LED - 4W Candelabra (CFL baseline)	Single Family Income Eligible	SF	MO	6	48%	3	0.00	19	\$7	100%	31%	SPECIALTY-2	1099%	75%	0.7	1.0	1.5
7035	Lighting	LED - 4W Candelabra (CFL baseline)	Multifamily Market Rate	MF	MO	6	48%	3	0.00	19	\$7	100%	17%	SPECIALTY-3	447%	75%	0.7	1.9	1.3
7036	Lighting	LED - 4W Candelabra (CFL baseline)	Multifamily Income Eligible	MF	MO	6	48%	3	0.00	19	\$7	100%	17%	SPECIALTY-4	447%	75%	0.7	1.9	1.3
7037	Lighting	LED - 8W Globe Light G25 Bulb (Replacing CFL)	PAYS	SF	MO	7	37%	3	0.00	19	\$7	100%	100%	SPECIALTY-1	1099%	75%	0.3	0.1	1.5
7038	Lighting	LED - 8W Globe Light G25 Bulb (Replacing CFL)	Single Family Income Eligible	SF	MO	7	37%	3	0.00	19	\$7	100%	100%	SPECIALTY-2	1099%	75%	0.4	0.1	1.6
7039	Lighting	LED - 8W Globe Light G25 Bulb (Replacing CFL)	Multifamily Market Rate	MF	MO	7	37%	3	0.00	19	\$7	100%	100%	SPECIALTY-3	447%	75%	0.3	0.1	1.5
7040	Lighting	LED - 8W Globe Light G25 Bulb (Replacing CFL)	Multifamily Income Eligible	MF	MO	7	37%	3	0.00	19	\$7	100%	100%	SPECIALTY-4	447%	75%	0.4	0.1	1.6
7041	Lighting	LED - 12W Dimmable Light Bulb (Replacing CFL) IEDI	PAYS	SF	MO	12	21%	2	0.00	19	\$6	100%	37%	SPECIALTY-1	1099%	75%	0.7	0.9	1.5
7042	Lighting	LED - 12W Dimmable Light Bulb (Replacing CFL) IEDI	Single Family Income Eligible	SF	MO	12	47%	6	0.00	19	\$6	100%	100%	SPECIALTY-2	1099%	75%	1.0	0.6	2.7
7043	Lighting	LED - 12W Dimmable Light Bulb (Replacing CFL) IEDI	Multifamily Market Rate	MF	MO	12	47%	6	0.00	19	\$4	100%	100%	SPECIALTY-3	447%	75%	1.0	0.6	2.8
7044	Lighting	LED - 12W Dimmable Light Bulb (Replacing CFL) IEDI	Multifamily Income Eligible	MF	MO	12	47%	6	0.00	19	\$6	100%	37%	SPECIALTY-4	447%	75%	1.2	1.9	2.5
7045	Lighting	LED Nightlights	Energy Efficiency Kits	SF	MO	27	96%	26	0.00	19	\$2	100%	94%	NIGHT-1	300%	75%	10.4	11.0	24.1
7046	Lighting	LED Nightlights	Single Family Income Eligible	SF	MO	30	96%	29	0.00	19	\$6	100%	27%	NIGHT-2	300%	75%	3.7	13.5	8.5
7047	Lighting	LED Nightlights	Multifamily Market Rate	MF	MO	29	96%	28	0.00	19	\$3	100%	94%	NIGHT-3	200%	75%	6.4	6.8	15.2
7048	Lighting	LED Nightlights	Multifamily Income Eligible	MF	MO	30	96%	29	0.00	19	\$6	100%	27%	NIGHT-4	200%	75%	3.7	13.5	8.5
7049	Lighting	Occupancy Sensor	Efficient Products	SF	Retrofit	124	30%	37	0.05	10	\$30	100%	33%	OCC-1	200%	30%	2.1	6.4	1.7
7050	Lighting	Occupancy Sensor	Efficient Products	SF	Retrofit	124	30%	37	0.05	10	\$30	100%	33%	OCC-2	200%	30%	2.1	6.4	1.7
7051	Lighting	Occupancy Sensor	Efficient Products	SF	NC	124	30%	37	0.05	10	\$30	100%	33%	OCC-3	200%	0%	2.1	6.4	1.7
7052	Lighting	Occupancy Sensor	Efficient Products	MF	Retrofit	124	30%	37	0.05	10	\$30	100%	33%	OCC-4	100%	30%	2.1	6.4	1.7
7053	Lighting	Occupancy Sensor	Efficient Products	MF	Retrofit	124	30%	37	0.05	10	\$30	100%	33%	OCC-5	100%	30%	2.1	6.4	1.7
7054	Lighting	Occupancy Sensor	Efficient Products	MF	NC	124	30%	37	0.05	10	\$30	100%	33%	OCC-6	100%	0%	2.1	6.4	1.7
7055	Lighting	Linear LED	Efficient Products	SF	MO	15	93%	14	0.00	12	\$3	100%	84%	TUBE-1	621%	11%	1.6	1.9	6.5
7056	Lighting	Linear LED	Single Family Income Eligible	SF	MO	15	93%	14	0.00	12	\$3	100%	100%	TUBE-2	621%	11%	1.6	1.6	6.7
7057	Lighting	Linear LED	Efficient Products	SF	NC	15	93%	14	0.00	12	\$3	100%	84%	TUBE-3	621%	0%	1.6	1.9	6.5
7058	Lighting	Linear LED	Efficient Products	MF	MO	15	93%	14	0.00	12	\$3	100%	84%	TUBE-4	309%	11%	1.6	1.9	6.5
7059	Lighting	Linear LED	Multifamily Income Eligible	MF	MO	15	93%	14	0.00	12	\$3	100%	100%	TUBE-5	309%	11%	0.1	0.1	1.2
7060	Lighting	Linear LED	Efficient Products	MF	NC	15	93%	14	0.00	12	\$3	100%	84%	TUBE-6	309%	0%	1.6	1.9	6.5
7061	Lighting	Custom Lighting LED	PAYS	SF	Retrofit	349	90%	314	0.15	19	\$1	100%	100%	CUSTOM LED	100%	75%	421.3	421.3	543.2
7062	Lighting	Custom Lighting LED	PAYS	MF	Retrofit	349	90%	314	0.15	19	\$1	100%	100%	CUSTOM LED	100%	75%	421.3	421.3	543.2
8001	Pool	Variable Speed Pool Pump - ER	Efficient Products	SF	ER1	2,326	64%	1,478	0.35	6	\$930	100%	38%	Pool pump-	5%	33%	0.6	1.6	1.5

Appendix B: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
8002	Pool	Variable Speed Pool Pump - ER	Efficient Products	SF	ER2	1,163	27%	315	0.07	4	\$0	100%	35%	Pool pump-1	5%	33%	1.0	1.0	1.0
8003	Pool	Variable Speed Pool Pump - ER	Efficient Products	SF	ER3	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	5%	33%	0.6	0.8	1.8
8004	Pool	Variable Speed Pool Pump - ER	Efficient Products	SF	ER1	2,326	64%	1,478	0.35	6	\$930	100%	38%	Pool pump-1	1%	33%	0.6	1.6	1.5
8005	Pool	Variable Speed Pool Pump - ER	Efficient Products	SF	ER2	1,163	27%	315	0.07	4	\$0	100%	35%	Pool pump-1	1%	33%	1.0	1.0	1.0
8006	Pool	Variable Speed Pool Pump - ER	Efficient Products	SF	ER3	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	1%	33%	0.6	0.8	1.8
8007	Pool	Variable Speed Pool Pump - ER	Efficient Products	MF	ER1	2,326	64%	1,478	0.35	6	\$930	100%	38%	Pool pump-1	1%	33%	0.6	1.6	1.5
8008	Pool	Variable Speed Pool Pump - ER	Efficient Products	MF	ER2	1,163	27%	315	0.07	4	\$0	100%	35%	Pool pump-1	1%	33%	1.0	1.0	1.0
8009	Pool	Variable Speed Pool Pump - ER	Efficient Products	MF	ER3	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	1%	33%	0.6	0.8	1.8
8010	Pool	Variable Speed Pool Pump - ER	Multifamily Market Rate	MF	ER1	2,326	64%	1,478	0.35	6	\$930	100%	38%	Pool pump-1	2%	33%	0.6	1.6	1.5
8011	Pool	Variable Speed Pool Pump - ER	Multifamily Market Rate	MF	ER2	1,163	27%	315	0.07	4	\$0	100%	35%	Pool pump-1	2%	33%	1.0	1.0	1.0
8012	Pool	Variable Speed Pool Pump - ER	Multifamily Market Rate	MF	ER3	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	2%	33%	0.6	0.8	1.8
8013	Pool	Variable Speed Pool Pump - ER	Efficient Products	MF	ER1	2,326	64%	1,478	0.35	6	\$930	100%	38%	Pool pump-1	2%	33%	0.6	1.6	1.5
8014	Pool	Variable Speed Pool Pump - ER	Efficient Products	MF	ER2	1,163	27%	315	0.07	4	\$0	100%	35%	Pool pump-1	2%	33%	1.0	1.0	1.0
8015	Pool	Variable Speed Pool Pump - MO	Efficient Products	SF	ER3	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	5%	33%	0.6	0.8	1.8
8016	Pool	Variable Speed Pool Pump - MO	Efficient Products	SF	MO	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	5%	33%	0.6	0.8	1.8
8017	Pool	Variable Speed Pool Pump - MO	Efficient Products	SF	MO	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	1%	33%	0.6	0.8	1.8
8018	Pool	Variable Speed Pool Pump - MO	Efficient Products	SF	NC	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	5%	0%	0.6	0.8	1.8
8019	Pool	Variable Speed Pool Pump - MO	Efficient Products	MF	MO	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	1%	33%	0.6	0.8	1.8
8020	Pool	Variable Speed Pool Pump - MO	Multifamily Market Rate	MF	MO	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	2%	33%	0.6	0.8	1.8
8021	Pool	Variable Speed Pool Pump - MO	Efficient Products	MF	MO	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	2%	33%	0.6	0.8	1.8
8022	Pool	Variable Speed Pool Pump - MO	Efficient Products	MF	NC	1,163	27%	315	0.07	10	\$314	100%	75%	Pool pump-1	1%	0%	0.6	0.8	1.8
8023	Pool	Pool Heater (COP >= 5.5-9)	Efficient Products	SF	MO	2,364	38%	900	0.00	8	\$1,250	100%	84%	Pool heater-1	0%	1%	0.2	0.2	1.5
8024	Pool	Pool Heater (COP >= 5.5-9)	Efficient Products	SF	MO	2,364	38%	900	0.00	8	\$1,250	100%	84%	Pool heater-0	0%	1%	0.2	0.2	1.5
8025	Pool	Pool Heater (COP >= 5.5-9)	Efficient Products	MF	NC	2,364	38%	900	0.00	8	\$1,250	100%	84%	Pool heater-0	0%	0%	0.2	0.2	1.5
8026	Pool	Pool Heater (COP >= 5.5-9)	Efficient Products	MF	MO	2,364	38%	900	0.00	8	\$1,250	100%	84%	Pool heater-0	0%	1%	0.2	0.2	1.5
8027	Pool	Pool Heater (COP >= 5.5-9)	Multifamily Income Eligible	MF	MO	2,364	38%	900	0.00	8	\$1,250	100%	100%	Pool heater-0	0%	1%	0.1	0.1	1.3
8028	Pool	Pool Heater (COP >= 5.5-9)	Efficient Products	MF	NC	2,364	38%	900	0.00	8	\$1,250	100%	84%	Pool heater-0	0%	0%	0.2	0.2	1.5
8029	Pool	Pool Heater (COP >= 6.0)	Efficient Products	SF	MO	2,364	52%	1,234	0.00	8	\$1,250	100%	84%	Pool heater-0	1%	0%	0.3	0.3	1.7
8030	Pool	Pool Heater (COP >= 6.0)	Efficient Products	SF	MO	2,364	52%	1,234	0.00	8	\$1,250	100%	84%	Pool heater-0	1%	0%	0.3	0.3	1.7
8031	Pool	Pool Heater (COP >= 6.0)	Efficient Products	SF	NC	2,364	52%	1,234	0.00	8	\$1,250	100%	84%	Pool heater-0	0%	0%	0.3	0.3	1.7
8032	Pool	Pool Heater (COP >= 6.0)	Efficient Products	MF	MO	2,364	52%	1,234	0.00	8	\$1,250	100%	84%	Pool heater-0	1%	0%	0.3	0.3	1.7
8033	Pool	Pool Heater (COP >= 6.0)	Multifamily Income Eligible	MF	MO	2,364	52%	1,234	0.00	8	\$1,250	100%	100%	Pool heater-0	1%	0%	0.1	0.1	1.4
8034	Pool	Pool Heater (COP >= 6.0)	Efficient Products	MF	NC	2,364	52%	1,234	0.00	8	\$1,250	100%	84%	Pool heater-0	0%	0%	0.3	0.3	1.7
9001	Water Heating	Kitchen Faucet Aerator	Energy Efficiency Kits	SF	Retrofit	2,955	2%	47	0.00	10	\$11	100%	29%	Kitch-1	29%	63%	1.7	5.8	4.7
9002	Water Heating	Kitchen Faucet Aerator	PAYS	SF	Retrofit	2,955	2%	47	0.00	10	\$11	100%	29%	Kitch-1	29%	63%	1.7	5.8	4.7
9003	Water Heating	Kitchen Faucet Aerator	Single Family Income Eligible	SF	Retrofit	2,955	4%	111	0.01	10	\$11	100%	68%	Kitch-2	40%	54%	3.9	5.8	11.3
9004	Water Heating	Kitchen Faucet Aerator	PAYS	SF	Retrofit	2,955	2%	47	0.00	10	\$11	100%	29%	Kitch-2	40%	54%	1.7	5.8	4.7
9005	Water Heating	Kitchen Faucet Aerator	Multifamily Market Rate	MF	Retrofit	2,955	4%	110	0.01	10	\$11	100%	100%	Kitch-3	22%	48%	3.1	3.1	9.4
9006	Water Heating	Kitchen Faucet Aerator	PAYS	MF	Retrofit	2,955	2%	47	0.00	10	\$11	100%	29%	Kitch-3	22%	48%	1.7	5.8	4.7
9007	Water Heating	Kitchen Faucet Aerator	Multifamily Income Eligible	MF	Retrofit	2,955	4%	111	0.01	10	\$8	100%	100%	Kitch-4	40%	60%	1.0	1.0	3.7
9008	Water Heating	Kitchen Faucet Aerator	PAYS	MF	Retrofit	2,955	2%	47	0.00	10	\$8	100%	41%	Kitch-4	40%	60%	2.3	5.8	6.7
9009	Water Heating	Bathroom Faucet Aerator	Energy Efficiency Kits	SF	Retrofit	2,955	1%	18	0.00	10	\$11	100%	27%	Bath-1	280%	63%	0.6	2.3	2.0
9010	Water Heating	Bathroom Faucet Aerator	PAYS	SF	Retrofit	2,955	1%	18	0.00	10	\$11	100%	29%	Bath-1	280%	63%	0.6	2.2	2.0
9011	Water Heating	Bathroom Faucet Aerator	Single Family Income Eligible	SF	Retrofit	2,955	1%	35	0.00	10	\$11	100%	55%	Bath-2	165%	54%	1.2	2.3	3.9
9012	Water Heating	Bathroom Faucet Aerator	PAYS	SF	Retrofit	2,955	1%	35	0.00	10	\$11	100%	29%	Bath-2	165%	54%	1.2	4.3	3.6
9013	Water Heating	Bathroom Faucet Aerator	Multifamily Market Rate	MF	Retrofit	2,955	2%	71	0.01	10	\$11	100%	57%	Bath-3	31%	78%	2.5	4.5	7.4
9014	Water Heating	Bathroom Faucet Aerator	PAYS	MF	Retrofit	2,955	2%	71	0.01	10	\$11	100%	29%	Bath-3	31%	78%	2.5	8.8	7.1
9015	Water Heating	Bathroom Faucet Aerator	Multifamily Income Eligible	MF	Retrofit	2,955	1%	35	0.00	10	\$8	100%	78%	Bath-4	45%	60%	1.8	2.3	5.5
9016	Water Heating	Bathroom Faucet Aerator	PAYS	MF	Retrofit	2,955	1%	35	0.00	10	\$8	100%	41%	Bath-4	45%	60%	1.8	4.3	5.2
9017	Water Heating	Low Flow Showerhead	Energy Efficiency Kits	SF	Retrofit	2,955	3%	79	0.01	10	\$7	100%	93%	LFSH-1	194%	64%	4.6	4.9	13.2
9018	Water Heating	Low Flow Showerhead	PAYS	SF	Retrofit	2,955	3%	79	0.01	10	\$7	100%	93%	LFSH-1	194%	64%	4.6	4.9	13.2
9019	Water Heating	Low Flow Showerhead	Single Family Income Eligible	SF	Retrofit	2,955	7%	195	0.02	10	\$15	100%	100%	LFSH-2	138%	57%	3.3	3.3	10.0
9020	Water Heating	Low Flow Showerhead	PAYS	SF	Retrofit	2,955	3%	79	0.01	10	\$7	100%	93%	LFSH-2	138%	57%	4.6	4.9	13.2
9021	Water Heating	Low Flow Showerhead	Multifamily Market Rate	MF	Retrofit	2,955	14%	405	0.04	10	\$7	100%	100%	LFSH-3	31%	68%	5.6	5.6	16.1
9022	Water Heating	Low Flow Showerhead	PAYS	MF	Retrofit	2,955	3%	79	0.01	10	\$7	100%	93%	LFSH-3	31%	68%	4.6	4.9	13.2
9023	Water Heating	Low Flow Showerhead	Multifamily Income Eligible	MF	Retrofit	2,955	8%	233	0.02	10	\$23	100%	100%	LFSH-4	43%	63%	1.0	1.0	3.7
9024	Water Heating	Low Flow Showerhead	PAYS	MF	Retrofit	2,955	3%	79	0.01	10	\$7	100%	93%	LFSH-4	43%	63%	4.6	4.9	13.2

Appendix B: Residential Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer KW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	TRC Score	UCT Score	Participant Test Score
9025	Water Heating	Shower Start 1.5 gpm electric water heater	Energy Efficiency Kits	SF	Retrofit	2,955	1%	42	0.00	10	\$50	100%	20%	TRSV-1	194%	8%	0.3	1.7	1.1
9026	Water Heating	Shower Start 1.5 gpm electric water heater	Single Family Income Eligible	SF	Retrofit	2,955	1%	42	0.00	10	\$50	100%	20%	TRSV-2	138%	8%	0.3	1.7	1.1
9027	Water Heating	Shower Start 1.5 gpm electric water heater	Energy Efficiency Kits	MF	Retrofit	2,955	2%	47	0.00	10	\$50	100%	20%	TRSV-3	31%	8%	0.4	1.9	1.2
9028	Water Heating	Shower Start 1.5 gpm electric water heater	Multifamily Income Eligible	MF	Retrofit	2,955	2%	47	0.00	10	\$50	100%	20%	TRSV-4	43%	8%	0.4	1.9	1.2
9029	Water Heating	Pipe Insulation	PAYS	SF	Retrofit	2,955	0%	9	0.00	12	\$9	100%	15%	PIPE-1	29%	32%	0.5	3.2	1.4
9030	Water Heating	Pipe Insulation	Single Family Income Eligible	SF	Retrofit	2,955	0%	9	0.00	12	\$9	100%	69%	PIPE-2	40%	18%	0.5	0.7	2.0
9031	Water Heating	Pipe Insulation	PAYS	MF	Retrofit	2,955	0%	9	0.00	12	\$9	100%	15%	PIPE-3	22%	18%	0.5	3.2	1.4
9032	Water Heating	Pipe Insulation	Multifamily Income Eligible	MF	Retrofit	2,955	0%	9	0.00	12	\$9	100%	22%	PIPE-4	40%	30%	0.5	2.1	1.5
9033	Water Heating	Water Heater Wrap	Energy Efficiency Kits	SF	Retrofit	2,955	3%	101	0.01	12	\$58	100%	83%	WRAP-1	29%	10%	0.8	1.0	3.0
9034	Water Heating	Water Heater Wrap	Single Family Income Eligible	SF	Retrofit	2,955	3%	101	0.01	12	\$58	100%	91%	WRAP-2	40%	3%	0.8	0.9	3.1
9035	Water Heating	Water Heater Wrap	Energy Efficiency Kits	MF	Retrofit	2,955	3%	101	0.01	12	\$58	100%	83%	WRAP-3	22%	0%	0.8	1.0	3.0
9036	Water Heating	Water Heater Wrap	Multifamily Income Eligible	MF	Retrofit	2,955	3%	101	0.01	12	\$58	100%	69%	WRAP-4	40%	0%	0.8	1.2	2.9
9037	Water Heating	Heat Pump Hot Water Heater	Efficient Products	SF	MO	2,955	77%	2,276	0.20	13	\$588	100%	94%	WH-1	29%	2%	5.3	2.1	9.5
9038	Water Heating	Heat Pump Hot Water Heater	Efficient Products	SF	MO	2,955	77%	2,276	0.20	13	\$588	100%	94%	WH-2	40%	1%	5.3	2.1	9.5
9039	Water Heating	Heat Pump Hot Water Heater	Single Family Income Eligible	SF	MO	2,955	77%	2,276	0.20	13	\$588	100%	94%	WH-2	40%	1%	5.3	2.1	9.5
9040	Water Heating	Heat Pump Hot Water Heater	Efficient Products	SF	NC	2,955	77%	2,276	0.20	13	\$588	100%	94%	WH-3	29%	0%	5.3	2.1	9.5
9041	Water Heating	Heat Pump Hot Water Heater	Efficient Products	MF	MO	2,955	77%	2,276	0.20	13	\$588	100%	94%	WH-4	22%	0%	5.3	2.1	9.5
9042	Water Heating	Heat Pump Hot Water Heater	Efficient Products	MF	MO	2,955	77%	2,276	0.20	13	\$588	100%	94%	WH-5	22%	0%	5.3	2.1	9.5
9043	Water Heating	Heat Pump Hot Water Heater	Multifamily Income Eligible	MF	MO	2,955	77%	2,276	0.20	13	\$588	100%	100%	WH-5	40%	1%	3.4	1.2	6.5
9044	Water Heating	Heat Pump Hot Water Heater	Efficient Products	MF	NC	2,955	77%	2,276	0.20	13	\$588	100%	94%	WH-6	22%	0%	5.3	2.1	9.5
9045	Water Heating	Tankless Water Heater	Efficient Products	SF	MO	2,955	5%	142	0.00	20	\$1,080	100%	84%	WH-1	29%	2%	0.1	0.1	1.1
9046	Water Heating	Tankless Water Heater	Efficient Products	SF	MO	2,955	5%	142	0.00	20	\$1,080	100%	84%	WH-2	40%	1%	0.1	0.1	1.1
9047	Water Heating	Tankless Water Heater	Efficient Products	SF	NC	2,955	5%	142	0.00	20	\$1,080	100%	84%	WH-3	29%	0%	0.1	0.1	1.1
9048	Water Heating	Tankless Water Heater	Efficient Products	MF	MO	2,955	5%	142	0.00	20	\$1,080	100%	84%	WH-4	22%	0%	0.1	0.1	1.1
9049	Water Heating	Tankless Water Heater	Efficient Products	MF	MO	2,955	5%	142	0.00	20	\$1,080	100%	84%	WH-5	40%	1%	0.1	0.1	1.1
9050	Water Heating	Tankless Water Heater	Efficient Products	MF	NC	2,955	5%	142	0.00	20	\$1,080	100%	84%	WH-6	22%	0%	0.1	0.1	1.1
9051	Water Heating	Gravity Film Heat Exchanger	Efficient Products	SF	Retrofit	2,955	17%	491	0.05	30	\$742	100%	84%	DRAIN-1	29%	0%	0.6	0.7	2.3
9052	Water Heating	Gravity Film Heat Exchanger	Efficient Products	SF	Retrofit	2,955	17%	491	0.05	30	\$742	100%	84%	DRAIN-2	40%	0%	0.6	0.7	2.3
9053	Water Heating	Gravity Film Heat Exchanger	Efficient Products	SF	NC	2,955	14%	403	0.04	30	\$742	100%	84%	DRAIN-3	29%	0%	0.6	0.7	2.3
9054	Water Heating	Gravity Film Heat Exchanger	Efficient Products	MF	Retrofit	2,955	14%	403	0.04	30	\$742	100%	84%	DRAIN-4	22%	0%	0.5	0.6	2.1
9055	Water Heating	Gravity Film Heat Exchanger	Efficient Products	MF	Retrofit	2,955	14%	403	0.04	30	\$742	100%	84%	DRAIN-5	40%	0%	0.5	0.6	2.1
9056	Water Heating	Gravity Film Heat Exchanger	Efficient Products	MF	NC	2,955	14%	403	0.04	30	\$742	100%	84%	DRAIN-6	22%	0%	0.5	0.6	2.1
9057	Water Heating	Water Heater Timer/Setback	Energy Efficiency Kits	SF	Retrofit	2,955	3%	82	0.01	2	\$5	100%	83%	WHTS-1	29%	0%	1.5	1.8	5.0
9058	Water Heating	Water Heater Timer/Setback	Energy Efficiency Kits	SF	Retrofit	2,955	3%	82	0.01	2	\$5	100%	83%	WHTS-2	40%	0%	1.5	1.8	5.0
9059	Water Heating	Water Heater Timer/Setback	Energy Efficiency Kits	MF	Retrofit	2,955	3%	82	0.01	2	\$5	100%	83%	WHTS-3	22%	0%	1.5	1.8	5.0
9060	Water Heating	Water Heater Timer/Setback	Energy Efficiency Kits	SF	Retrofit	2,955	3%	82	0.01	2	\$5	100%	83%	WHTS-4	40%	0%	1.5	1.8	5.0
10001	New Construction	Zero Energy Ready Home	New Construction	SF	NC	14,064	26%	3,663	1.71	20	\$2,000	100%	100%	NC-1	100%	0%	2.6	2.6	4.3
10002	New Construction	Zero Energy Ready Home	New Construction	MF	NC	14,064	26%	3,663	1.71	20	\$2,000	100%	100%	NC-2	100%	0%	2.6	2.6	4.3
10003	New Construction	ENERGY STAR® Townhomes and Duplexes	New Construction	SF	NC	7,601	20%	1,554	0.72	20	\$1,216	100%	86%	NC-1	100%	0%	1.8	2.1	3.1
10004	New Construction	ENERGY STAR® Townhomes and Duplexes	New Construction	MF	NC	7,601	20%	1,554	0.72	20	\$1,216	100%	86%	NC-2	100%	0%	1.8	2.1	3.1

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1001	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1002	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	MO	226	263	298	330	357	379	397	411	422	430	436	436	436	436	436	436	436	436	436	436
1003	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1004	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1005	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1006	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1007	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1008	Appliances	ENERGY STAR Refrigerator	Multi-Family Market Rate	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009	Appliances	ENERGY STAR Refrigerator	Multi-Family Market Rate	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1010	Appliances	ENERGY STAR Refrigerator	Multi-Family Market Rate	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1011	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	MO	93	111	129	146	162	175	186	195	202	207	211	214	201	198	196	193	191	189	188	187
1012	Appliances	ENERGY STAR Refrigerator	Multi-Family Income Eligible	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1013	Appliances	ENERGY STAR Refrigerator	Multi-Family Income Eligible	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1014	Appliances	ENERGY STAR Refrigerator	Multi-Family Income Eligible	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1015	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1016	Appliances	Dehumidifier Recycling	Appliance Recycling	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1017	Appliances	Dehumidifier Recycling	Appliance Recycling	SF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1018	Appliances	Dehumidifier Recycling	Appliance Recycling	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1019	Appliances	Dehumidifier Recycling	Appliance Recycling	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1020	Appliances	Freezer Recycling	Appliance Recycling	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1021	Appliances	Freezer Recycling	Appliance Recycling	SF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1022	Appliances	Freezer Recycling	Appliance Recycling	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023	Appliances	Freezer Recycling	Appliance Recycling	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1024	Appliances	Freezer Recycling	Appliance Recycling	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1025	Appliances	Refrigerator recycling (pre-1990)	Appliance Recycling	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1026	Appliances	Refrigerator recycling (pre-1990)	Appliance Recycling	SF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1027	Appliances	Refrigerator recycling (pre-1990)	Appliance Recycling	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1028	Appliances	Refrigerator recycling (post-1990)	Appliance Recycling	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1029	Appliances	Refrigerator recycling (post-1990)	Appliance Recycling	SF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1030	Appliances	Refrigerator recycling (post-1990)	Appliance Recycling	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1031	Appliances	Refrigerator recycling (post-1990)	Appliance Recycling	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1032	Appliances	Refrigerator recycling (post-1990)	Appliance Recycling	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1033	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	SF	MO	451	540	628	712	788	853	906	949	982	1008	1,027	1,041	979	966	954	942	932	923	915	909
1034	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	SF	MO	296	344	390	432	467	497	520	539	552	569	586	571	530	523	516	511	506	502	498	494
1035	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	SF	NC	2	3	4	5	7	9	13	16	20	24	28	32	36	40	44	47	49	50	51	52
1036	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	MF	MO	163	185	205	222	235	247	255	262	267	270	248	248	248	240	238	236	235	234	233	233
1037	Appliances	ENERGY STAR Air Purifier/Cleaner	Efficient Products	MF	MO	95	120	147	176	205	233	258	279	296	310	324	324	310	306	302	298	294	290	286	282
1038	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	SF	NC	1	2	2	2	3	4	6	7	9	11	14	17	22	24	26	29	30	32	34	36
1039	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	MF	MO	258	343	449	578	728	895	1,071	1,247	1,414	1,564	1,693	1,800	1,885	1,951	2,001	2,039	2,067	2,032	2,000	2,005
1040	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	SF	MO	141	188	246	317	399	491	587	683	775	857	928	986	1,033	1,069	1,097	1,117	1,133	1,133	1,107	1,099
1041	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	SF	NC	5	8	10	13	18	24	32	42	50	57	59	65	68	66	64	64	64	64	64	64
1042	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	MF	MO	82	69	92	116	146	179	214	249	283	313	339	360	377	390	400	408	414	406	404	401
1043	Appliances	ENERGY STAR Clothes Dryer	Efficient Products	MF	MO	54	112	147	189	238	291	350	408	463	512	554	589	616	638	655	667	676	676	661	656
1044	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	MF	NC	2	3	4	5	6	8	11	14	17	19	20	22	23	22	22	22	22	22	22	22
1045	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1046	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1047	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1048	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1049	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1050	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	ER1	104	136	175	220	270	323	377	427	472	511	543	569	589	604	616	624	610	605	600	594
1051	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	MO	74	96	121	148	177	206	234	259	280	298	312	323	331	332	342	342	329	325	321	317
1052	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	NC	1	2	3	4	5	7	9	12	14	16	18	18	18	18	18	18	18	18	18	18
1053	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	MO	44	54	65	75	85	94	102	109	114	118	121	123	125	119	117	116	114	113	112	111
1054	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	MO	25	34	44	57	72	88	106	123	140	154	167	178	186	193	198	201	204	201	199	198
1055	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	NC	0	1	1	1	2	2	3	4	5	5	5	6	6	6	6	6	6	6	6	6
1056	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1057	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1058	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1059	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1060	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1061	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1062	Appliances	Freezers ENERGY STAR	Efficient Products	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1063	Appliances	Freezers ENERGY STAR	Efficient Products	SF	ER1	23	27	31	34	37	39	41	42	43	44	45	41	41	40	40	40	39	39	39	39
1064	Appliances	Freezers ENERGY STAR	Efficient Products	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1065	Appliances	Freezers ENERGY STAR	Efficient Products	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1066	Appliances	Freezers ENERGY STAR																							

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1072	Appliances	Heat Pump Dryer	Efficient Products	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1073	Appliances	Heat Pump Dryer	Efficient Products	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	Behavior	Home Energy Report	No program	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2002	Behavior	Home Energy Report	No program	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2003	Behavior	Home Energy Report	No program	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	Behavior	Home Energy Report	No program	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	Behavior	Home Energy Report	No program	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	Behavior	Home Energy Report	No program	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	Behavior	Home Energy Management System	Efficient Products	SF	Retrofit	520	773	852	906	988	1,655	2,111	2,404	2,622	2,779	3,373	3,661	3,722	3,672	3,567	3,916	4,038	3,937	3,794	3,629	
2008	Behavior	Home Energy Management System	Efficient Products	SF	Retrofit	285	424	467	496	542	907	1,157	1,317	1,437	1,523	1,848	2,006	2,040	2,012	1,955	2,146	2,202	2,158	2,079	1,988	
2009	Behavior	Home Energy Management System	Efficient Products	SF	NC	5	7	9	11	14	38	52	65	76	87	148	171	186	189	195	271	287	356	298	296	
2010	Behavior	Home Energy Management System	Efficient Products	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	Behavior	Home Energy Management System	Efficient Products	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	Behavior	Home Energy Management System	Efficient Products	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	Behavior	AMI Data Portal	No program	SF	MO	478	649	874	1,167	1,539	1,999	2,532	3,189	3,889	4,615	5,331	5,996	6,590	7,087	7,489	7,873	8,042	8,210	8,330	8,414	
2014	Behavior	AMI Data Portal	No program	SF	MO	262	356	479	639	843	1,095	1,399	1,748	2,131	2,529	2,921	3,286	3,611	3,883	4,104	4,276	4,407	4,499	4,565	4,611	
2015	Behavior	AMI Data Portal	No program	SF	NC	2	5	10	17	28	43	65	93	129	169	213	258	303	345	384	421	455	512	548	582	
2016	Behavior	AMI Data Portal	No program	MF	MO	52	70	95	126	166	216	276	345	420	499	576	648	712	766	810	844	869	888	901	910	
2017	Behavior	AMI Data Portal	No program	MF	MO	85	115	155	206	272	353	451	564	687	816	942	1,060	1,165	1,253	1,324	1,379	1,421	1,451	1,472	1,487	
2018	Behavior	AMI Data Portal	No program	MF	NC	0	1	2	3	5	8	12	17	24	31	39	48	56	63	71	77	84	94	101	107	113
3001	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3002	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	Single Family Income Eligible	SF	Retrofit	125	131	129	121	107	90	74	58	45	34	25	18	0	0	0	0	104	109	108	102	91
3003	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3004	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	Multifamily Income Eligible	MF	Retrofit	39	46	53	58	61	60	56	50	42	34	27	21	16	12	9	32	39	45	49	51	
3005	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	PAYS	SF	Retrofit	42	68	72	78	78	96	115	132	145	151	149	139	124	105	86	98	97	88	81	78	
3006	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	Single Family Income Eligible	SF	Retrofit	208	217	214	200	178	150	123	97	74	56	41	30	0	0	0	173	181	179	169	151	
3007	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3008	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	Multifamily Income Eligible	MF	Retrofit	70	83	95	105	109	107	100	89	76	62	49	37	28	21	15	58	69	80	88	92	
3009	Building Shell	Air Sealing - Tier 3 (poor condition) - Elec/AC	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3010	Building Shell	Air Sealing - Tier 3 (poor condition) - Elec/AC	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3011	Building Shell	Air Sealing - Tier 3 (poor condition) - Elec/AC	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3012	Building Shell	Air Sealing - Tier 3 (poor condition) - Elec/AC	Multifamily Income Eligible	MF	Retrofit	20	24	28	31	32	31	29	26	22	18	14	11	8	6	4	17	20	23	26	27	
3013	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3014	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	Single Family Income Eligible	SF	Retrofit	16	17	17	15	14	12	9	7	6	4	3	2	0	0	0	13	14	14	13	12	
3015	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3016	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	Multifamily Income Eligible	MF	Retrofit	3	4	4	5	5	5	4	3	3	3	2	2	1	1	1	3	3	4	4	4	
3017	Building Shell	Air Sealing - Tier 2 (fair condition) - HP/HP	PAYS	SF	Retrofit	7	11	12	13	17	20	23	25	26	26	24	21	18	15	17	17	17	15	14	14	
3018	Building Shell	Air Sealing - Tier 2 (fair condition) - HP/HP	Single Family Income Eligible	SF	Retrofit	27	28	27	26	23	19	16	12	10	7	5	4	0	0	0	22	23	23	22	19	
3019	Building Shell	Air Sealing - Tier 2 (fair condition) - HP/HP	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3020	Building Shell	Air Sealing - Tier 2 (fair condition) - HP/HP	Multifamily Income Eligible	MF	Retrofit	6	7	8	8	9	9	8	7	6	5	4	3	2	2	1	5	6	6	7	7	
3021	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3022	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3023	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3024	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	Multifamily Income Eligible	MF	Retrofit	2	2	2	2	3	3	2	2	2	1	1	1	1	0	0	1	2	2	2	2	2
3025	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3026	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3027	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3028	Building Shell	Air Sealing - Tier 1 (not good/excellent condition)	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3029	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3030	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	Single Family Income Eligible	SF	Retrofit	39	40	40	37	33	28	23	18	14	10	8	6	0	0	0	32	34	33	31	28	
3031	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3032	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	Multifamily Income Eligible	MF	Retrofit	4	5	6	6	6	6	5	4	4	3	2	2	1	1	3	4	5	5	5	5	
3033	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3034	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3035	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3036	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	Multifamily Income Eligible	MF	Retrofit	1	1	2	2	2	2	2	2	2	1	1	1	0	0	0	1	1	1	1	2	2
3037	Building Shell	Ceiling Insulation R11-R49 electric furnace base	PAYS	SF	Retrofit	16	23	25	27	29	36	43	49	54	56	55	52	46	39	32	25	20	15	11	8	
3038	Building Shell	Ceiling Insulation R11-R49 electric furnace base	Single Family Income Eligible	SF	Retrofit	93	97	95	89	79	67	54	43	33	25	18	13	0	0	0	0	0	0	0	0	0
3039	Building Shell	Ceiling Insulation R11-R49 electric furnace base	Multifamily Market Rate	MF	Retrofit	30	28	25	21	17	14	10	8	6	4	0	0	0	0	0	0	0	0	0	0	0
3040	Building Shell	Ceiling Insulation R11-R49 electric furnace base	Multifamily Income Eligible	MF	Retrofit	52	62	72	79	82	80	75	67	57	46	36	28	21	16	12	0	0	0	0	0	0

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
3001	Building Shell	Ceiling insulation R5-R30 electric furnace base	PAYS	SF	Retrofit	61	90	99	104	113	139	167	192	210	219	216	202	180	153	125	99	77	58	43	32	
3002	Building Shell	Ceiling insulation R5-R30 electric furnace base	Single Family Income Eligible	SF	Retrofit	362	377	372	348	308	261	213	168	129	97	72	53	0	0	0	0	0	0	0	0	0
3003	Building Shell	Ceiling insulation R5-R30 electric furnace base	Multifamily Market Rate	MF	Retrofit	118	110	98	83	68	53	41	31	23	17	0	0	0	0	0	0	0	0	0	0	
3004	Building Shell	Ceiling insulation R5-R30 electric furnace base	Multifamily Income Eligible	MF	Retrofit	204	244	280	307	319	314	294	261	222	181	142	109	82	61	45	0	0	0	0	0	
3005	Building Shell	Ceiling insulation R5-R38 electric furnace base	PAYS	SF	Retrofit	51	75	82	87	94	116	139	159	175	182	179	168	149	127	104	82	64	48	36	26	
3006	Building Shell	Ceiling insulation R5-R38 electric furnace base	Single Family Income Eligible	SF	Retrofit	300	313	309	289	256	217	177	139	107	81	60	44	0	0	0	0	0	0	0	0	
3007	Building Shell	Ceiling insulation R5-R38 electric furnace base	Multifamily Market Rate	MF	Retrofit	98	92	81	69	56	44	34	26	19	14	0	0	0	0	0	0	0	0	0	0	
3008	Building Shell	Ceiling insulation R5-R38 electric furnace base	Multifamily Income Eligible	MF	Retrofit	169	202	232	255	265	261	244	217	184	150	118	91	68	51	37	0	0	0	0	0	
3009	Building Shell	Ceiling insulation R5-R49 electric furnace base	PAYS	SF	Retrofit	38	56	61	65	70	87	104	119	131	136	134	125	112	95	78	62	48	36	27	20	
3010	Building Shell	Ceiling insulation R5-R49 electric furnace base	Single Family Income Eligible	SF	Retrofit	237	247	244	228	202	171	139	110	84	63	47	34	0	0	0	0	0	0	0	0	
3011	Building Shell	Ceiling insulation R5-R49 electric furnace base	Multifamily Market Rate	MF	Retrofit	77	72	64	54	44	35	27	20	15	11	0	0	0	0	0	0	0	0	0	0	
3012	Building Shell	Ceiling insulation R5-R49 electric furnace base	Multifamily Income Eligible	MF	Retrofit	134	160	183	201	209	206	192	171	145	118	93	72	54	40	29	0	0	0	0	0	
3013	Building Shell	Ceiling insulation R5-R60 electric furnace base	PAYS	SF	Retrofit	27	41	44	47	51	63	75	86	95	99	97	91	81	69	56	45	34	26	19	14	
3014	Building Shell	Ceiling insulation R5-R60 electric furnace base	Single Family Income Eligible	SF	Retrofit	202	210	207	194	172	145	119	94	72	54	40	29	0	0	0	0	0	0	0	0	
3015	Building Shell	Ceiling insulation R5-R60 electric furnace base	Multifamily Market Rate	MF	Retrofit	66	61	55	46	38	30	23	17	13	9	0	0	0	0	0	0	0	0	0	0	
3016	Building Shell	Ceiling insulation R5-R60 electric furnace base	Multifamily Income Eligible	MF	Retrofit	114	136	156	171	178	175	164	145	123	101	79	61	46	34	25	0	0	0	0	0	
3017	Building Shell	Ceiling insulation R11-R49 heat pump base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3018	Building Shell	Ceiling insulation R11-R49 heat pump base	Single Family Income Eligible	SF	Retrofit	9	9	9	9	8	7	5	4	3	2	2	1	0	0	0	0	0	0	0	0	
3019	Building Shell	Ceiling insulation R11-R49 heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3020	Building Shell	Ceiling insulation R11-R49 heat pump base	Multifamily Income Eligible	MF	Retrofit	3	4	4	5	5	5	4	3	3	3	2	2	1	1	1	0	0	0	0	0	
3021	Building Shell	Ceiling insulation R5-R30 heat pump base	PAYS	SF	Retrofit	10	15	17	18	19	24	28	33	36	37	34	31	26	21	17	13	10	7	5	4	
3022	Building Shell	Ceiling insulation R5-R30 heat pump base	Single Family Income Eligible	SF	Retrofit	33	34	34	31	28	24	19	15	12	9	6	5	0	0	0	0	0	0	0	0	
3023	Building Shell	Ceiling insulation R5-R30 heat pump base	PAYS	MF	Retrofit	5	7	8	8	9	11	13	15	16	17	16	15	14	12	10	8	6	4	3	2	
3024	Building Shell	Ceiling insulation R5-R30 heat pump base	Single Family Income Eligible	MF	Retrofit	12	14	16	18	18	17	15	13	10	8	6	5	3	3	0	0	0	0	0	0	
3025	Building Shell	Ceiling insulation R5-R38 heat pump base	PAYS	SF	Retrofit	9	13	14	15	16	20	24	28	30	32	31	29	26	22	18	14	11	8	6	5	
3026	Building Shell	Ceiling insulation R5-R38 heat pump base	Single Family Income Eligible	SF	Retrofit	28	29	28	26	23	20	16	13	10	7	5	4	0	0	0	0	0	0	0	0	
3027	Building Shell	Ceiling insulation R5-R38 heat pump base	PAYS	MF	Retrofit	4	6	6	7	7	9	11	12	11	14	14	13	12	10	8	6	5	4	3	2	
3028	Building Shell	Ceiling insulation R5-R38 heat pump base	Multifamily Income Eligible	MF	Retrofit	10	12	13	15	15	15	14	13	11	9	7	5	4	3	2	0	0	0	0	0	
3029	Building Shell	Ceiling insulation R5-R49 heat pump base	PAYS	SF	Retrofit	7	10	11	11	12	15	18	21	23	24	24	22	20	17	14	11	8	6	5	3	
3030	Building Shell	Ceiling insulation R5-R49 heat pump base	Single Family Income Eligible	SF	Retrofit	22	23	23	21	19	16	13	10	8	6	4	3	0	0	0	0	0	0	0	0	
3031	Building Shell	Ceiling insulation R5-R49 heat pump base	PAYS	MF	Retrofit	3	4	5	5	5	7	8	9	10	10	10	10	10	10	10	10	10	10	10	10	
3032	Building Shell	Ceiling insulation R5-R49 heat pump base	Multifamily Income Eligible	MF	Retrofit	8	9	11	12	12	12	11	10	9	7	6	4	3	2	2	0	0	0	0	0	
3033	Building Shell	Ceiling insulation R5-R60 heat pump base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3034	Building Shell	Ceiling insulation R5-R60 heat pump base	Single Family Income Eligible	SF	Retrofit	19	20	20	19	17	14	11	9	7	5	4	3	0	0	0	0	0	0	0	0	
3035	Building Shell	Ceiling insulation R5-R60 heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3036	Building Shell	Ceiling insulation R11-R49 gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	7	8	10	10	11	11	10	9	8	6	5	4	3	2	2	0	0	0	0	0	
3037	Building Shell	Ceiling insulation R11-R49 gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3038	Building Shell	Ceiling insulation R11-R49 gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3039	Building Shell	Ceiling insulation R11-R49 gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3040	Building Shell	Ceiling insulation R11-R49 gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3041	Building Shell	Ceiling insulation R5-R38 gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	88	92	91	85	75	64	52	41	31	24	18	13	0	0	0	0	0	0	0	0	
3042	Building Shell	Ceiling insulation R5-R38 gas heat and electric cool base	Multifamily Market Rate	MF	Retrofit	39	36	32	27	22	17	13	10	7	5	0	0	0	0	0	0	0	0	0	0	
3043	Building Shell	Ceiling insulation R5-R38 gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	16	19	22	24	25	24	23	20	17	14	11	8	6	5	3	0	0	0	0	0	
3044	Building Shell	Ceiling insulation R5-R49 gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3045	Building Shell	Ceiling insulation R5-R49 gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3046	Building Shell	Ceiling insulation R5-R49 gas heat and electric cool base	Multifamily Market Rate	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
3092	Building Shell	Ceiling insulation R5-R49 gas heat and electric cool base	Multi-Family Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3093	Building Shell	Ceiling insulation R5-R60 gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3094	Building Shell	Ceiling insulation R5-R60 gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3095	Building Shell	Ceiling insulation R5-R60 gas heat and electric cool base	Multi-Family Market Rate	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3096	Building Shell	Ceiling insulation R5-R60 gas heat and electric cool base	Multi-Family Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3097	Building Shell	Duct insulation - electric furnace base	PAYS	SF	Retrofit	116	171	188	199	216	266	318	365	400	417	411	385	343	291	238	189	146	110	82	60	
3098	Building Shell	Duct insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	1,117	1,164	1,149	1,073	952	805	667	518	398	299	222	162	0	0	0	0	0	0	0	0	0
3099	Building Shell	Duct insulation - electric furnace base	PAYS	MF	Retrofit	18	27	29	31	34	41	49	57	62	65	64	60	53	45	37	29	23	17	13	9	
3100	Building Shell	Duct insulation - electric furnace base	Multi-Family Income Eligible	MF	Retrofit	2,309	1,959	1,997	1,258	964	723	586	392	0	0	0	0	0	0	0	0	0	0	0	0	
3101	Building Shell	Duct insulation - heat pump base	PAYS	SF	Retrofit	12	19	20	21	23	29	34	39	43	45	44	42	37	31	26	20	16	12	9	7	
3102	Building Shell	Duct insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	89	98	92	86	76	64	52	41	32	24	18	13	0	0	0	0	0	0	0	0	
3103	Building Shell	Duct insulation - heat pump base	PAYS	MF	Retrofit	2	3	4	4	4	5	6	7	7	8	8	7	6	5	4	4	3	2	2	1	
3104	Building Shell	Duct insulation - heat pump base	Multi-Family Income Eligible	MF	Retrofit	137	108	83	63	46	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3105	Building Shell	Duct insulation - gas heat and electric cool base	PAYS	SF	Retrofit	34	51	56	59	64	79	94	108	118	123	122	114	101	86	70	56	43	33	24	18	
3106	Building Shell	Duct insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3107	Building Shell	Duct insulation - gas heat and electric cool base	PAYS	MF	Retrofit	1	2	2	2	2	3	4	4	5	5	5	4	4	3	3	2	2	1	1	1	
3108	Building Shell	Duct insulation - gas heat and electric cool base	Multi-Family Income Eligible	MF	Retrofit	10	12	14	16	16	16	15	13	11	9	7	6	4	4	3	2	0	0	0	0	
3109	Building Shell	Duct Sealing - electric furnace base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3110	Building Shell	Duct Sealing - electric furnace base	Single Family Income Eligible	SF	Retrofit	192	200	197	184	163	138	113	89	68	51	38	28	0	0	0	0	0	0	0	0	
3111	Building Shell	Duct Sealing - electric furnace base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3112	Building Shell	Duct Sealing - electric furnace base	Multi-Family Income Eligible	MF	Retrofit	668	567	462	364	279	209	155	114	0	0	0	0	0	0	0	0	0	0	0	0	
3113	Building Shell	Duct Sealing - heat pump base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3114	Building Shell	Duct Sealing - heat pump base	Single Family Income Eligible	SF	Retrofit	15	16	16	15	13	11	9	7	5	4	3	2	0	0	0	0	0	0	0	0	
3115	Building Shell	Duct Sealing - heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3116	Building Shell	Duct Sealing - heat pump base	Multi-Family Income Eligible	MF	Retrofit	42	36	29	23	17	13	10	7	0	0	0	0	0	0	0	0	0	0	0	0	
3117	Building Shell	Duct Sealing - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3118	Building Shell	Duct Sealing - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3119	Building Shell	Duct Sealing - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3120	Building Shell	Duct Sealing - gas heat and electric cool base	Multi-Family Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3121	Building Shell	Floor insulation (R4 base) - electric furnace base	PAYS	SF	Retrofit	57	84	92	98	106	130	156	179	197	205	202	189	168	143	117	93	72	54	40	30	
3122	Building Shell	Floor insulation (R4 base) - electric furnace base	Single Family Income Eligible	SF	Retrofit	254	265	262	245	217	183	150	118	91	68	51	37	0	0	0	0	0	0	0	0	
3123	Building Shell	Floor insulation (R4 base) - electric furnace base	PAYS	MF	Retrofit	6	8	9	10	11	13	16	18	20	21	20	19	17	14	12	9	7	5	4	3	
3124	Building Shell	Floor insulation (R4 base) - electric furnace base	Multi-Family Income Eligible	MF	Retrofit	7	8	9	10	10	10	10	8	7	6	5	4	3	2	1	0	0	0	0	0	
3125	Building Shell	Floor insulation (R4 base) - heat pump base	PAYS	SF	Retrofit	7	10	11	11	12	15	18	21	23	24	24	22	20	17	14	11	8	6	5	3	
3126	Building Shell	Floor insulation (R4 base) - heat pump base	Single Family Income Eligible	SF	Retrofit	22	23	23	21	19	16	13	10	8	6	4	3	0	0	0	0	0	0	0	0	
3127	Building Shell	Floor insulation (R4 base) - heat pump base	PAYS	MF	Retrofit	1	1	1	1	1	2	2	2	3	3	3	2	2	2	2	1	1	1	1	0	
3128	Building Shell	Floor insulation (R4 base) - heat pump base	Multi-Family Income Eligible	MF	Retrofit	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	
3129	Building Shell	Floor insulation (R4 base) - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3130	Building Shell	Floor insulation (R4 base) - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3131	Building Shell	Floor insulation (R4 base) - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3132	Building Shell	Floor insulation (R4 base) - gas heat and electric cool base	Multi-Family Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3133	Building Shell	Floor insulation (R13 base) - electric furnace base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3134	Building Shell	Floor insulation (R13 base) - electric furnace base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3135	Building Shell	Floor insulation (R13 base) - electric furnace base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3136	Building Shell	Floor insulation (R13 base) - electric furnace base	Multi-Family Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3137	Building Shell	Floor insulation (R13 base) - heat pump base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3138	Building Shell	Floor insulation (R13 base) - heat pump base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3139	Building Shell	Floor insulation (R13 base) - heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3140	Building Shell	Floor insulation (R13 base) - heat pump base	Multi-Family Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3141	Building Shell	Floor insulation (R13 base) - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3142	Building Shell	Floor insulation (R13 base) - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
3143	Building Shell	Floor Insulation (R13 base) - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3144	Building Shell	Floor Insulation (R13 base) - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3145	Building Shell	Window Insulation	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3146	Building Shell	Window Insulation	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3147	Building Shell	Window Insulation	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3148	Building Shell	Window Insulation	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3149	Building Shell	Basement Wall Insulation - electric furnace base	PAYS	SF	Retrofit	126	187	205	217	235	290	347	398	437	455	449	420	374	318	260	206	159	120	89	66	
3150	Building Shell	Basement Wall Insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	484	476	504	547	675	804	924	1,014	1,057	1,042	975	866	736	601	476	367	278	207	152	0	
3151	Building Shell	Basement Wall Insulation - electric furnace base	PAYS	MF	Retrofit	23	35	38	40	43	53	64	73	81	84	83	77	69	59	48	38	29	22	17	12	
3152	Building Shell	Basement Wall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retrofit	102	121	140	153	159	156	146	130	110	90	71	54	41	31	22	0	0	0	0	0	
3153	Building Shell	Basement Wall Insulation - heat pump base	PAYS	SF	Retrofit	8	11	13	13	14	18	21	24	27	28	27	26	23	19	16	13	10	7	5	4	
3154	Building Shell	Basement Wall Insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	20	22	23	23	25	36	42	46	48	47	44	39	33	27	22	17	13	9	7	0	
3155	Building Shell	Basement Wall Insulation - heat pump base	PAYS	MF	Retrofit	1	2	2	2	2	3	3	4	4	4	4	4	3	3	2	1	1	1	1	1	
3156	Building Shell	Basement Wall Insulation - heat pump base	Multifamily Income Eligible	MF	Retrofit	3	3	3	4	4	4	4	3	3	2	2	1	1	1	0	0	0	0	0	0	
3157	Building Shell	Basement Wall Insulation - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3158	Building Shell	Basement Wall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3159	Building Shell	Basement Wall Insulation - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3160	Building Shell	Basement Wall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3161	Building Shell	Foundation Sidewall Insulation - electric furnace base	PAYS	SF	Retrofit	8	12	13	13	15	18	22	25	27	28	28	26	23	20	16	13	10	7	6	4	4
3162	Building Shell	Foundation Sidewall Insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	49	54	57	62	76	91	104	115	119	118	110	98	83	68	54	42	31	23	17	0	
3163	Building Shell	Foundation Sidewall Insulation - electric furnace base	PAYS	MF	Retrofit	3	4	5	5	6	7	8	9	10	11	11	10	9	8	6	5	4	3	2	2	
3164	Building Shell	Foundation Sidewall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retrofit	4	5	5	6	6	6	6	5	4	3	3	2	2	1	1	1	0	0	0	0	
3165	Building Shell	Foundation Sidewall Insulation - heat pump base	PAYS	SF	Retrofit	0	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	0	0	
3166	Building Shell	Foundation Sidewall Insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	2	2	3	3	3	4	5	5	5	5	5	4	4	3	2	2	2	1	1	1	
3167	Building Shell	Foundation Sidewall Insulation - heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	
3168	Building Shell	Foundation Sidewall Insulation - heat pump base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3169	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3170	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3171	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3172	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3173	Building Shell	Insulated Cellular Shades - electric furnace base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3174	Building Shell	Insulated Cellular Shades - electric furnace base	Single Family Income Eligible	SF	Retrofit	1,143	969	790	622	477	358	265	194	0	0	0	0	0	0	0	0	947	808	661	524	
3175	Building Shell	Insulated Cellular Shades - electric furnace base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3176	Building Shell	Insulated Cellular Shades - electric furnace base	Multifamily Income Eligible	MF	Retrofit	447	343	258	191	139	0	0	0	0	0	0	0	0	0	0	0	370	286	216	161	
3177	Building Shell	Insulated Cellular Shades - heat pump base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3178	Building Shell	Insulated Cellular Shades - heat pump base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3179	Building Shell	Insulated Cellular Shades - heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3180	Building Shell	Insulated Cellular Shades - heat pump base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3181	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3182	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	242	205	167	132	101	76	56	41	0	0	0	0	0	0	0	0	201	171	140	111	
3183	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3184	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	43	33	25	18	13	0	0	0	0	0	0	0	0	0	0	0	36	27	21	15	
3185	Building Shell	Storm Windows - electric furnace base	PAYS	SF	Retrofit	659	975	1,070	1,130	1,226	1,510	1,806	2,075	2,277	2,371	2,340	2,188	1,949	1,657	1,355	1,073	829	626	466	343	
3186	Building Shell	Storm Windows - electric furnace base	Single Family Income Eligible	SF	Retrofit	1,202	1,252	1,236	1,155	1,024	866	707	558	428	322	239	174	0	0	0	0	0	0	0	0	
3187	Building Shell	Storm Windows - electric furnace base	PAYS	MF	Retrofit	209	310	340	359	390	480	574	660	724	733	744	695	619	526	431	341	263	199	148	109	
3188	Building Shell	Storm Windows - electric furnace base	Multifamily Income Eligible	MF	Retrofit	2,540	2,375	2,111	1,788	1,455	1,145	880	662	490	339	0	0	0	0	0	0	0	0	0	0	
3189	Building Shell	Storm Windows - heat pump base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3190	Building Shell	Storm Windows - heat pump base	Single Family Income Eligible	SF	Retrofit	124	129	127	119	105	89	73	57	44	33	25	18	0	0	0	0	0	0	0	0	
3191	Building Shell	Storm Windows - heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3192	Building Shell	Storm Windows - heat pump base	Multifamily Income Eligible	MF	Retrofit	165	155	137	116	95	75	57	43	32	23	0	0	0	0	0	0	0	0	0	0	
3193	Building Shell	Storm Windows - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3194	Building Shell	Storm Windows - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	262	273	269	251	223	189	154	121	93	70	52	38	0	0	0	0	0	0	0	0
3195	Building Shell	Storm Windows - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3196	Building Shell	Storm Windows - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	174	163	145	123	100	78	60	45	34	25	0	0	0	0	0	0	0	0	0	0
3197	Building Shell	Wall Insulation - electric furnace base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3198	Building Shell	Wall Insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3199	Building Shell	Wall Insulation - electric furnace base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3200	Building Shell	Wall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retrofit	55	65	75	82	85	84	79	70	59	48	38	29	22	16	12	0	0	0	0	0
3201	Building Shell	Wall Insulation - heat pump base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3202	Building Shell	Wall Insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3203	Building Shell	Wall Insulation - heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3204	Building Shell	Wall Insulation - heat pump base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3205	Building Shell	Wall Insulation - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3206	Building Shell	Wall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3207	Building Shell	Wall Insulation - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3208	Building Shell	Wall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3209	Building Shell	Thin Triple Windows - electric furnace base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3210	Building Shell	Thin Triple Windows - electric furnace base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3211	Building Shell	Thin Triple Windows - electric furnace base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3212	Building Shell	Thin Triple Windows - electric furnace base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3213	Building Shell	Thin Triple Windows - heat pump base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3214	Building Shell	Thin Triple Windows - heat pump base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3215	Building Shell	Thin Triple Windows - heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3216	Building Shell	Thin Triple Windows - heat pump base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3217	Building Shell	Thin Triple Windows - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3218	Building Shell	Thin Triple Windows - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3219	Building Shell	Thin Triple Windows - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3220	Building Shell	Thin Triple Windows - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3221	Building Shell	Advanced Walls - electric furnace base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3222	Building Shell	Advanced Walls - electric furnace base	Single Family Income Eligible	SF	Retrofit	260	285	302	328	404	482	554	607	633	625	584	519	441	360	285	220	166	124	91	0
3223	Building Shell	Advanced Walls - electric furnace base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3224	Building Shell	Advanced Walls - electric furnace base	Multifamily Income Eligible	MF	Retrofit	66	79	90	99	103	101	95	84	71	58	46	35	27	20	14	0	0	0	0	0
3225	Building Shell	Advanced Walls - heat pump base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3226	Building Shell	Advanced Walls - heat pump base	Single Family Income Eligible	SF	Retrofit	21	23	24	26	32	38	44	49	51	50	47	41	35	29	23	18	13	10	7	0
3227	Building Shell	Advanced Walls - heat pump base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3228	Building Shell	Advanced Walls - heat pump base	Multifamily Income Eligible	MF	Retrofit	7	9	10	11	11	11	10	9	8	6	5	4	3	2	2	0	0	0	0	0
3229	Building Shell	Advanced Walls - gas heat and electric cool base	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3230	Building Shell	Advanced Walls - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	55	60	64	69	86	102	117	129	134	132	124	110	93	76	60	47	35	26	19	0
3231	Building Shell	Advanced Walls - gas heat and electric cool base	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3232	Building Shell	Advanced Walls - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3233	Building Shell	Cool Roof	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3234	Building Shell	Cool Roof	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3235	Building Shell	Cool Roof	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3236	Building Shell	Cool Roof	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3237	Building Shell	Shade Trees	No program	SF	Retrofit	126	134	145	179	214	245	269	280	277	259	230	195	159	126	97	73	55	40	0	0
3238	Building Shell	Shade Trees	No program	SF	Retrofit	69	73	80	98	117	134	147	153	152	142	126	107	87	69	53	40	30	22	0	0
3239	Building Shell	Shade Trees	No program	MF	Retrofit	9	10	11	13	16	18	20	21	21	19	17	15	12	9	7	5	4	3	0	0
3240	Building Shell	Shade Trees	No program	MF	Retrofit	15	16	18	22	26	30	33	34	34	32	28	24	20	15	12	9	7	5	0	0
4001	Custom	MFMR Custom	Multifamily Market Rate	MF	Retrofit	459	435	391	336	278	222	173	132	99	73	0	0	0	0	0	0	0	0	0	431
5001	Custom	MFU Custom	Multifamily Market Rate	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5002	Electronics	Advanced Tier 2 Power Strips	Efficient Products	SF	Retrofit	822	957	1,063	1,122	1,122	1,063	957	822	679	543	1,130	1,146	1,157	1,146	966	915	824	708	585	467
5003	Electronics	Advanced Tier 2 Power Strips	Efficient Products	SF	Retrofit	550	521	469	403	333	266	207	158	118	88	473	448	404	347	286	229	178	136	102	76
5004	Electronics	Advanced Tier 2 Power Strips	Single Family Income Eligible	SF	Retrofit	266	240	206	170	136	106	81	60	45	0	266	240	206	170	136	106	81	60	45	0
5005	Electronics	Advanced Tier 2 Power Strips	Efficient Products	SF	NC	5	7	10	13	17	23	31	40	48	54	118	136	145	146	155	164	176	268	205	202
5006	Electronics	Advanced Tier 2 Power Strips	Efficient Products	MF	Retrofit	244	231	208	179	148	118	92	70	52	39	210	199	179	154	127	101	79	60	45	33
5007	Electronics	Advanced Tier 2 Power Strips	Multifamily Market Rate	MF	Retrofit	1,506	0	0	0	0	0	0	0	0	0	1,416	0	0	0	0	0	0	0	0	0
5008	Electronics	Advanced Tier 2 Power Strips	Efficient Products	MF	Retrofit	25	25	24	21	18	15	12	9	7	5	26	22	20	18	16	13	10	8	6	5
5009	Electronics	Advanced Tier 2 Power Strips	Multifamily Income Eligible	MF	Retrofit	550	440	342	261	196	145	0	0	0	0	550	440	342	261	196	145	0	0	0	0
5010	Electronics	Advanced Tier 2 Power Strips	Efficient Products	MF	NC	2	2	3	4	5	8	10	13	16	28	39	45	48	51	54	58	68	67	61	50
5011	Electronics	Advanced Tier 1 Power Strips	Efficient Products	SF	Retrofit	153	145	131	112	93	74	58	44	33	24	132	125	112	97	80	64	50	38	28	21
5012	Electronics	Advanced Tier 1 Power Strips	Energy Efficiency Kits	SF	Retrofit	139	132	119	102	84	67	52	40	30	22	109	104	93	80	66	53	41	31	24	17
5012	Electronics	Advanced Tier 1 Power Strips	PAYS	SF	Retrofit	18	27	30	32	35	44	53	62	69	73	88	92	88	81	74	73	73	74	74	74

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
5013	Electronics	Advanced Tier 1 Power Strips	Efficient Products	SF	Retrofit	89	74	59	46	35	26	19	0	0	0	0	77	63	51	39	30	23	17	0	0	0
5014	Electronics	Advanced Tier 1 Power Strips	Energy Efficiency Kits	SF	Retrofit	81	67	54	42	32	24	18	0	0	0	0	64	53	42	33	25	19	14	0	0	0
5015	Electronics	Advanced Tier 1 Power Strips	PAYS	SF	Retrofit	7	11	12	13	14	18	21	25	28	29	30	35	37	35	32	30	29	29	30	30	29
5016	Electronics	Advanced Tier 1 Power Strips	Single Family Income Eligible	SF	Retrofit	7	8	8	9	12	14	16	18	19	19	21	25	24	23	21	21	22	22	22	24	19
5017	Electronics	Advanced Tier 1 Power Strips	Efficient Products	SF	NC	1	1	1	1	2	3	4	5	6	6	6	14	16	17	17	18	19	21	31	24	24
5018	Electronics	Advanced Tier 1 Power Strips	Efficient Products	MF	Retrofit	38	35	30	25	20	15	12	9	6	0	0	33	30	26	21	17	13	10	8	6	0
5019	Electronics	Advanced Tier 1 Power Strips	Energy Efficiency Kits	MF	Retrofit	35	31	27	22	18	14	11	8	6	0	0	27	25	21	18	14	11	8	6	5	0
5020	Electronics	Advanced Tier 1 Power Strips	PAYS	MF	Retrofit	4	6	7	7	8	10	12	14	15	16	19	20	19	18	16	16	16	16	16	16	16
5021	Electronics	Advanced Tier 1 Power Strips	Efficient Products	MF	Retrofit	10	10	9	7	6	5	4	3	2	2	2	9	8	7	6	5	4	3	2	2	1
5022	Electronics	Advanced Tier 1 Power Strips	Energy Efficiency Kits	MF	Retrofit	9	9	8	7	6	4	3	3	3	2	1	7	6	6	5	4	3	3	2	2	1
5023	Electronics	Advanced Tier 1 Power Strips	Energy Efficiency Kits	MF	Retrofit	1	2	2	2	2	3	3	4	5	5	5	7	6	6	5	5	5	5	5	5	5
5024	Electronics	Advanced Tier 1 Power Strips	Multi-Family Income Eligible	MF	Retrofit	105	82	62	47	35	0	0	0	0	0	0	105	82	62	47	35	0	0	0	0	0
5025	Electronics	Advanced Tier 1 Power Strips	Efficient Products	MF	NC	0	0	0	1	1	1	2	2	2	3	6	7	7	7	8	8	8	9	10	10	10
5026	Electronics	ENERGY STAR TV	No program	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5027	Electronics	ENERGY STAR TV	No program	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5028	Electronics	ENERGY STAR TV	No program	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5029	Electronics	ENERGY STAR TV	No program	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5030	Electronics	ENERGY STAR TV	No program	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5031	Electronics	ENERGY STAR TV	No program	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5032	Electronics	ENERGY STAR TV	No program	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5033	Electronics	Smart Plug	No program	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5034	Electronics	Smart Plug	No program	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5035	Electronics	Smart Plug	No program	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5036	Electronics	Smart Plug	No program	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5037	Electronics	Smart Plug	No program	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6001	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER1	146	148	149	149	149	149	148	148	148	148	148	148	148	148	147	147	147	147	147	147	147
6002	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
6003	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6004	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER1	77	79	81	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
6005	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6006	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6007	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER1	41	44	46	47	48	49	50	49	49	49	49	49	49	49	49	49	49	49	49	49	49
6008	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6009	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6010	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	MF	ER1	50	53	55	57	58	59	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
6011	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6012	HVAC	ASHP 15 SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6013	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER1	132	134	136	135	135	135	135	134	134	134	134	134	134	134	134	134	134	134	134	134	134
6014	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6015	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6016	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER1	61	63	64	65	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
6017	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6018	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6019	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER1	29	30	32	33	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
6020	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6021	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6022	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER1	31	32	33	34	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
6023	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6024	HVAC	ASHP 16 SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6025	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER1	119	121	122	122	122	122	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121
6026	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6027	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6028	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER1	59	61	62	63	64	64	64	64	64	64	64	64	63	63	63	63	63	63	63	63	63
6029	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6030	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6031	HVAC	ASHP 17 SEER - hp baseline ER	HVAC	MF	ER1	34	36	37	38	39	40	41	41	41												

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
6047	HVAC	ASHP 18SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	11	12	12	13	14	14	14	14	14	14	14	14	14	
6048	HVAC	ASHP 18SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	12
6049	HVAC	ASHP 19SEER - hp baseline ER	HVAC	SF	ER1	153	156	157	157	157	156	156	156	156	156	156	155	155	155	155	155	155	155	155	155	
6050	HVAC	ASHP 19SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	37
6051	HVAC	ASHP 19SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76
6052	HVAC	ASHP 19SEER - hp baseline ER	HVAC	SF	ER1	74	75	76	77	77	77	77	77	77	77	77	77	77	76	76	76	76	76	76	76	76
6053	HVAC	ASHP 19SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	18	18	18	19	19	18	18	18	18	18	18	18	18	18
6054	HVAC	ASHP 19SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	18
6055	HVAC	ASHP 19SEER - hp baseline ER	HVAC	MF	ER1	29	31	33	34	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
6056	HVAC	ASHP 19SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	7	7	7	8	8	8	8	8	8	8	8	8	8	8
6057	HVAC	ASHP 19SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	7
6058	HVAC	ASHP 19SEER - hp baseline ER	HVAC	MF	ER1	42	44	46	48	49	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
6059	HVAC	ASHP 19SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	9	10	10	11	11	11	11	11	11	11	11	11	11	11
6060	HVAC	ASHP 19SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	10
6061	HVAC	ASHP 20SEER - hp baseline ER	HVAC	SF	ER1	122	125	127	128	128	128	128	128	127	127	127	127	127	127	127	127	127	127	127	127	127
6062	HVAC	ASHP 20SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	33	34	34	35	35	35	35	35	35	35	35	35	35	35
6063	HVAC	ASHP 20SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	34
6064	HVAC	ASHP 20SEER - hp baseline ER	HVAC	SF	ER1	72	75	77	79	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
6065	HVAC	ASHP 20SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	19	20	21	21	22	22	22	22	22	22	22	22	22	22
6066	HVAC	ASHP 20SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	20
6067	HVAC	ASHP 20SEER - hp baseline ER	HVAC	MF	ER1	25	27	28	29	30	30	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30
6068	HVAC	ASHP 20SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	6	6	7	7	7	7	7	7	7	7	7	7	7	7
6069	HVAC	ASHP 20SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
6070	HVAC	ASHP 20SEER - hp baseline ER	HVAC	MF	ER1	37	40	42	44	46	47	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
6071	HVAC	ASHP 20SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	9	9	10	10	10	11	11	11	11	11	11	11	11	11	11
6072	HVAC	ASHP 20SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
6073	HVAC	ASHP 21SEER - hp baseline ER	HVAC	SF	ER1	134	136	137	137	137	137	136	136	136	136	136	136	136	136	135	135	135	135	135	135	135
6074	HVAC	ASHP 21SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	43	44	44	44	44	44	44	44	44	44	44	44	44	44
6075	HVAC	ASHP 21SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
6076	HVAC	ASHP 21SEER - hp baseline ER	HVAC	SF	ER1	70	72	74	75	76	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
6077	HVAC	ASHP 21SEER - hp baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	22	23	24	24	24	24	24	24	24	24	24	24	24	24
6078	HVAC	ASHP 21SEER - hp baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	23
6079	HVAC	ASHP 21SEER - hp baseline ER	HVAC	MF	ER1	26	28	29	30	31	31	32	32	32	32	32	32	32	31	31	31	31	31	31	31	31
6080	HVAC	ASHP 21SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7
6081	HVAC	ASHP 21SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
6082	HVAC	ASHP 21SEER - hp baseline ER	HVAC	MF	ER1	38	40	42	44	45	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
6083	HVAC	ASHP 21SEER - hp baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	9	10	10	11	11	11	11	11	11	11	11	11	11	11	11
6084	HVAC	ASHP 21SEER - hp baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	10
6085	HVAC	ASHP 15SEER - hp baseline MO	HVAC	SF	MO	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
6086	HVAC	ASHP 15SEER - hp baseline MO	HVAC	SF	MO	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6087	HVAC	ASHP 15SEER - hp baseline MO	HVAC	SF	NC	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6088	HVAC	ASHP 15SEER - hp baseline MO	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6089	HVAC	ASHP 15SEER - hp baseline MO	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6090	HVAC	ASHP 15SEER - hp baseline MO	HVAC	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6091	HVAC	ASHP 16SEER - hp baseline MO	HVAC	SF	MO	20	21	21	21	21	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
6092	HVAC	ASHP 16SEER - hp baseline MO	HVAC	SF	MO	12	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
6093	HVAC	ASHP 16SEER - hp baseline MO	HVAC	SF	NC	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6094	HVAC	ASHP 16SEER - hp baseline MO	HVAC	MF	MO	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6095	HVAC	ASHP 16SEER - hp baseline MO	HVAC	MF	MO	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6096	HVAC	ASHP 16SEER - hp baseline MO	HVAC	MF	NC	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6097	HVAC	ASHP 17SEER - hp baseline MO	HVAC	SF	MO	25	26	26	27	27	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
6098	HVAC	ASHP 17SEER - hp baseline MO	HVAC	SF	MO	15	16	16	17	17	17	14	13	13	13	13	13	13	13	13	13	13	13	13	13	13
6099	HVAC	ASHP 17SEER - hp baseline MO	HVAC	SF	NC	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6100	HVAC	ASHP 17SEER - hp baseline MO	HVAC	MF	MO	8	8	9	9	9	9	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8
6101	HVAC	ASHP 17SEER - hp baseline MO	HVAC	MF	MO	12	12	13	14	14	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
6102	HVAC	ASHP 17SEER - hp baseline MO	HVAC	MF	NC	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6103	HVAC	ASHP 18SEER - hp baseline MO	HVAC	SF	MO	41	42	43	44	44	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
6104	HVAC	ASHP 18SEER - hp baseline MO	HVAC	SF	MO	25	26	27	27	28	28	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
6105	HVAC	ASHP 18SEER - hp baseline MO	HVAC	SF	NC	2	3	3	4	4	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
6106	HVAC	ASHP 18SEER - hp baseline MO	HVAC	MF	MO	8	9	9	9	9	9	10	10	8	8	8	8	8	8	8	8	8	8	8	8	8
6107	HVAC	ASHP 18SEER - hp baseline MO	HVAC	MF	MO	12	13	13	14	14	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
6108	HVAC	ASHP 18SEER - hp baseline MO	HVAC	MF	NC	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6109	HVAC	ASHP 19SEER - hp baseline MO	HVAC	SF	MO	44	45	46	46	46	36															

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
6189	HVAC	ASHP 17 SEER - elec reals furnace baseline ER	Multi-family Market Rate	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	739	838
6190	HVAC	ASHP 17 SEER - elec reals furnace baseline ER	HVAC	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6191	HVAC	ASHP 17 SEER - elec reals furnace baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6192	HVAC	ASHP 17 SEER - elec reals furnace baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6193	HVAC	ASHP 17 SEER - elec reals furnace baseline ER	HVAC	MF	ER1	81	101	124	148	172	195	215	233	247	259	268	274	279	283	283	283	283	283	283	283	283
6194	HVAC	ASHP 17 SEER - elec reals furnace baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6195	HVAC	ASHP 17 SEER - elec reals furnace baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6196	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	SF	ER1	360	452	554	662	769	870	961	1,039	1,103	1,154	1,194	1,224	1,246	1,263	1,263	1,263	1,263	1,263	1,263	1,263	
6197	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6198	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6199	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6200	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	SF	ER1	158	199	243	291	338	382	422	456	484	507	524	537	547	554	554	554	554	554	554	554	
6201	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6202	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6203	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	Multi-family Market Rate	MF	ER1	504	589	628	678	720	752	778	797	811	821	820	819	819	819	819	819	819	819	819	819	
6204	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	Multi-family Market Rate	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6205	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	Multi-family Market Rate	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6206	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6207	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6208	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6209	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	MF	ER1	47	59	73	87	101	114	126	136	144	151	156	160	163	165	165	165	165	165	165	165	
6210	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6211	HVAC	ASHP 18 SEER - elec reals furnace baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6212	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	HVAC	SF	ER1	423	531	650	776	902	1,021	1,127	1,219	1,294	1,354	1,400	1,435	1,462	1,481	1,481	1,481	1,481	1,481	1,481	1,481	
6213	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6214	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6215	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	HVAC	SF	ER1	177	223	273	326	379	429	473	512	543	568	588	603	614	622	622	622	622	622	622	622	
6216	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6217	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6218	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	HVAC	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6219	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6220	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6221	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	Multi-family Income Eligible	MF	ER1	210	269	339	415	496	576	652	720	779	827	865	895	918	935	948	947	948	947	947	948	
6222	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	Multi-family Income Eligible	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6223	HVAC	ASHP 19 SEER - elec reals furnace baseline ER	Multi-family Income Eligible	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6224	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	HVAC	SF	ER1	317	398	488	583	677	767	847	915	972	1,017	1,051	1,078	1,098	1,112	1,112	1,112	1,112	1,112	1,112	1,112	
6225	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6226	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6227	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	HVAC	SF	ER1	143	180	220	263	305	346	382	412	438	458	474	486	495	501	501	501	501	501	501	501	
6228	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6229	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6230	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	HVAC	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6231	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6232	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6233	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	Multi-family Income Eligible	MF	ER1	211	271	341	418	499	580	656	725	784	833	871	901	924	941	954	954	954	954	954	954	
6234	HVAC	ASHP 20 SEER - elec reals furnace baseline ER	Multi-family Income Eligible	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6235	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	SF	ER1	354	445	546	651	757	856	946	1,022	1,085	1,136	1,175	1,204	1,226	1,243	1,242	1,242	1,242	1,242	1,242		
6236	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6237	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6238	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	SF	ER1	154	194	237	283	329	373	412	445	472	494	511	524	534	541	541	541	541	541	541	541	
6239	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6240	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6241	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6242	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6243	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6244	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	HVAC	MF	ER1	213	273	343	420	502	583	660	730	789	838	877	907	930	947	960	960	960	960	960	960	
6245	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	Multi-family Income Eligible	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6246	HVAC	ASHP 21 SEER - elec reals furnace baseline ER	Multi-family Income Eligible	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6247	HVAC	ASHP 15 SEER - elec reals furnace baseline MO	HVAC	SF	MO	519	652	799	953	1,108	1,254	1,384	1,497	1,589	1,662	1,719	1,763	1,795	1,819	1,819	1,819	1,819	1,819	1,819		
6248	HVAC	ASHP 15 SEER - elec reals furnace baseline MO	HVAC	SF	MO	238	299	367	438	508	575	635	687	729	763	789	809	824	835	835	835	835	835	835	835	
6249	HVAC	ASHP 15 SEER - elec reals furnace baseline MO	HVAC	SF	NC	56	75	91	103	118	139	160	179	185	183	170	168	163	147	150	146	150	317	386	401	
6250	HVAC	ASHP 15 SEER - elec reals furnace baseline MO	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6251	HVAC	ASHP 15 SEER - elec reals furnace baseline MO	Multi-family Income Eligible	MF	MO																					

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6255	HVAC	ASHP 16SEER - elec resis furnace baseline MO	HVAC	SF	NC	67	91	109	124	141	167	192	215	222	219	204	202	195	177	180	175	180	380	463	480
6256	HVAC	ASHP 16SEER - elec resis furnace baseline MO	Multifamily Market Rate	MF	MO	582	658	726	784	832	869	899	921	937	949	914	909	904	900	897	895	893	891	890	890
6257	HVAC	ASHP 16SEER - elec resis furnace baseline MO	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6258	HVAC	ASHP 16SEER - elec resis furnace baseline MO	HVAC	MF	MO	54	68	84	100	116	132	145	157	167	174	180	185	188	191	178	175	171	167	163	159
6259	HVAC	ASHP 16 SEER - elec resis furnace baseline MO	HVAC	MF	NC	20	27	32	37	42	50	58	64	66	66	61	60	58	53	54	52	54	114	138	144
6260	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	HVAC	SF	MO	517	649	795	949	1,103	1,248	1,378	1,490	1,582	1,655	1,712	1,755	1,787	1,811	1,689	1,657	1,622	1,585	1,547	1,512
6261	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	HVAC	SF	MO	237	298	365	436	506	573	633	684	726	760	786	805	820	831	775	760	744	727	710	694
6262	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	HVAC	SF	MO	56	75	90	108	117	138	160	178	184	182	170	168	162	147	148	145	149	316	384	399
6263	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	Multifamily Market Rate	MF	MO	385	435	480	518	550	574	594	608	619	627	604	600	597	595	593	591	590	589	588	588
6264	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	Multifamily Income Eligible	MF	MO	737	945	1,187	1,456	1,738	2,020	2,287	2,526	2,732	2,901	3,035	3,140	3,219	3,279	3,323	3,323	3,323	3,323	3,323	3,323
6265	HVAC	ASHP 17 SEER - elec resis furnace baseline MO	HVAC	MF	NC	25	33	40	46	52	61	71	79	82	81	75	74	72	65	66	64	66	140	171	177
6266	HVAC	ASHP 18SEER - elec resis furnace baseline MO	HVAC	SF	MO	580	703	862	1,029	1,195	1,353	1,494	1,615	1,715	1,794	1,855	1,902	1,937	1,963	1,830	1,796	1,758	1,717	1,677	1,639
6267	HVAC	ASHP 18SEER - elec resis furnace baseline MO	HVAC	SF	MO	257	323	396	472	549	621	686	741	787	823	852	873	889	901	840	824	807	788	770	752
6268	HVAC	ASHP 18SEER - elec resis furnace baseline MO	HVAC	SF	NC	60	81	98	111	127	150	173	193	200	197	184	182	175	159	162	157	162	342	417	432
6269	HVAC	ASHP 18 SEER - elec resis furnace baseline MO	Multifamily Market Rate	MF	MO	360	407	449	484	514	537	555	569	579	586	564	561	558	556	554	553	551	551	550	550
6270	HVAC	ASHP 18 SEER - elec resis furnace baseline MO	Multifamily Income Eligible	MF	MO	655	841	1,056	1,295	1,547	1,797	2,035	2,247	2,430	2,581	2,700	2,793	2,864	2,917	2,957	2,956	2,957	2,956	2,956	2,957
6271	HVAC	ASHP 18 SEER - elec resis furnace baseline MO	HVAC	MF	NC	25	34	41	47	53	63	73	81	84	83	77	76	74	67	68	66	68	144	175	181
6272	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	SF	MO	505	634	778	928	1,079	1,220	1,348	1,457	1,547	1,619	1,674	1,716	1,748	1,771	1,651	1,620	1,586	1,549	1,513	1,479
6273	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	SF	MO	282	357	426	485	549	609	669	710	743	768	788	802	813	758	744	744	728	711	694	679
6274	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	SF	NC	55	74	88	100	115	135	156	174	180	178	166	164	158	143	146	142	146	309	376	390
6275	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6276	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	MF	MO	74	92	113	135	157	178	196	212	225	236	244	250	254	258	240	236	231	226	220	215
6277	HVAC	ASHP 19 SEER - elec resis furnace baseline MO	HVAC	MF	NC	22	29	35	40	46	54	63	70	72	71	66	66	63	57	59	57	59	124	151	156
6278	HVAC	ASHP 20SEER - elec resis furnace baseline MO	HVAC	SF	MO	451	566	694	829	963	1,090	1,203	1,301	1,381	1,445	1,495	1,532	1,560	1,581	1,474	1,447	1,416	1,383	1,351	1,320
6279	HVAC	ASHP 20SEER - elec resis furnace baseline MO	HVAC	SF	MO	207	260	319	380	442	500	552	597	634	663	686	703	716	726	677	664	650	635	620	606
6280	HVAC	ASHP 20 SEER - elec resis furnace baseline MO	HVAC	SF	NC	49	66	79	90	102	121	139	156	161	159	148	146	141	128	130	127	130	276	336	348
6281	HVAC	ASHP 20SEER - elec resis furnace baseline MO	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6282	HVAC	ASHP 20SEER - elec resis furnace baseline MO	Multifamily Income Eligible	MF	MO	276	354	445	545	651	757	857	946	1,023	1,097	1,137	1,176	1,206	1,228	1,245	1,245	1,245	1,245	1,245	1,245
6283	HVAC	ASHP 20SEER - elec resis furnace baseline MO	HVAC	MF	NC	25	34	41	47	53	63	73	81	84	83	77	76	74	67	68	66	68	144	175	181
6284	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	SF	MO	611	768	941	1,123	1,305	1,477	1,631	1,763	1,872	1,959	2,026	2,077	2,115	2,143	1,998	1,961	1,919	1,875	1,831	1,790
6285	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	SF	MO	281	352	432	516	599	678	749	809	859	899	930	953	971	984	917	900	881	861	840	821
6286	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	SF	NC	66	89	107	122	139	164	189	211	218	215	201	198	191	173	177	172	177	374	455	472
6287	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6288	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	MF	MO	74	93	114	137	159	180	198	214	228	238	246	253	257	261	248	238	233	228	223	218
6289	HVAC	ASHP 21 SEER - elec resis furnace baseline MO	HVAC	MF	NC	19	26	31	35	40	48	55	61	63	63	58	58	56	50	51	50	51	109	132	137
6290	HVAC	Dual Fuel HP - 19 SEER	HVAC	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6291	HVAC	Dual Fuel HP - 19 SEER	HVAC	SF	MO	5	6	6	6	6	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4
6292	HVAC	Dual Fuel HP - 19 SEER	HVAC	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6293	HVAC	Dual Fuel HP - 19 SEER	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6294	HVAC	Dual Fuel HP - 19 SEER	HVAC	MF	MO	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6295	HVAC	Dual Fuel HP - 19 SEER	HVAC	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6296	HVAC	Dual Fuel HP - 20 SEER	HVAC	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6297	HVAC	Dual Fuel HP - 20 SEER	HVAC	SF	MO	9	9	9	9	10	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
6298	HVAC	Dual Fuel HP - 20 SEER	HVAC	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6299	HVAC	Dual Fuel HP - 20 SEER	HVAC	MF	MO	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6300	HVAC	Dual Fuel HP - 20 SEER	HVAC	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6301	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6302	HVAC	Dual Fuel HP - 21 SEER	HVAC	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
6374	HVAC	Central AC 17 SEER ER	Multifamily Market Rate	MF	ER1	420	427	432	431	430	429	428	428	427	427	426	426	426	426	426	426	426	426	426	426	
6375	HVAC	Central AC 17 SEER ER	Multifamily Market Rate	MF	ER2	0	0	0	0	0	0	0	69	70	71	71	71	71	71	71	71	71	71	71	71	
6376	HVAC	Central AC 17 SEER ER	Multifamily Market Rate	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6377	HVAC	Central AC 17 SEER ER	HVAC	MF	ER1	80	83	84	86	87	87	87	86	86	86	86	86	86	86	86	86	86	86	86	86	
6378	HVAC	Central AC 17 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	13	14	14	14	14	14	14	14	14	14	14	14	14	
6379	HVAC	Central AC 18 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6380	HVAC	Central AC 18 SEER ER	HVAC	MF	ER1	451	458	464	462	461	461	460	459	459	458	458	458	457	457	457	457	457	457	457		
6381	HVAC	Central AC 18 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6382	HVAC	Central AC 18 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6383	HVAC	Central AC 18 SEER ER	Single Family Income Eligible	MF	ER1	69	80	91	100	108	115	120	124	127	129	131	131	131	131	131	131	131	131	131	131	
6384	HVAC	Central AC 18 SEER ER	Single Family Income Eligible	MF	ER2	0	0	0	0	0	0	15	18	20	22	24	25	27	28	28	29	29	29	29	29	
6385	HVAC	Central AC 18 SEER ER	Single Family Income Eligible	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6386	HVAC	Central AC 18 SEER ER	HVAC	MF	ER1	28	30	31	32	33	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	
6387	HVAC	Central AC 18 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6388	HVAC	Central AC 18 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6389	HVAC	Central AC 18 SEER ER	HVAC	MF	ER1	90	94	97	99	101	102	102	102	102	101	101	101	101	101	101	101	101	101	101	101	
6390	HVAC	Central AC 18 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	14	14	15	15	16	16	16	16	16	16	16	16	16	
6391	HVAC	Central AC 18 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6392	HVAC	Central AC 18 SEER ER	HVAC	MF	ER1	301	305	309	308	307	307	306	306	306	305	305	305	305	304	304	304	304	304	304	304	
6393	HVAC	Central AC 19 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6394	HVAC	Central AC 19 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6395	HVAC	Central AC 19 SEER ER	HVAC	MF	ER1	206	211	214	217	216	216	216	215	215	215	215	214	214	214	214	214	214	214	214	214	
6396	HVAC	Central AC 19 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6397	HVAC	Central AC 19 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6398	HVAC	Central AC 19 SEER ER	Single Family Income Eligible	MF	ER1	92	107	121	133	144	153	160	165	169	172	175	174	174	174	174	174	174	174	174	174	
6399	HVAC	Central AC 19 SEER ER	Single Family Income Eligible	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6400	HVAC	Central AC 19 SEER ER	Single Family Income Eligible	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6401	HVAC	Central AC 19 SEER ER	HVAC	MF	ER1	19	20	21	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
6402	HVAC	Central AC 19 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6403	HVAC	Central AC 19 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6404	HVAC	Central AC 19 SEER ER	HVAC	MF	ER1	58	60	62	64	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	
6405	HVAC	Central AC 19 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6406	HVAC	Central AC 19 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6407	HVAC	Central AC 20 SEER ER	HVAC	MF	ER1	259	264	267	266	265	265	264	264	264	264	263	263	263	263	263	263	263	263	263	263	
6408	HVAC	Central AC 20 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6409	HVAC	Central AC 20 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6410	HVAC	Central AC 20 SEER ER	HVAC	MF	ER1	208	212	216	218	218	217	217	217	217	217	216	216	216	216	216	216	216	216	216	216	
6411	HVAC	Central AC 20 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6412	HVAC	Central AC 20 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6413	HVAC	Central AC 20 SEER ER	Single Family Income Eligible	MF	ER1	80	92	104	115	124	132	138	143	146	149	151	151	151	151	150	150	150	150	150	150	
6414	HVAC	Central AC 20 SEER ER	Single Family Income Eligible	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6415	HVAC	Central AC 20 SEER ER	Single Family Income Eligible	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6416	HVAC	Central AC 20 SEER ER	HVAC	MF	ER1	19	20	21	22	22	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
6417	HVAC	Central AC 20 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6418	HVAC	Central AC 20 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6419	HVAC	Central AC 20 SEER ER	HVAC	MF	ER1	58	60	62	64	65	66	66	66	66	65	65	65	65	65	65	65	65	65	65	65	
6420	HVAC	Central AC 20 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6421	HVAC	Central AC 20 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6422	HVAC	Central AC 21 SEER ER	HVAC	MF	ER1	255	259	262	262	261	261	260	260	260	259	259	259	259	259	259	259	259	259	259	259	
6423	HVAC	Central AC 21 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6424	HVAC	Central AC 21 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6425	HVAC	Central AC 21 SEER ER	HVAC	MF	ER1	175	179	182	184	184	183	183	183	183	183	183	182	182	182	182	182	182	182	182	182	
6426	HVAC	Central AC 21 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6427	HVAC	Central AC 21 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6428	HVAC	Central AC 21 SEER ER	Single Family Income Eligible	MF	ER1	78	91	103	113	122	130	136	140	144	146	148	148	148	148	148	148	148	148	148	148	
6429	HVAC	Central AC 21 SEER ER	Single Family Income Eligible	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6430	HVAC	Central AC 21 SEER ER	Single Family Income Eligible	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6431	HVAC	Central AC 21 SEER ER	HVAC	MF	ER1	25	27	28	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
6432	HVAC	Central AC 21 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6433	HVAC	Central AC 21 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6434	HVAC	Central AC 21 SEER ER	HVAC	MF	ER1	60	62	65	66	67	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	
6435	HVAC	Central AC 21 SEER ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6436	HVAC	Central AC 21 SEER ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6437	HVAC	Central AC 15 SEER MO	HVAC	MF	ER1	26	27	27	28	28	28	28	28	28	27	27	27	27	27	27	27	27	27	27	27	
6438	HVAC	Central AC 15 SEER MO	HVAC	MF	ER2	10	12	13	15	15	16	16	16													

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
6513	HVAC	Ductless AC/ROB	HVAC	SF	NC	11	14	17	20	22	27	31	34	35	35	32	32	31	28	29	28	29	29	29	29	29	
6514	HVAC	Ductless AC/ROB	HVAC	MF	MO	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
6515	HVAC	Ductless AC/ROB	HVAC	MF	MO	18	19	19	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
6516	HVAC	Ductless AC/ROB	HVAC	MF	NC	5	6	8	9	10	12	14	15	16	16	14	14	14	13	13	13	13	13	13	13	13	
6517	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER1	27	33	41	49	57	64	71	77	82	85	88	90	92	93	93	93	93	93	93	93	93	
6518	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6519	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6520	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER1	9	11	14	16	19	22	24	26	27	29	30	30	31	31	31	31	31	31	31	31	31	31
6521	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6522	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6523	HVAC	Ductless ASHP - Resistance ER	Single Family Income Eligible	SF	ER1	4	5	7	9	11	15	18	23	27	31	36	39	42	45	47	49	50	51	52	52	52	
6524	HVAC	Ductless ASHP - Resistance ER	Single Family Income Eligible	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6525	HVAC	Ductless ASHP - Resistance ER	Single Family Income Eligible	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6526	HVAC	Ductless ASHP - Resistance ER	Multifamily Market Rate	MF	ER1	134	151	167	180	191	200	206	211	215	218	218	218	217	217	217	217	217	217	217	217	217	
6527	HVAC	Ductless ASHP - Resistance ER	Multifamily Market Rate	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6528	HVAC	Ductless ASHP - Resistance ER	Multifamily Market Rate	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6529	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6530	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6531	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6532	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER1	15	19	24	28	33	37	41	45	47	50	51	53	54	54	54	54	54	54	54	54	54	
6533	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6534	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6535	HVAC	Ductless ASHP - Resistance ER	Multifamily Income Eligible	MF	ER1	112	144	181	222	265	308	349	385	416	442	463	479	491	509	507	507	507	507	507	507	507	
6536	HVAC	Ductless ASHP - Resistance ER	Multifamily Income Eligible	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6537	HVAC	Ductless ASHP - Resistance ER	Multifamily Income Eligible	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6538	HVAC	Ductless ASHP - Resistance MO	HVAC	SF	MO	245	308	377	450	523	592	664	707	751	785	812	833	848	859	859	859	859	859	859	859	859	
6539	HVAC	Ductless ASHP - Resistance MO	HVAC	SF	MO	112	141	173	207	240	272	300	324	345	360	373	382	389	394	394	394	394	394	394	394	394	
6540	HVAC	Ductless ASHP - Resistance MO	HVAC	SF	NC	26	36	43	49	56	66	76	85	86	86	86	86	86	86	86	86	86	86	86	86	86	
6541	HVAC	Ductless ASHP - Resistance MO	Multifamily Market Rate	MF	MO	204	230	254	274	291	304	314	322	328	332	332	331	331	331	331	331	331	331	331	331	331	
6542	HVAC	Ductless ASHP - Resistance MO	HVAC	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6543	HVAC	Ductless ASHP - Resistance MO	HVAC	MF	MO	41	51	63	75	87	99	109	118	125	131	135	139	141	143	143	143	143	143	143	143	143	
6544	HVAC	Ductless ASHP - Resistance MO	HVAC	MF	NC	19	26	31	35	40	47	55	61	63	62	58	57	55	50	51	50	51	50	51	50	51	
6545	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER1	23	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23	
6546	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6547	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6548	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER1	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
6549	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6550	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6551	HVAC	Ductless ASHP - ASHP ER	HVAC	SF	ER1	10	11	12	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
6552	HVAC	Ductless ASHP - ASHP ER	Single Family Income Eligible	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6553	HVAC	Ductless ASHP - ASHP ER	Single Family Income Eligible	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6554	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER1	6	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
6555	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6556	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6557	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
6558	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6559	HVAC	Ductless ASHP - ASHP ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6560	HVAC	Ductless ASHP - ASHP MO	HVAC	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6561	HVAC	Ductless ASHP - ASHP MO	HVAC	SF	MO	33	34	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	
6562	HVAC	Ductless ASHP - ASHP MO	HVAC	SF	MO	20	21	22	22	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
6563	HVAC	Ductless ASHP - ASHP MO	HVAC	SF	NC	2	2	3	3	4	4	5	6	6	6	6	5	5	5	5	5	5	5	5	5	5	
6564	HVAC	Ductless ASHP - ASHP MO	HVAC	MF	MO	11	12	13	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
6565	HVAC	Ductless ASHP - ASHP MO	HVAC	MF	MO	18	19	20	21	22	22	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
6566	HVAC	Ductless ASHP - ASHP MO	HVAC	MF	NC	1	2	2	2	3	3	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	
6567	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6568	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6569	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6570	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER1	20	25	30	36	42	47	52	56	60	63	65	66	68	69	69	69	69	69	69	69	69	
6571	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6572	HVAC	GSHHP 23 EER - Resistance ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6573	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6574	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6575	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6576	HVAC	GSHHP 23 EER - Resistance ER	HVAC	MF	ER1	0	0	0	0	0																	

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
6584	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6585	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6586	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6587	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER1	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	
6588	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6589	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6590	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6591	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6592	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6593	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
6594	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6595	HVAC	GSPH 23 EER - ASHP ER	HVAC	SF	ER3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6596	HVAC	GSPH 23 EER - ASHP MO	HVAC	SF	MO	39	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
6597	HVAC	GSPH 23 EER - ASHP MO	HVAC	SF	MO	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
6598	HVAC	GSPH 23 EER - ASHP MO	HVAC	SF	NC	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6599	HVAC	GSPH 23 EER - ASHP MO	HVAC	SF	MO	7	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
6600	HVAC	GSPH 23 EER - ASHP MO	HVAC	SF	MO	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
6601	HVAC	GSPH 23 EER - ASHP MO	HVAC	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6602	HVAC	Learning Thermostat - ASHP	HVAC	SF	Retrofit	250	215	178	142	110	84	63	47	0	0	250	215	178	142	110	84	63	47	0	0	
6603	HVAC	Learning Thermostat - ASHP	Efficient Products	SF	Retrofit	97	113	126	133	133	126	113	97	80	64	147	151	154	154	133	126	113	97	80	64	
6604	HVAC	Learning Thermostat - ASHP	PAYS	SF	Retrofit	38	57	64	68	75	94	114	133	148	156	194	205	197	183	170	170	173	177	181	181	
6605	HVAC	Learning Thermostat - ASHP	HVAC	SF	Retrofit	97	78	60	46	35	26	0	0	0	0	97	78	60	46	35	26	0	0	0	0	
6606	HVAC	Learning Thermostat - ASHP	Efficient Products	SF	Retrofit	31	33	33	31	28	24	20	16	12	9	38	38	33	31	28	24	20	16	12	9	
6607	HVAC	Learning Thermostat - ASHP	PAYS	SF	Retrofit	8	12	13	14	16	20	24	28	31	33	41	43	41	38	35	35	36	37	38	38	
6608	HVAC	Learning Thermostat - ASHP	Single Family Income Eligible	SF	Retrofit	139	147	147	139	125	108	89	71	55	42	171	170	147	139	125	108	89	71	55	42	
6609	HVAC	Learning Thermostat - ASHP	New Construction	SF	NC	1	2	2	3	3	4	5	6	7	7	13	14	14	14	14	14	14	15	22	16	16
6610	HVAC	Learning Thermostat - ASHP	Efficient Products	SF	NC	1	1	1	1	1	2	3	4	5	6	13	15	16	16	17	18	20	30	23	22	
6611	HVAC	Learning Thermostat - ASHP	HVAC	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612	HVAC	Learning Thermostat - ASHP	Efficient Products	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6613	HVAC	Learning Thermostat - ASHP	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6614	HVAC	Learning Thermostat - ASHP	Multifamily Market Rate	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6615	HVAC	Learning Thermostat - ASHP	HVAC	MF	Retrofit	9	7	6	5	4	3	2	2	0	9	9	7	6	5	4	3	2	2	0	0	
6616	HVAC	Learning Thermostat - ASHP	Efficient Products	MF	Retrofit	4	5	5	6	6	5	4	3	3	3	6	6	7	6	6	5	5	4	3	3	
6617	HVAC	Learning Thermostat - ASHP	PAYS	MF	Retrofit	1	2	2	2	2	3	3	4	4	4	6	6	6	5	5	5	5	5	5	5	
6618	HVAC	Learning Thermostat - ASHP	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6619	HVAC	Learning Thermostat - ASHP	New Construction	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6620	HVAC	Learning Thermostat - ASHP	Efficient Products	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6621	HVAC	Learning Thermostat - Electric Furnace Heating	HVAC	SF	Retrofit	2,898	2,490	2,057	1,643	1,279	975	731	542	0	0	2,898	2,490	2,057	1,643	1,279	975	731	542	0	0	
6622	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	SF	Retrofit	677	787	875	923	923	875	787	677	559	446	1,024	1,052	1,073	1,070	923	875	787	677	559	446	
6623	HVAC	Learning Thermostat - Electric Furnace Heating	PAYS	SF	Retrofit	355	532	592	634	698	874	1,058	1,231	1,367	1,443	1,798	1,900	1,822	1,692	1,571	1,571	1,601	1,645	1,678	1,674	
6624	HVAC	Learning Thermostat - Electric Furnace Heating	HVAC	SF	Retrofit	1,216	972	756	576	432	321	0	0	0	0	1,216	972	756	576	432	321	0	0	0	0	
6625	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	SF	Retrofit	391	412	412	391	352	302	250	199	155	118	479	478	412	391	352	302	250	199	155	118	
6626	HVAC	Learning Thermostat - Electric Furnace Heating	PAYS	SF	Retrofit	82	122	136	146	160	201	243	283	314	331	413	406	418	388	361	361	368	378	385	384	
6627	HVAC	Learning Thermostat - Electric Furnace Heating	Single Family Income Eligible	SF	Retrofit	1,742	1,839	1,839	1,742	1,568	1,348	1,113	889	692	527	2,138	2,133	1,839	1,742	1,568	1,348	1,113	889	692	527	
6628	HVAC	Learning Thermostat - Electric Furnace Heating	New Construction	SF	NC	12	17	22	26	32	40	48	57	61	62	124	133	133	126	129	132	137	203	153	148	
6629	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	SF	NC	5	8	10	13	17	23	32	41	49	55	121	141	150	151	160	169	182	277	212	208	
6630	HVAC	Learning Thermostat - Electric Furnace Heating	HVAC	MF	Retrofit	123	111	95	79	63	49	37	28	21	0	123	111	95	79	63	49	37	28	21	0	
6631	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	MF	Retrofit	55	64	71	75	75	71	64	55	45	36	83	85	87	87	87	75	71	64	55	45	
6632	HVAC	Learning Thermostat - Electric Furnace Heating	PAYS	MF	Retrofit	14	21	24	25	28	35	42	49	55	58	72	76	73	68	63	63	64	66	67	67	
6633	HVAC	Learning Thermostat - Electric Furnace Heating	Multifamily Market Rate	MF	Retrofit	886	650	496	372	276	0	0	0	0	0	836	650	496	372	276	0	0	0	0	0	
6634	HVAC	Learning Thermostat - Electric Furnace Heating	HVAC	MF	Retrofit	152	136	117	97	77	60	46	34	26	0	152	136	117	97	77	60	46	34	26	0	
6635	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	MF	Retrofit	65	76	85	89	89	85	76	65	54	43	99	102	104	104	89	85	76	65	54	43	
6636	HVAC	Learning Thermostat - Electric Furnace Heating	PAYS	MF	Retrofit	16	23	26	28	31	38	47	54	60	64	79	84	80	75	69	69	71	72	74	74	
6637	HVAC	Learning Thermostat - Electric Furnace Heating	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6638	HVAC	Learning Thermostat - Electric Furnace Heating	New Construction	MF	NC	1	1	1	1	2	2	3	3	3	3	7	7	7	7	7	7	7	11	8	8	
6639	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	MF	NC	0	0	1	1	1	1	2	2	2	2	3	6	7	8	8	8	9	9	14	11	
6640	HVAC	Learning Thermostat - Gas Heated	HVAC	SF	Retrofit	1,338	1,150	950	759	590	450	338	250	0	0	1,338	1,150	950	759	590	450	338	250	0	0	
6641	HVAC	Learning Thermostat - Gas Heated	Efficient Products	SF	Retrofit	312	364	404	426	426	404	364	312	258	206	473	486	496	494	426	404	364	312	258	206	
6642	HVAC	Learning Thermostat - Gas Heated	PAYS	SF	Retrofit	109	164	182	195	215	269	326	379	421	444	554	585	561	521	484	484	493	506	517	515	

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
6709	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6710	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6711	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6712	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6713	HVAC	Smart Vents/Sensors - HP	HVAC	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6714	HVAC	Smart Vents/Sensors - HP	HVAC	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6715	HVAC	Smart Vents/Sensors - HP	HVAC	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6716	HVAC	Smart Vents/Sensors - HP	HVAC	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6717	HVAC	Smart Vents/Sensors - HP	HVAC	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6718	HVAC	Smart Vents/Sensors - HP	HVAC	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6719	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6720	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6721	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6722	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6723	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6724	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6725	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6726	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6727	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6728	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7001	Lighting	LED - 6W (CFL baseline) (1050-1489 lumens)	PAYS	SF	MO	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245
7002	Lighting	LED - 6W (CFL baseline) (1050-1489 lumens)	Single Family Income Eligible	SF	MO	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
7003	Lighting	LED - 6W (CFL baseline) (1050-1489 lumens)	Multifamily Market Rate	MF	MO	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
7004	Lighting	LED - 6W (CFL baseline) (1050-1489 lumens)	Multifamily Income Eligible	MF	MO	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
7005	Lighting	LED - 10W (CFL baseline) (1500-1049 lumens)	PAYS	SF	MO	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
7006	Lighting	LED - 10W (CFL baseline) (1500-1049 lumens)	Single Family Income Eligible	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7007	Lighting	LED - 10W (CFL baseline) (1500-1049 lumens)	Multifamily Market Rate	MF	MO	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
7008	Lighting	LED - 10W (CFL baseline) (1500-1049 lumens)	Multifamily Income Eligible	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7009	Lighting	LED - 15W (CFL baseline) (1050-1489 lumens)	PAYS	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7010	Lighting	LED - 15W (CFL baseline) (1050-1489 lumens)	Single Family Income Eligible	SF	MO	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
7011	Lighting	LED - 15W (CFL baseline) (1050-1489 lumens)	Multifamily Market Rate	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7012	Lighting	LED - 15W (CFL baseline) (1050-1489 lumens)	Multifamily Income Eligible	MF	MO	23	23	24	24	24	24	24	24	24	24	1	0	0	0	0	0	0	0	0	0	0
7013	Lighting	LED - 20W (CFL baseline) (1490-2600 lumens)	PAYS	SF	MO	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145
7014	Lighting	LED - 20W (CFL baseline) (1490-2600 lumens)	Single Family Income Eligible	SF	MO	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
7015	Lighting	LED - 20W (CFL baseline) (1490-2600 lumens)	Multifamily Market Rate	MF	MO	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0	0	0
7016	Lighting	LED - 20W (CFL baseline) (1490-2600 lumens)	Multifamily Income Eligible	MF	MO	13	14	14	14	14	14	14	14	14	14	14	0	0	0	0	0	0	0	0	0	0
7017	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	PAYS	SF	MO	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
7018	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	Single Family Income Eligible	SF	MO	42	42	42	42	42	42	42	42	42	42	0	0	0	0	0	0	0	0	0	0	0
7019	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	Multifamily Market Rate	MF	MO	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	0	0	0
7020	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	Multifamily Income Eligible	MF	MO	9	10	10	10	10	10	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0
7021	Lighting	LED - 11W Flood Light BR30 Bulb (CFL baseline)	PAYS	SF	MO	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
7022	Lighting	LED - 11W Flood Light BR30 Bulb (CFL baseline)	Single Family Income Eligible	SF	MO	26	26	26	26	26	26	26	26	26	26	26	0	0	0	0	0	0	0	0	0	0
7023	Lighting	LED - 11W Flood Light BR30 Bulb (CFL baseline)	Multifamily Market Rate	MF	MO	7	7	7	7	7	7	7	7	7	7	0	0	0	0	0	0	0	0	0	0	0
7024	Lighting	LED - 11W Flood Light BR30 Bulb (CFL baseline)	Multifamily Income Eligible	MF	MO	6	6	6	6	6	6	6	6	6	6	0	0	0	0	0	0	0	0	0	0	0
7025	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	PAYS	SF	MO	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
7026	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	Single Family Income Eligible	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7027	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	Multifamily Market Rate	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7028	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	Multifamily Income Eligible	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7029	Lighting	LED - 18W Flood Light PAR38 Bulb (CFL baseline)	PAYS	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7030	Lighting	LED - 18W Flood Light PAR38 Bulb (CFL baseline)	Single Family Income Eligible	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7031	Lighting	LED - 18W Flood Light PAR38 Bulb (CFL baseline)	Multifamily Market Rate	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
9001	Water Heating	Kitchen Faucet Aerator	Energy Efficiency Kits	SF	Retrofit	21	17	14	11	8	6	4	0	0	0	21	17	14	11	8	6	4	0	0	0
9002	Water Heating	Kitchen Faucet Aerator	PAYS	SF	Retrofit	2	3	3	3	4	5	6	0	0	0	7	9	10	9	8	8	8	8	8	9
9003	Water Heating	Kitchen Faucet Aerator	Single Family Income Eligible	SF	Retrofit	67	75	79	79	75	67	58	48	38	30	90	92	91	79	75	67	58	48	38	30
9004	Water Heating	Kitchen Faucet Aerator	PAYS	SF	Retrofit	1	1	1	1	2	2	2	3	3	3	4	4	4	4	4	4	4	4	4	4
9005	Water Heating	Kitchen Faucet Aerator	Multifamily Market Rate	MF	Retrofit	46	35	26	0	0	0	0	0	0	0	46	35	26	0	0	0	0	0	0	0
9006	Water Heating	Kitchen Faucet Aerator	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9007	Water Heating	Kitchen Faucet Aerator	Multifamily Income Eligible	MF	Retrofit	87	78	67	55	44	34	26	20	15	0	87	78	67	55	44	34	26	20	15	0
9008	Water Heating	Kitchen Faucet Aerator	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
9009	Water Heating	Bathroom Faucet Aerator	Energy Efficiency Kits	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9010	Water Heating	Bathroom Faucet Aerator	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9011	Water Heating	Bathroom Faucet Aerator	Single Family Income Eligible	SF	Retrofit	61	65	65	61	55	47	39	31	24	19	75	75	65	61	55	47	39	31	24	19
9012	Water Heating	Bathroom Faucet Aerator	PAYS	SF	Retrofit	4	6	7	7	8	10	12	14	16	17	21	22	21	20	18	18	19	19	19	19
9013	Water Heating	Bathroom Faucet Aerator	Multifamily Market Rate	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9014	Water Heating	Bathroom Faucet Aerator	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9015	Water Heating	Bathroom Faucet Aerator	Multifamily Income Eligible	MF	Retrofit	31	28	24	20	16	12	9	7	5	0	31	28	24	20	16	12	9	7	5	0
9016	Water Heating	Bathroom Faucet Aerator	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
9017	Water Heating	Low Flow Showerhead	Energy Efficiency Kits	SF	Retrofit	209	221	221	209	188	162	134	107	83	63	257	256	221	209	188	162	134	107	83	63
9018	Water Heating	Low Flow Showerhead	PAYS	SF	Retrofit	38	57	64	68	75	94	114	132	147	155	193	204	196	182	169	169	172	177	180	180
9019	Water Heating	Low Flow Showerhead	Single Family Income Eligible	SF	Retrofit	221	246	259	259	246	221	190	157	125	86	296	302	301	259	246	221	190	157	125	86
9020	Water Heating	Low Flow Showerhead	PAYS	SF	Retrofit	22	33	36	39	43	53	65	75	84	88	110	116	111	103	96	96	98	101	103	102
9021	Water Heating	Low Flow Showerhead	Multifamily Market Rate	MF	Retrofit	235	0	0	0	0	0	0	0	0	0	235	0	0	0	0	0	0	0	0	0
9022	Water Heating	Low Flow Showerhead	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9023	Water Heating	Low Flow Showerhead	Multifamily Income Eligible	MF	Retrofit	169	152	131	108	86	67	51	38	28	0	169	152	131	108	86	67	51	38	28	0
9024	Water Heating	Low Flow Showerhead	PAYS	MF	Retrofit	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	2	2	3	3	3
9025	Water Heating	Shower Start 1.5 gpm electric water heater	Energy Efficiency Kits	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9026	Water Heating	Shower Start 1.5 gpm electric water heater	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9027	Water Heating	Shower Start 1.5 gpm electric water heater	Energy Efficiency Kits	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9028	Water Heating	Shower Start 1.5 gpm electric water heater	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9029	Water Heating	Pipe Insulation	PAYS	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9030	Water Heating	Pipe Insulation	Single Family Income Eligible	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9031	Water Heating	Pipe Insulation	PAYS	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9032	Water Heating	Pipe Insulation	Multifamily Income Eligible	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9033	Water Heating	Water Heater Wrap	Energy Efficiency Kits	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9034	Water Heating	Water Heater Wrap	Single Family Income Eligible	SF	Retrofit	30	36	42	47	50	50	47	42	36	30	24	19	44	47	50	47	50	47	50	47
9035	Water Heating	Water Heater Wrap	Energy Efficiency Kits	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9036	Water Heating	Water Heater Wrap	Multifamily Income Eligible	MF	Retrofit	40	49	56	63	66	66	63	56	49	40	32	25	59	63	67	63	66	66	63	56
9037	Water Heating	Heat Pump Hot Water Heater	Efficient Products	SF	MO	379	517	700	940	1,247	1,631	2,093	2,630	3,223	3,846	4,466	5,052	5,578	6,029	6,401	6,699	6,932	7,108	7,242	7,342
9038	Water Heating	Heat Pump Hot Water Heater	Energy Efficiency Kits	SF	MO	135	184	249	334	443	580	744	935	1,146	1,367	1,588	1,796	1,983	2,143	2,276	2,381	2,464	2,527	2,575	2,610
9039	Water Heating	Heat Pump Hot Water Heater	Single Family Income Eligible	SF	MO	214	290	389	516	675	867	1,089	1,334	1,592	1,849	2,093	2,307	2,483	2,646	2,768	2,853	2,936	2,991	3,032	3,032
9040	Water Heating	Heat Pump Hot Water Heater	Efficient Products	SF	NC	17	25	34	43	56	77	103	133	159	179	188	205	214	214	483	538	550	561	561	561
9041	Water Heating	Heat Pump Hot Water Heater	Energy Efficiency Kits	MF	MO	38	52	70	94	125	164	210	264	324	386	448	507	560	605	643	673	696	714	727	737
9042	Water Heating	Heat Pump Hot Water Heater	Efficient Products	MF	MO	17	23	31	42	56	73	94	118	144	172	200	226	250	270	287	300	310	318	324	329
9043	Water Heating	Heat Pump Hot Water Heater	Multifamily Income Eligible	MF	MO	629	808	1,055	1,245	1,486	1,726	1,951	2,153	2,324	2,463	2,573	2,657	2,721	2,768	2,803	2,831	2,850	2,799	2,799	2,799
9044	Water Heating	Heat Pump Hot Water Heater	Efficient Products	MF	NC	3	4	6	7	9	13	17	22	27	30	32	34	36	41	50	52	54	54	111	115
9045	Water Heating	Tankless Water Heater	Efficient Products	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9046	Water Heating	Tankless Water Heater	Efficient Products	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9047	Water Heating	Tankless Water Heater	Efficient Products	SF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9048	Water Heating	Tankless Water Heater	Efficient Products	MF	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9049	Water Heating	Tankless Water Heater	Efficient Products	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9050	Water Heating	Tankless Water Heater	Efficient Products	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9051	Water Heating	Gravimetric Heat Exchanger	Efficient Products	SF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9052	Water Heating	Gravimetric Heat Exchanger	Efficient Products	SF	Retrofit	63	95	105	113	124	155	188	219	243	257	257	243	219	188	155	124	97	74	55	41
9053	Water Heating	Gravimetric Heat Exchanger	Efficient Products	SF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9054	Water Heating	Gravimetric Heat Exchanger	Efficient Products	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9055	Water Heating	Gravimetric Heat Exchanger	Efficient Products	MF	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9056	Water Heating	Gravimetric Heat Exchanger	Efficient Products	MF	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9057	Water Heating	Water Heater Timer/Setback	Energy Efficiency Kits	SF	Retrofit	126	189	336	414	584	724	959	1,												

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (Total Utility \$)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
3130	Building Shell	Floor Insulation (R4 base) - gas heat and electric cool base	Single Family Income Eligible	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3131	Building Shell	Floor Insulation (R4 base) - gas heat and electric cool base	PAVS	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3132	Building Shell	Floor Insulation (R4 base) - gas heat and electric cool base	Multifamily Income Eligible	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3133	Building Shell	Floor Insulation (R3 base) - electric furnace base	PAVS	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3134	Building Shell	Floor Insulation (R3 base) - electric furnace base	Single Family Income Eligible	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3135	Building Shell	Floor Insulation (R3 base) - electric furnace base	PAVS	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3136	Building Shell	Floor Insulation (R3 base) - electric furnace base	Multifamily Income Eligible	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3137	Building Shell	Floor Insulation (R3 base) - heat pump base	PAVS	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3138	Building Shell	Floor Insulation (R3 base) - heat pump base	Single Family Income Eligible	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3139	Building Shell	Floor Insulation (R3 base) - heat pump base	PAVS	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3140	Building Shell	Floor Insulation (R3 base) - heat pump base	Multifamily Income Eligible	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3141	Building Shell	Floor Insulation (R3 base) - gas heat and electric cool base	PAVS	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3142	Building Shell	Floor Insulation (R3 base) - gas heat and electric cool base	Single Family Income Eligible	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3143	Building Shell	Floor Insulation (R3 base) - gas heat and electric cool base	PAVS	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3144	Building Shell	Floor Insulation (R3 base) - gas heat and electric cool base	Multifamily Income Eligible	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3145	Building Shell	Window Insulation	PAVS	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3146	Building Shell	Window Insulation	Single Family Income Eligible	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3147	Building Shell	Window Insulation	PAVS	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3148	Building Shell	Window Insulation	Multifamily Income Eligible	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3149	Building Shell	Basement Wall Insulation - electric furnace base	PAVS	SF	Retire	\$165,814	\$250,031	\$280,842	\$303,052	\$386,354	\$424,366	\$518,057	\$607,772	\$680,867	\$724,718	\$730,983	\$806,447	\$834,152	\$949,809	\$408,097	\$169,315	\$289,986	\$323,061	\$1,089,909	\$1,267,007		
3150	Building Shell	Basement Wall Insulation - electric furnace base	Single Family Income Eligible	SF	Retire	\$699,490	\$771,118	\$830,667	\$919,243	\$1,408,141	\$1,847,662	\$1,840,900	\$1,953,996	\$1,964,763	#####	\$1,695,094	\$1,695,094	\$1,465,674	\$1,117,540	\$598,759	\$766,308	\$887,748	\$443,771	\$331,137	\$0	\$0	
3151	Building Shell	Basement Wall Insulation - electric furnace base	PAVS	MF	Retire	\$261,179	\$39,621	\$44,422	\$48,031	\$53,378	\$67,432	\$96,827	\$108,614	\$115,761	\$116,901	\$111,857	\$111,857	\$101,693	\$88,284	\$79,654	\$59,458	\$46,748	\$36,006	\$27,301	\$20,458	\$0	
3152	Building Shell	Basement Wall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retire	\$119,017	\$195,116	\$170,037	\$190,251	\$202,253	\$203,724	\$194,434	\$176,314	\$155,671	\$127,044	\$102,892	\$80,217	\$61,625	\$46,605	\$34,833	\$26,194	\$50,693	\$39,604	\$30,310	\$22,835	\$17,002	
3153	Building Shell	Basement Wall Insulation - heat pump base	PAVS	SF	Retire	\$24,437	\$36,772	\$40,990	\$44,063	\$48,860	\$61,135	\$74,284	\$86,740	\$96,712	\$102,449	\$102,827	\$97,785	\$88,350	\$76,223	\$63,194	\$50,693	\$39,604	\$30,310	\$22,835	\$17,002	\$0	
3154	Building Shell	Basement Wall Insulation - heat pump base	Single Family Income Eligible	SF	Retire	\$84,583	\$94,158	\$101,076	\$111,514	\$130,847	\$169,683	\$220,267	\$232,987	\$233,467	\$233,467	\$233,467	\$233,467	\$233,467	\$172,275	\$142,600	\$114,205	\$89,077	\$68,060	\$51,489	\$38,047	\$0	
3155	Building Shell	Basement Wall Insulation - heat pump base	PAVS	MF	Retire	\$13,170	\$4,772	\$5,321	\$5,722	\$6,325	\$7,846	\$9,658	\$11,282	\$12,584	\$13,336	\$13,391	\$12,739	\$11,185	\$9,939	\$8,243	\$6,615	\$5,171	\$3,959	\$2,984	\$2,223	\$0	
3156	Building Shell	Basement Wall Insulation - heat pump base	Multifamily Income Eligible	MF	Retire	\$8,367	\$10,157	\$11,848	\$13,197	\$13,965	\$14,002	\$13,301	\$12,005	\$10,346	\$8,568	\$6,865	\$5,357	\$4,095	\$3,082	\$2,292	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3157	Building Shell	Basement Wall Insulation - gas heat and electric cool base	PAVS	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3158	Building Shell	Basement Wall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3159	Building Shell	Basement Wall Insulation - gas heat and electric cool base	PAVS	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3160	Building Shell	Basement Wall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3161	Building Shell	Foundation Sidewall Insulation - electric furnace base	PAVS	SF	Retire	\$6,952	\$10,547	\$11,983	\$12,847	\$14,311	\$18,122	\$22,204	\$26,145	\$29,398	\$31,406	\$31,790	\$30,490	\$27,785	\$24,178	\$20,218	\$16,360	\$12,892	\$9,953	\$7,564	\$5,681	\$0	
3162	Building Shell	Foundation Sidewall Insulation - electric furnace base	Single Family Income Eligible	SF	Retire	\$47,325	\$53,025	\$57,296	\$63,632	\$80,333	\$98,130	\$115,197	\$129,134	\$137,538	\$138,800	\$132,722	\$120,582	\$104,611	\$87,218	\$70,360	\$55,282	\$42,551	\$32,242	\$24,145	\$0	\$0	
3163	Building Shell	Foundation Sidewall Insulation - electric furnace base	PAVS	MF	Retire	\$2,415	\$3,667	\$4,126	\$4,477	\$4,993	\$6,330	\$7,764	\$9,153	\$10,302	\$11,018	\$11,165	\$10,720	\$9,780	\$8,519	\$7,132	\$5,777	\$4,557	\$3,522	\$2,679	\$2,014	\$0	
3164	Building Shell	Foundation Sidewall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retire	\$3,007	\$3,679	\$4,326	\$4,857	\$5,482	\$5,528	\$5,017	\$4,505	\$3,967	\$3,313	\$2,677	\$2,107	\$1,624	\$1,233	\$925	\$0	\$0	\$0	\$0	\$0	\$0	
3165	Building Shell	Foundation Sidewall Insulation - heat pump base	PAVS	SF	Retire	\$838	\$1,264	\$1,413	\$1,522	\$1,686	\$2,123	\$2,586	\$3,027	\$3,384	\$3,617	\$3,449	\$3,124	\$2,703	\$2,247	\$1,808	\$1,416	\$1,087	\$821	\$613	\$0	\$0	
3166	Building Shell	Foundation Sidewall Insulation - heat pump base	Single Family Income Eligible	SF	Retire	\$4,991	\$5,565	\$5,983	\$6,612	\$8,307	\$10,096	\$11,793	\$13,153	\$13,937	\$13,993	\$13,311	\$12,031	\$10,383	\$8,611	\$6,910	\$5,400	\$4,134	\$3,116	\$2,321	\$0	\$0	
3167	Building Shell	Foundation Sidewall Insulation - heat pump base	PAVS	MF	Retire	\$238	\$360	\$402	\$434	\$481	\$606	\$739	\$865	\$968	\$1,029	\$1,036	\$989	\$887	\$776	\$646	\$520	\$408	\$313	\$237	\$177	\$0	
3168	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retire	\$174	\$212	\$248	\$277	\$299	\$295	\$281	\$254	\$219	\$182	\$146	\$114	\$88	\$66	\$49	\$0	\$0	\$0	\$0	\$0	\$0	
3169	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	PAVS	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3170	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3171	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	PAVS	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3172	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3173	Building Shell	Insulated Cellular Shades - electric furnace base	PAVS	SF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3174	Building Shell	Insulated Cellular Shades - electric furnace base	Single Family Income Eligible	SF	Retire	\$574,714	\$501,866	\$421,149	\$341,949	\$270,424	\$209,464	\$159,276	\$120,368	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3175	Building Shell	Insulated Cellular Shades - electric furnace base	PAVS	MF	Retire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (Total Utility \$)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
6158	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	PAVS	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6159	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	PAVS	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6160	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	Single Family Income Eligible	SF	ER1	\$7,280	\$9,964	\$13,516	\$18,123	\$23,945	\$31,069	\$39,454	\$48,889	\$58,992	\$69,269	\$79,204	\$88,372	\$96,500	\$103,482	\$109,349	\$114,217	\$118,247	\$121,600	\$124,429	\$125,606	
6161	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	Single Family Income Eligible	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6162	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	Single Family Income Eligible	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6163	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	Multifamily Market Rate	MF	ER1	\$246,712	\$282,931	\$316,611	\$346,749	\$372,932	\$395,232	\$414,043	\$430,907	\$443,395	\$455,035	\$460,882	\$466,441	\$472,315	\$478,307	\$484,418	\$490,652	\$497,010	\$503,496	\$510,111	\$516,859	
6164	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	Multifamily Market Rate	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6165	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	Multifamily Market Rate	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6166	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	HVAC	MF	ER1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6167	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	HVAC	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6168	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	HVAC	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6169	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	PAVS	MF	ER1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6170	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	PAVS	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6171	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	PAVS	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6172	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	HVAC	MF	ER1	\$18,108	\$23,054	\$28,648	\$34,688	\$40,824	\$46,813	\$52,382	\$57,303	\$61,689	\$65,373	\$68,479	\$71,097	\$73,322	\$75,241	\$76,169	\$77,115	\$78,080	\$79,064	\$80,068	\$81,099	
6173	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	HVAC	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6174	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	HVAC	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6175	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	PAVS	MF	ER1	\$4,085	\$5,688	\$7,867	\$10,783	\$14,608	\$19,500	\$25,561	\$32,789	\$41,040	\$50,019	\$59,317	\$68,497	\$77,176	\$85,096	\$92,136	\$98,295	\$103,651	\$108,322	\$112,439	\$116,126	
6176	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	PAVS	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6177	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	PAVS	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6178	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	Multifamily Income Eligible	MF	ER1	\$16,104	\$20,265	\$26,615	\$33,027	\$39,516	\$46,041	\$52,377	\$58,455	\$64,231	\$69,657	\$74,685	\$79,269	\$83,372	\$86,950	\$90,057	\$92,650	\$94,682	\$96,199	\$97,246	\$97,869	
6179	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	Multifamily Income Eligible	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6180	HVAC	ASHP 16 SEER- elec reqs furnace baseline ER	Multifamily Income Eligible	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6181	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	SF	ER1	\$90,850	\$115,824	\$144,809	\$174,555	\$205,772	\$236,216	\$264,597	\$290,071	\$312,280	\$331,278	\$347,083	\$361,042	\$373,728	\$382,880	\$388,000	\$393,233	\$398,550	\$403,983	\$409,525	\$415,178	
6182	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6183	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6184	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	SF	ER1	\$39,893	\$50,859	\$63,770	\$79,648	\$103,724	\$130,356	\$161,386	\$197,372	\$241,124	\$293,466	\$353,938	\$422,156	\$498,867	\$585,667	\$683,215	\$792,386	\$913,956	\$1,049,496	\$1,201,825	\$1,372,207	
6185	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6186	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6187	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	Multifamily Market Rate	MF	ER1	\$279,480	\$320,317	\$358,233	\$392,099	\$422,454	\$446,391	\$467,861	\$484,981	\$499,904	\$512,727	\$518,787	\$524,968	\$531,273	\$537,703	\$544,262	\$550,953	\$557,777	\$564,738	\$571,838	\$579,080	
6188	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	Multifamily Market Rate	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6189	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	Multifamily Market Rate	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6190	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	MF	ER1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6191	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6192	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6193	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	MF	ER1	\$24,317	\$30,940	\$38,415	\$46,445	\$54,644	\$62,606	\$69,991	\$76,580	\$82,288	\$87,120	\$91,180	\$94,584	\$97,469	\$99,924	\$101,069	\$102,236	\$103,428	\$104,643	\$105,882	\$107,146	
6194	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6195	HVAC	ASHP 17 SEER- elec reqs furnace baseline ER	HVAC	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6196	HVAC	ASHP 18 SEER- elec reqs furnace baseline ER	HVAC	SF	ER1	\$93,201	\$117,523	\$146,173	\$177,043	\$205,661	\$230,484	\$250,985	\$266,985	\$278,985	\$285,591	\$289,836	\$292,739	\$295,361	\$297,739	\$299,911	\$301,884	\$303,697	\$305,372	\$306,937	\$308,413	\$309,817
6197	HVAC	ASHP 18 SEER- elec reqs furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6198	HVAC	ASHP 18 SEER- elec reqs furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6199	HVAC	ASHP 18 SEER- elec reqs furnace baseline ER	HVAC	SF	ER1	\$40,483	\$51,601	\$64,180	\$77,735	\$91,618	\$105,151	\$117,761	\$129,072	\$138,927	\$147,349	\$154,482	\$160,524	\$165,688	\$170,167	\$172,410	\$174,697	\$177,030	\$179,409	\$181,836	\$184,312	
6200	HVAC	ASHP 18 SEER- elec reqs furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6201	HVAC	ASHP 18 SEER- elec reqs furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6202	HVAC	ASHP 18 SEER- elec reqs furnace baseline ER	Multifamily Market Rate	MF	ER1	\$215,770	\$246,644	\$275,110	\$300,320	\$321,950	\$340,097	\$355,130	\$367,544	\$377,851	\$386,520	\$390,085	\$393,661	\$397,340	\$401,092	\$404,919	\$408,822	\$412,804	\$416,865	\$421,008	\$425,233	

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (Total Utility \$)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
6203	HVAC	ASHP 18 SEER- elec reals furnace baseline ER	Multifamily Market Rate	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6204	HVAC	ASHP 18 SEER- elec reals furnace baseline ER	Multifamily Market Rate	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$139,567
6205	HVAC	ASHP 18 SEER- elec reals furnace baseline ER	HVAC	MF	ER1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6206	HVAC	ASHP 18 SEER- elec reals furnace baseline ER	HVAC	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6207	HVAC	ASHP 18 SEER- elec reals furnace baseline ER	HVAC	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6208	HVAC	ASHP 18 SEER- elec reals furnace baseline ER	HVAC	MF	ER1	\$30,487	\$25,986	\$32,163	\$38,766	\$45,466	\$51,928	\$57,872	\$63,121	\$67,609	\$71,339	\$74,448	\$76,984	\$79,074	\$80,818	\$81,486	\$82,167	\$82,863	\$83,571	\$84,295	\$85,032	\$85,781
6209	HVAC	ASHP 18 SEER- elec reals furnace baseline ER	HVAC	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6210	HVAC	ASHP 18 SEER- elec reals furnace baseline ER	HVAC	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6211	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	HVAC	SF	ER1	\$102,589	\$110,848	\$162,849	\$197,366	\$232,762	\$267,313	\$299,558	\$328,536	\$353,838	\$375,520	\$393,939	\$409,597	\$423,027	\$434,925	\$440,715	\$446,826	\$453,059	\$459,416	\$465,900	\$472,515	\$479,261
6212	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6213	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$116,303
6214	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	HVAC	SF	ER1	\$43,054	\$54,936	\$68,359	\$83,848	\$97,707	\$112,210	\$125,745	\$137,909	\$148,530	\$157,632	\$165,364	\$171,936	\$177,574	\$182,484	\$184,989	\$187,564	\$190,180	\$192,849	\$195,571	\$198,347	\$201,177
6215	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6216	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$48,820
6217	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	HVAC	MF	ER1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6218	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	HVAC	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6219	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	HVAC	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6220	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	Multifamily Income Eligible	MF	ER1	\$21,271	\$26,384	\$39,647	\$43,188	\$52,629	\$61,370	\$70,165	\$78,535	\$85,470	\$91,036	\$97,810	\$100,739	\$104,624	\$107,571	\$110,562	\$114,228	\$117,933	\$121,228	\$124,873	\$128,818	
6221	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	Multifamily Income Eligible	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6222	HVAC	ASHP 19 SEER- elec reals furnace baseline ER	Multifamily Income Eligible	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6223	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	HVAC	SF	ER1	\$89,496	\$113,350	\$141,574	\$171,286	\$201,658	\$231,195	\$258,642	\$283,181	\$304,476	\$322,591	\$337,849	\$350,694	\$361,595	\$370,983	\$378,822	\$386,070	\$392,790	\$398,952	\$404,615	\$409,839	\$414,674
6224	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6225	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6226	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	HVAC	SF	ER1	\$40,339	\$51,362	\$63,813	\$77,205	\$90,895	\$104,209	\$116,580	\$127,691	\$137,239	\$145,404	\$152,381	\$159,071	\$164,296	\$168,985	\$173,132	\$176,749	\$180,800	\$184,344	\$187,421	\$190,088	\$192,428
6227	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6228	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6229	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	HVAC	MF	ER1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6230	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	HVAC	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6231	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	HVAC	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6232	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	Multifamily Income Eligible	MF	ER1	\$212,841	\$276,132	\$350,608	\$434,393	\$524,100	\$615,317	\$703,484	\$784,814	\$856,886	\$916,764	\$970,724	\$1,013,815	\$1,049,443	\$1,079,067	\$1,104,022	\$1,124,828	\$1,143,544	\$1,160,000	\$1,174,288	\$1,186,464	\$1,196,584
6233	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	Multifamily Income Eligible	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6234	HVAC	ASHP 20 SEER- elec reals furnace baseline ER	Multifamily Income Eligible	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6235	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	HVAC	SF	ER1	\$94,932	\$120,940	\$150,344	\$182,000	\$214,393	\$245,935	\$275,287	\$301,574	\$324,433	\$343,927	\$360,384	\$374,303	\$386,149	\$396,382	\$401,417	\$406,543	\$411,770	\$417,103	\$422,542	\$428,090	\$433,744
6236	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6237	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6238	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	HVAC	SF	ER1	\$41,315	\$52,694	\$65,430	\$79,207	\$93,305	\$107,032	\$119,806	\$131,246	\$141,195	\$149,678	\$156,845	\$162,898	\$168,054	\$172,512	\$176,698	\$180,629	\$184,414	\$188,061	\$191,600	\$195,064	\$198,484
6239	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	HVAC	SF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6240	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	HVAC	SF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6241	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	HVAC	MF	ER1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6242	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	HVAC	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6243	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	HVAC	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6244	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	Multifamily Income Eligible	MF	ER1	\$213,357	\$276,809	\$351,478	\$435,483	\$525,430	\$616,897	\$705,312	\$786,976	\$859,162	\$921,232	\$973,380	\$1,016,599	\$1,052,356	\$1,082,094	\$1,107,152	\$1,128,084	\$1,144,886	\$1,160,416	\$1,174,724	\$1,187,764	\$1,199,584
6245	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	Multifamily Income Eligible	MF	ER2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6246	HVAC	ASHP 21 SEER- elec reals furnace baseline ER	Multifamily Income Eligible	MF	ER3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6247	HVAC	ASHP 15 SEER- elec reals furnace baseline ER	HVAC	SF	MO	\$13,570	\$167,722	\$208,632	\$252,720	\$297,888	\$341,928	\$382,975	\$419,806	\$451,907	\$479,355	\$502,612	\$522,328	\$539,186	\$553,821	\$568,345	\$581,764	\$594,132	\$605,498	\$615,864	\$625,281	\$633,799

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End-Use	Measure Name	Program	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
2002	Behavior	Home Energy Report	No program	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2003	Behavior	Home Energy Report	No program	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2004	Behavior	Home Energy Report	No program	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2005	Behavior	Home Energy Report	No program	MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2006	Behavior	Home Energy Report	No program	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2007	Behavior	Home Energy Management System	Efficient Products	Retrofit	1,347	2,021	2,246	2,406	2,649	4,476	5,755	6,605	7,263	7,759	9,493	10,827	10,628	10,314	11,381	11,727	11,549	11,176	10,277		
2008	Behavior	Home Energy Management System	Efficient Products	Retrofit	738	1,107	1,231	1,338	1,452	2,463	3,154	3,620	3,975	4,252	5,202	5,982	5,824	5,784	5,652	6,237	6,426	6,329	6,124	5,978	
2009	Behavior	Home Energy Management System	Efficient Products	NC	12	17	23	29	38	103	140	178	211	243	416	485	531	543	564	786	838	1,045	877	874	
2010	Behavior	Home Energy Management System	Efficient Products	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2011	Behavior	Home Energy Management System	Efficient Products	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2012	Behavior	Home Energy Management System	Efficient Products	MO	1,714	2,344	3,183	4,284	5,699	7,470	9,615	12,111	14,883	17,810	20,736	23,509	26,005	28,450	29,921	31,386	32,437	33,276	33,906	34,273	
2013	Behavior	AMI Data Portal	No program	SF	939	1,284	1,744	2,348	3,123	4,094	5,269	6,687	8,156	9,760	11,363	12,883	14,250	15,426	16,396	17,172	17,775	18,435	18,580	18,886	
2014	Behavior	AMI Data Portal	No program	NC	6	17	35	62	103	162	244	355	494	654	828	1,012	1,196	1,369	1,491	1,691	1,837	2,074	2,229	2,377	
2015	Behavior	AMI Data Portal	No program	MO	343	469	637	857	1,140	1,494	2,422	2,977	3,562	4,248	4,702	5,201	5,630	5,985	6,288	6,488	6,782	6,875	7,027		
2016	Behavior	AMI Data Portal	No program	MO	561	766	1,041	1,401	1,864	2,443	3,145	3,961	4,868	5,825	6,782	7,688	8,505	9,206	9,785	10,248	10,608	10,883	11,089	11,411	
2017	Behavior	AMI Data Portal	No program	NC	2	6	12	21	35	55	83	121	168	223	282	345	407	466	523	576	626	706	759	809	
3001	Building Shell	Attic Sealing - Tier 1 (no program)	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3002	Building Shell	Attic Sealing - Tier 2 (fair condition)	PAYS	Retrofit	886	935	935	886	797	685	566	452	352	268	201	149	0	0	0	886	935	935	886	797	
3003	Building Shell	Attic Sealing - Tier 3 (poor condition)	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3004	Building Shell	Attic Sealing - Tier 4 (no program)	PAYS	Retrofit	424	514	598	664	701	701	664	598	514	424	339	264	201	151	112	424	514	598	664	701	
3005	Building Shell	Attic Sealing - Tier 2 (fair condition) - Elec/AC	PAYS	Retrofit	101	152	168	180	199	249	301	350	389	411	411	389	350	301	249	285	284	261	242	234	
3006	Building Shell	Attic Sealing - Tier 2 (fair condition) - Elec/AC	Single Family Income Eligible	Retrofit	736	777	777	736	662	569	470	376	292	223	167	124	0	0	0	736	777	777	736	662	
3007	Building Shell	Attic Sealing - Tier 2 (fair condition) - Elec/AC	Single Family Income Eligible	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3008	Building Shell	Attic Sealing - Tier 2 (fair condition) - Elec/AC	Multifamily Income Eligible	Retrofit	381	461	536	596	629	629	596	536	461	381	304	237	180	135	100	381	461	536	596	629	
3009	Building Shell	Attic Sealing - Tier 3 (poor condition) - Elec/AC	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3010	Building Shell	Attic Sealing - Tier 3 (poor condition) - Elec/AC	Single Family Income Eligible	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3011	Building Shell	Attic Sealing - Tier 3 (poor condition) - Elec/AC	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3012	Building Shell	Attic Sealing - Tier 3 (poor condition) - Elec/AC	Multifamily Income Eligible	Retrofit	74	90	105	116	123	123	116	105	90	74	59	46	35	26	20	74	90	105	116	123	
3013	Building Shell	Attic Sealing - Tier 3 (poor condition) - Elec/AC	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3014	Building Shell	Attic Sealing - Tier 3 (poor condition)	Single Family Income Eligible	NC	132	139	139	132	119	102	84	67	52	40	30	22	0	0	132	139	139	132	119		
3015	Building Shell	Attic Sealing - Tier 4 (no program)	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3016	Building Shell	Attic Sealing - Tier 1 (no program)	Multifamily Income Eligible	NC	40	48	56	63	66	66	63	56	48	40	32	25	19	14	11	40	48	56	63	66	
3017	Building Shell	Attic Sealing - Tier 2 (fair condition) - HP/HP	PAYS	Retrofit	20	30	34	36	40	50	61	70	78	83	78	70	61	50	57	57	53	49	47	46	
3018	Building Shell	Attic Sealing - Tier 2 (fair condition) - HP/HP	Single Family Income Eligible	NC	110	116	116	110	99	85	70	56	44	33	25	18	0	0	110	116	116	110	99		
3019	Building Shell	Attic Sealing - Tier 2 (fair condition) - HP/HP	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3020	Building Shell	Attic Sealing - Tier 2 (fair condition) - HP/HP	Multifamily Income Eligible	NC	36	43	51	56	59	59	56	51	43	36	29	22	17	13	9	36	43	51	56	59	
3021	Building Shell	Attic Sealing - Tier 3 (poor condition) - HP/HP	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3022	Building Shell	Attic Sealing - Tier 3 (poor condition) - HP/HP	Single Family Income Eligible	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3023	Building Shell	Attic Sealing - Tier 3 (poor condition) - HP/HP	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3024	Building Shell	Attic Sealing - Tier 3 (poor condition) - HP/HP	Multifamily Income Eligible	NC	7	8	10	11	12	12	11	10	8	7	6	4	3	2	2	7	8	10	11	12	
3025	Building Shell	Attic Sealing - Tier 4 (no program)	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3026	Building Shell	Attic Sealing - Tier 1 (no program)	Single Family Income Eligible	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3027	Building Shell	Attic Sealing - Tier 2 (fair condition) - Elec/AC	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3028	Building Shell	Attic Sealing - Tier 2 (fair condition) - Elec/AC	Multifamily Income Eligible	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3029	Building Shell	Attic Sealing - Tier 2 (fair condition) - Elec/AC	Single Family Income Eligible	NC	819	864	864	819	737	633	523	418	325	248	186	138	0	0	819	864	864	819	737		
3030	Building Shell	Attic Sealing - Tier 2 (fair condition) - Gas/AC	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3031	Building Shell	Attic Sealing - Tier 2 (fair condition) - Gas/AC	Multifamily Income Eligible	NC	133	162	188	209	220	220	209	188	162	133	107	83	63	47	35	133	162	188	209	220	
3032	Building Shell	Attic Sealing - Tier 2 (fair condition) - Gas/AC	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3033	Building Shell	Attic Sealing - Tier 3 (poor condition) - Gas/AC	Single Family Income Eligible	NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3034	Building Shell	Attic Sealing - Tier 3 (poor condition) - Gas/AC	PAYS	Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3035	Building Shell	Attic Sealing - Tier 3 (poor condition) - Gas/AC	Multifamily Income Eligible	NC	26	32	37	41	43	43	41	37	32	26	21	16	12	9	7	26	32	37	41	43	
3036	Building Shell	Attic Sealing - Tier 3 (poor condition) - Gas/AC	PAYS	Retrofit	15	23	26	28	30	38	46	53	59	63	63	59	53	46	38	30	24	18	13	10	
3037	Building Shell	Attic Sealing - Tier 3 (poor condition) - Gas/AC	Single Family Income Eligible	NC	126	133	133	126	114	98	81	64	50	38	29	21	0	0	0	126	133	133	126	114	
3038	Building Shell	Attic Sealing - Tier 3 (poor condition) - Gas/AC	Multifamily Income Eligible	NC	34	32	39	25	21	16	13	10	7	5	0	0	0	0	0	0	0	0	0	0	
3039	Building Shell	Attic Sealing - Tier 3 (poor condition) - Gas/AC	Single Family Income Eligible	NC	77	93	108	120	127	127	120	108	93	77	61	48	36	27	20	0	0	0	0	0	
3040	Building Shell	Attic Sealing - Tier 3 (poor condition) - Gas/AC	Multifamily Income Eligible	NC	37	56	62	67	73	72	67</														

Appendix B: Residential Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End Use	Measure Name	Program	Building Type	Unit Descriptor	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
10002	New Construction	Zero Energy/Ready Home	New Construction	MF	NC	17	24	30	37	44	55	67	79	85	86	83	84	82	75	78	77	79	167	100	100
10003	New Construction	ENERGY STAR® Townhomes and Duplexes	New Construction	SF	NC	115	162	204	245	296	369	449	525	567	578	554	560	549	503	522	515	529	1,121	670	670
10004	New Construction	ENERGY STAR® Townhomes and Duplexes	New Construction	MF	NC	37	52	66	79	95	119	144	169	182	186	178	180	176	162	168	166	170	360	216	216

Appendix B: Residential MAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Uptime Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
3001	Appliances	Heat Pump Dryer	Efficient Products	MF	NC	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	
3002	Behavior	Home Energy Report	No program	SF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3003	Behavior	Home Energy Report	No program	SF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3004	Behavior	Home Energy Report	No program	SF	NC	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3005	Behavior	Home Energy Report	No program	MF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3006	Behavior	Home Energy Report	No program	MF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3007	Behavior	Home Energy Management System	Efficient Products	SF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3008	Behavior	Home Energy Management System	Efficient Products	SF	Retrofit	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%
3009	Behavior	Home Energy Management System	Efficient Products	SF	NC	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3010	Behavior	Home Energy Management System	Efficient Products	MF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3011	Behavior	Home Energy Management System	Efficient Products	MF	NC	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3012	Behavior	Home Energy Management System	Efficient Products	MF	NC	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3013	Behavior	AMI Data Portal	No program	SF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3014	Behavior	AMI Data Portal	No program	SF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3015	Behavior	AMI Data Portal	No program	SF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3016	Behavior	AMI Data Portal	No program	MF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3017	Behavior	AMI Data Portal	No program	MF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3018	Behavior	AMI Data Portal	No program	MF	NC	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	62%	64%	66%	67%	67%	
3019	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Elec/AC	PAYS	SF	Retrofit	65%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3020	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Elec/AC	Single Family Income Eligible	SF	Retrofit	60%	1.2%	1.3%	1.3%	1.2%	1.1%	1.0%	1.0%	0.9%	0.8%	0.7%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
3021	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Elec/AC	PAYS	MF	Retrofit	54%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3022	Building Shell	Air Sealing - Tier 1 (not good/excellent condition) - Elec/AC	Multifamily Income Eligible	MF	Retrofit	81%	6%	7%	9%	10%	10%	10%	10%	9%	7%	6%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3023	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	PAYS	SF	Retrofit	65%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3024	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	Single Family Income Eligible	SF	Retrofit	60%	1.2%	1.3%	1.3%	1.2%	1.1%	1.0%	1.0%	0.9%	0.8%	0.7%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
3025	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	PAYS	MF	Retrofit	54%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3026	Building Shell	Air Sealing - Tier 2 (fair condition) - Elec/AC	Multifamily Income Eligible	MF	Retrofit	81%	6%	7%	9%	10%	10%	10%	10%	9%	7%	6%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3027	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	PAYS	MF	Retrofit	54%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3028	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	Single Family Income Eligible	MF	Retrofit	60%	1.2%	1.3%	1.3%	1.2%	1.1%	1.0%	1.0%	0.9%	0.8%	0.7%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
3029	Building Shell	Air Sealing - Tier 3 (poor condition) - HP/HP	PAYS	MF	Retrofit	65%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3030	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	Single Family Income Eligible	SF	Retrofit	60%	1.2%	1.3%	1.3%	1.2%	1.1%	1.0%	1.0%	0.9%	0.8%	0.7%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
3031	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	PAYS	MF	Retrofit	54%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3032	Building Shell	Air Sealing - Tier 2 (fair condition) - Gas/AC	Multifamily Income Eligible	MF	Retrofit	81%	6%	7%	9%	10%	10%	10%	10%	9%	7%	6%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3033	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	PAYS	SF	Retrofit	65%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%
3034	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	Single Family Income Eligible	SF	Retrofit	60%	1.2%	1.3%	1.3%	1.2%	1.1%	1.0%	1.0%	0.9%	0.8%	0.7%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
3035	Building Shell	Air Sealing - Tier 3 (poor condition) - Gas/AC	PAYS	MF	Retrofit	54%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	1%

Appendix B: Residential MAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
6116	HVAC	ASHP 20-SEER - tip baseline MO	HVAC	SF	MO	63%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
6117	HVAC	ASHP 20-SEER - tip baseline MO	HVAC	SF	NC	66%	18%	23%	28%	34%	40%	45%	50%	54%	57%	60%	62%	64%	64%	65%	66%	66%	66%	66%	66%	66%	66%	
6118	HVAC	ASHP 20-SEER - tip baseline MO	HVAC	SF	MO	62%	47%	50%	52%	54%	55%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	
6119	HVAC	ASHP 20-SEER - tip baseline MO	HVAC	MF	MO	81%	60%	63%	69%	72%	74%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	
6120	HVAC	ASHP 20-SEER - tip baseline MO	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%	62%	
6121	HVAC	ASHP 21-SEER - tip baseline MO	HVAC	SF	MO	66%	51%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	
6122	HVAC	ASHP 21-SEER - tip baseline MO	HVAC	SF	MO	63%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
6123	HVAC	ASHP 21-SEER - tip baseline MO	HVAC	SF	NC	66%	18%	23%	28%	34%	40%	45%	50%	54%	57%	60%	62%	64%	64%	65%	66%	66%	66%	66%	66%	66%	66%	
6124	HVAC	ASHP 21-SEER - tip baseline MO	HVAC	MF	MO	62%	47%	50%	52%	54%	55%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	
6125	HVAC	ASHP 21-SEER - tip baseline MO	HVAC	MF	NC	81%	60%	63%	69%	72%	74%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	
6126	HVAC	ASHP 21-SEER - tip baseline MO	HVAC	MF	MO	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%	62%	
6127	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	SF	ERI	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	64%	66%	66%	66%	66%	66%	66%	66%	66%	
6128	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	SF	ER2	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	64%	66%	66%	66%	66%	66%	66%	66%	66%	
6129	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	SF	ER1	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	64%	66%	66%	66%	66%	66%	66%	66%	66%	
6130	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	SF	ER1	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%	
6131	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	SF	ER2	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%	
6132	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	SF	ER1	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%	
6133	HVAC	ASHP 15-SEER - electric furnace baseline	Single Family Income Eligible	SF	ER1	63%	4%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	
6134	HVAC	ASHP 15-SEER - electric furnace baseline	Single Family Income Eligible	SF	ER2	63%	4%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	
6135	HVAC	ASHP 15-SEER - electric furnace baseline	Single Family Income Eligible	SF	ER1	62%	17%	22%	27%	32%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6136	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	MF	ER1	62%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6137	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	MF	ER2	62%	17%	22%	27%	32%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6138	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	MF	ER1	62%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6139	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	MF	ER2	62%	17%	22%	27%	32%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6140	HVAC	ASHP 15-SEER - electric furnace baseline	Multifamily Market Rate	MF	ER1	62%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6141	HVAC	ASHP 15-SEER - electric furnace baseline	Multifamily Market Rate	MF	ER2	62%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6142	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	MF	ER1	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%	
6143	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	MF	ER2	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%	81%	
6144	HVAC	ASHP 15-SEER - electric furnace baseline	HVAC	MF	ER1	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%	81%	
6145	HVAC	ASHP 15-SEER - electric furnace baseline	Multifamily Income Eligible	MF	ER1	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	
6146	HVAC	ASHP 15-SEER - electric furnace baseline	Multifamily Income Eligible	MF	ER2	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	
6147	HVAC	ASHP 15-SEER - electric furnace baseline	Multifamily Income Eligible	MF	ER1	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	
6148	HVAC	ASHP 16-SEER - electric furnace baseline	HVAC	SF	ER1	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	64%	66%	66%	66%	66%	66%	66%	66%	66%	
6149	HVAC	ASHP 16-SEER - electric furnace baseline	HVAC	SF	ER2	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	64%	66%	66%	66%	66%	66%	66%	66%	66%	
6150	HVAC	ASHP 16-SEER - electric furnace baseline	HVAC	SF	ER1	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	64%	66%	66%	66%	66%	66%	66%	66%	66%	
6151	HVAC	ASHP 16-SEER - electric furnace baseline	PAYS	SF	ER1	66%	3%	5%	6%	8%	11%	14%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	65%	66%	66%	
6152	HVAC	ASHP 16-SEER - electric furnace baseline	PAYS	SF	ER2	66%	3%	5%	6%	8%	11%	14%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	65%	66%	66%	
6153	HVAC	ASHP 16-SEER - electric furnace baseline	PAYS	SF	ER1	66%	3%	5%	6%	8%	11%	14%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	65%	66%	66%	
6154	HVAC	ASHP 16-SEER - electric furnace baseline	HVAC	SF	ER1	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	61%	62%	63%	63%	63%	63%	63%	63%	63%	63%
6155	HVAC	ASHP 16-SEER - electric furnace baseline	HVAC	SF	ER2	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	61%	62%	63%	63%	63%	63%	63%	63%	63%	63%
6156	HVAC	ASHP 16-SEER - electric furnace baseline	HVAC	SF	ER1	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	61%	62%	63%	63%	63%	63%	63%	63%	63%	63%
6157	HVAC	ASHP 16-SEER - electric furnace baseline	PAYS	SF	ER1	63%	3%	4%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	
6158	HVAC	ASHP 16-SEER - electric furnace baseline	PAYS	SF	ER2	63%	3%	4%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	
6159	HVAC	ASHP 16-SEER - electric furnace baseline	PAYS	SF	ER1	63%	3%	4%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	
6160	HVAC	ASHP 16-SEER - electric furnace baseline	Single Family Income Eligible	SF	ER1	63%	4%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	
6161	HVAC	ASHP 16-SEER - electric furnace baseline	Single Family Income Eligible	SF	ER2	63%	4%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	
6162	HVAC	ASHP 16-SEER - electric furnace baseline	Single Family Income Eligible	SF	ER3	63%	4%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	
6163	HVAC	ASHP 16-SEER - electric furnace baseline	Multifamily Market Rate	MF	ER1	62%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6164	HVAC	ASHP 16-SEER - electric furnace baseline	Multifamily Market Rate	MF	ER2	62%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6165	HVAC	ASHP 16-SEER - electric furnace baseline	Multifamily Market Rate	MF	ER3	62%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%

Appendix B: Residential MAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6258	HVAC	ASHP15SEER - electric furnace baseline	HVAC	MF	MO	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%
6259	HVAC	ASHP16SEER - electric furnace baseline	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6260	HVAC	ASHP17SEER - electric furnace baseline	HVAC	SF	MO	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6261	HVAC	ASHP17SEER - electric furnace baseline	HVAC	SF	MO	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%
6262	HVAC	ASHP17SEER - electric furnace baseline	HVAC	SF	NC	66%	18%	23%	28%	34%	40%	45%	50%	54%	57%	60%	62%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6263	HVAC	ASHP17SEER - electric furnace baseline	Multifamily Market Rate	MF	MO	62%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6264	HVAC	ASHP17SEER - electric furnace baseline	Multifamily Income Eligible	MF	MO	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%
6265	HVAC	ASHP17SEER - electric furnace baseline	HVAC	MF	MO	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6266	HVAC	ASHP18SEER - electric furnace baseline	HVAC	SF	MO	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6267	HVAC	ASHP18SEER - electric furnace baseline	HVAC	SF	MO	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%
6268	HVAC	ASHP18SEER - electric furnace baseline	HVAC	SF	NC	66%	18%	23%	28%	34%	40%	45%	50%	54%	57%	60%	62%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6269	HVAC	ASHP18SEER - electric furnace baseline	Multifamily Market Rate	MF	MO	62%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6270	HVAC	ASHP18SEER - electric furnace baseline	Multifamily Income Eligible	MF	MO	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%
6271	HVAC	ASHP18SEER - electric furnace baseline	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6272	HVAC	ASHP19SEER - electric furnace baseline	HVAC	SF	MO	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6273	HVAC	ASHP19SEER - electric furnace baseline	HVAC	SF	MO	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%
6274	HVAC	ASHP19SEER - electric furnace baseline	HVAC	SF	NC	66%	18%	23%	28%	34%	40%	45%	50%	54%	57%	60%	62%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6275	HVAC	ASHP19SEER - electric furnace baseline	HVAC	MF	MO	62%	17%	22%	27%	32%	37%	42%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%
6276	HVAC	ASHP19SEER - electric furnace baseline	HVAC	MF	MO	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%
6277	HVAC	ASHP19SEER - electric furnace baseline	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6278	HVAC	ASHP20SEER - electric furnace baseline	HVAC	SF	MO	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6279	HVAC	ASHP20SEER - electric furnace baseline	HVAC	SF	MO	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%
6280	HVAC	ASHP20SEER - electric furnace baseline	HVAC	SF	NC	66%	18%	23%	28%	34%	40%	45%	50%	54%	57%	60%	62%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6281	HVAC	ASHP20SEER - electric furnace baseline	HVAC	MF	MO	62%	17%	22%	27%	32%	37%	42%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%
6282	HVAC	ASHP20SEER - electric furnace baseline	Multifamily Income Eligible	MF	MO	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%
6283	HVAC	ASHP20SEER - electric furnace baseline	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6284	HVAC	ASHP21SEER - electric furnace baseline	HVAC	SF	MO	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6285	HVAC	ASHP21SEER - electric furnace baseline	HVAC	SF	MO	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%
6286	HVAC	ASHP21SEER - electric furnace baseline	HVAC	SF	NC	66%	18%	23%	28%	34%	40%	45%	50%	54%	57%	60%	62%	64%	65%	66%	66%	66%	66%	66%	66%	66%
6287	HVAC	ASHP21SEER - electric furnace baseline	HVAC	MF	MO	62%	17%	22%	27%	32%	37%	42%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%
6288	HVAC	ASHP21SEER - electric furnace baseline	HVAC	MF	MO	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%
6289	HVAC	ASHP21SEER - electric furnace baseline	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6290	HVAC	Dual Fuel HP - 19 SEER	HVAC	SF	MO	67%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6291	HVAC	Dual Fuel HP - 19 SEER	HVAC	SF	MO	67%	49%	50%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%
6292	HVAC	Dual Fuel HP - 19 SEER	HVAC	SF	NC	67%	19%	24%	29%	33%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%
6293	HVAC	Dual Fuel HP - 19 SEER	HVAC	MF	MO	62%	47%	50%	52%	54%	55%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
6294	HVAC	Dual Fuel HP - 19 SEER	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6295	HVAC	Dual Fuel HP - 20 SEER	HVAC	MF	MO	67%	53%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
6296	HVAC	Dual Fuel HP - 20 SEER	HVAC	SF	MO	67%	49%	50%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%
6297	HVAC	Dual Fuel HP - 20 SEER	HVAC	SF	NC	67%	19%	24%	29%	33%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%
6298	HVAC	Dual Fuel HP - 20 SEER	HVAC	MF	MO	62%	47%	50%	52%	54%	55%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
6299	HVAC	Dual Fuel HP - 20 SEER	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6300	HVAC	Dual Fuel HP - 20 SEER	HVAC	MF	MO	81%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6301	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	MO	67%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6302	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	NC	67%	19%	24%	29%	33%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%
6303	HVAC	Dual Fuel HP - 21 SEER	HVAC	SF	MO	62%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
6304	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	MO	62%	51%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
6305	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6306	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	MO	81%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6307	HVAC	Dual Fuel HP - 21 SEER	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6308	HVAC	Central AC 15 SEER ER	HVAC	SF	ER	66%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6309	HVAC	Central AC 15 SEER ER	HVAC	SF	ER	66%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6310	HVAC	Central AC 15 SEER ER	HVAC	SF	ER	66%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6311	HVAC	Central AC 15 SEER ER	HVAC	SF	ER	63%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6312	HVAC	Central AC 15 SEER ER	HVAC	SF	ER	63%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%

Appendix B: Residential MAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
6462	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	63%	41%	42%	43%	44%	45%	45%	45%	45%	45%	45%	45%	45%	45%	48%	48%	51%	53%	55%	57%	58%	59%		
6463	HVAC	Central AC 18 SEER MO	Single Family Income Eligible	SF	MO	63%	38%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
6464	HVAC	Central AC 18 SEER MO	HVAC	SF	NC	66%	38%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	66%	66%	66%	66%	66%	66%	66%	66%	
6465	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	47%	50%	52%	54%	55%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	
6466	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	69%	69%	69%	74%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	
6467	HVAC	Central AC 18 SEER MO	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	61%	62%	62%	62%	62%	62%	62%	62%	62%	
6468	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	66%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	
6469	HVAC	Central AC 18 SEER MO	Single Family Income Eligible	SF	MO	63%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	
6470	HVAC	Central AC 18 SEER MO	HVAC	SF	NC	66%	42%	46%	50%	53%	55%	57%	59%	60%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	
6471	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	51%	54%	57%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	
6472	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	39%	40%	41%	42%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	
6473	HVAC	Central AC 18 SEER MO	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	61%	62%	62%	62%	62%	62%	62%	62%	62%	
6474	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	66%	40%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	
6475	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	63%	30%	37%	38%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%	40%	44%	48%	51%	53%	55%	57%	58%	59%
6476	HVAC	Central AC 18 SEER MO	Single Family Income Eligible	SF	MO	63%	33%	35%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6477	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	66%	38%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	66%	66%	66%	66%	66%	66%	66%	66%	66%
6478	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	51%	54%	57%	58%	60%	61%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6479	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	69%	69%	69%	74%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
6480	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	61%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6481	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	66%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6482	HVAC	Central AC 18 SEER MO	Single Family Income Eligible	SF	MO	63%	35%	36%	37%	37%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
6483	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	63%	33%	35%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6484	HVAC	Central AC 18 SEER MO	HVAC	SF	MO	66%	38%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	66%	66%	66%	66%	66%	66%	66%	66%	66%
6485	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	47%	50%	52%	54%	55%	56%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
6486	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	69%	69%	69%	74%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
6487	HVAC	Central AC 18 SEER MO	HVAC	MF	MO	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	61%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6488	HVAC	ECM Fan	HVAC	SF	Retrofit	66%	8%	9%	10%	11%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6489	HVAC	ECM Fan	HVAC	SF	Retrofit	63%	30%	30%	28%	21%	15%	14%	13%	12%	11%	10%	9%	8%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
6490	HVAC	ECM Fan	Single Family Income Eligible	SF	Retrofit	63%	20%	18%	16%	13%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6491	HVAC	ECM Fan	HVAC	MF	Retrofit	62%	8%	9%	10%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6492	HVAC	ECM Fan	Multifamily Market Rate	MF	Retrofit	62%	18%	21%	17%	13%	10%	8%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6493	HVAC	ECM Fan	HVAC	MF	Retrofit	81%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6494	HVAC	ECM Fan	Multifamily Income Eligible	MF	Retrofit	81%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6495	HVAC	ECM Fan	HVAC	SF	ER1	66%	53%	53%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
6496	HVAC	Ductless AC-ER	HVAC	SF	ER2	66%	48%	48%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6497	HVAC	Ductless AC-ER	HVAC	SF	ER3	66%	48%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6498	HVAC	Ductless AC-ER	HVAC	SF	ER1	63%	31%	32%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6499	HVAC	Ductless AC-ER	HVAC	SF	ER2	63%	30%	31%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6500	HVAC	Ductless AC-ER	HVAC	SF	ER3	63%	30%	31%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6501	HVAC	Ductless AC-ER	HVAC	MF	ER1	62%	47%	50%	52%	54%	55%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
6502	HVAC	Ductless AC-ER	HVAC	MF	ER2	62%	47%	50%	52%	54%	55%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
6503	HVAC	Ductless AC-ER	HVAC	MF	ER3	62%	47%	50%	52%	54%	55%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
6504	HVAC	Ductless AC-ER	HVAC	MF	ER1	81%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6505	HVAC	Ductless AC-ER	HVAC	MF	ER2	81%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6506	HVAC	Ductless AC-ER	HVAC	MF	ER3	81%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6507	HVAC	Ductless AC-ER	HVAC	MF	ER1	81%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6508	HVAC	Ductless AC-ER	HVAC	MF	ER2	81%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6509	HVAC	Ductless AC-ER	HVAC	MF	ER3	81%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6510	HVAC	Ductless AC-ROB	HVAC	SF	MO	66%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	
6511	HVAC	Ductless AC-ROB	HVAC	SF	MO	63%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6512	HVAC	Ductless AC-ROB	HVAC	SF	NC	66%	38%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	66%	66%	66%	66%	66%	66%	66%	66%	66%
6513	HVAC	Ductless AC-ROB	HVAC	MF	MO	62%	47%	50%	52%	54%	55%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
6514	HVAC	Ductless AC-ROB	HVAC	MF	MO	62%	69%	69%	69%	74%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
6515	HVAC	Ductless AC-ROB	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	61%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6516	HVAC	Ductless ASHP - Resistance ER	HVAC	MF	NC	62%	17%	22%	27%	32%	37%	42%	47%	50%	54%	56%	58%	60%	61%	61%	62%	62%	62%	62%	62%	62%	62%	62%	62%
6517	HVAC	Ductless ASHP - Resistance ER	HVAC	SF	ER1	66%	19%	23%	29%	34%	40%	45%	50%	54%	58%	61%	63%	64%	64%	64%	64								

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
6678	HVAC	HP Tune-Up	Multifamily Income Eligible	MF	Retrofit	65%	6%	7%	9%	10%	10%	10%	10%	10%	9%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%		
6679	HVAC	Setback Thermostat - ASJP	Efficient Products	SF	Retrofit	67%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	
6680	HVAC	Setback Thermostat - ASJP	Single Family Income Eligible	SF	Retrofit	63%	3%	4%	4%	4%	5%	5%	5%	4%	3%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
6681	HVAC	Setback Thermostat - ASJP	Efficient Products	SF	NC	67%	3%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	
6682	HVAC	Setback Thermostat - ASJP	Multifamily Market Rate	MF	Retrofit	68%	2%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	
6683	HVAC	Setback Thermostat - ASJP	Multifamily Income Eligible	MF	Retrofit	65%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%
6684	HVAC	Setback Thermostat - ASJP	Multifamily Market Rate	MF	NC	68%	4%	4%	6%	5%	5%	5%	5%	5%	4%	3%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
6685	HVAC	Setback Thermostat - Electric Furnace Heating	Efficient Products	SF	Retrofit	67%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%
6686	HVAC	Setback Thermostat - Electric Furnace Heating	Single Family Income Eligible	SF	Retrofit	63%	3%	4%	4%	4%	5%	5%	5%	4%	3%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
6687	HVAC	Setback Thermostat - Electric Furnace Heating	Efficient Products	SF	NC	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	
6688	HVAC	Setback Thermostat - Electric Furnace Heating	Multifamily Market Rate	MF	Retrofit	68%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
6689	HVAC	Setback Thermostat - Electric Furnace Heating	Multifamily Income Eligible	MF	Retrofit	65%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%
6690	HVAC	Setback Thermostat - Electric Furnace Heating	Multifamily Market Rate	MF	NC	68%	4%	4%	4%	5%	5%	5%	5%	5%	4%	3%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
6691	HVAC	Setback Thermostat - Gas Heated	Efficient Products	SF	Retrofit	67%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%
6692	HVAC	Setback Thermostat - Gas Heated	Single Family Income Eligible	SF	Retrofit	63%	3%	4%	4%	4%	5%	5%	5%	4%	3%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
6693	HVAC	Setback Thermostat - Gas Heated	Efficient Products	SF	NC	67%	3%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	
6694	HVAC	Setback Thermostat - Gas Heated	Multifamily Market Rate	MF	Retrofit	68%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
6695	HVAC	Setback Thermostat - Gas Heated	Multifamily Income Eligible	MF	Retrofit	65%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%
6696	HVAC	Setback Thermostat - Gas Heated	Multifamily Market Rate	MF	NC	68%	4%	4%	4%	5%	5%	5%	5%	5%	4%	3%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
6697	HVAC	Room AC Recycling - Primary	Appliance Recycling	SF	Recycle	66%	3%	4%	6%	8%	11%	14%	18%	23%	28%	34%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	68%	
6698	HVAC	Room AC Recycling - Secondary	Appliance Recycling	SF	Recycle	66%	3%	4%	6%	8%	11%	14%	18%	23%	28%	34%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	68%	
6699	HVAC	Room AC Recycling - Primary	Appliance Recycling	SF	Recycle	66%	3%	4%	6%	8%	11%	14%	18%	23%	28%	34%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	68%	
6700	HVAC	Room AC Recycling - Secondary	Appliance Recycling	SF	Recycle	66%	3%	4%	6%	8%	11%	14%	18%	23%	28%	34%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	68%	
6701	HVAC	Energy Recovery Ventilator	HVAC	SF	Retrofit	67%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%
6702	HVAC	Energy Recovery Ventilator	HVAC	SF	Retrofit	67%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%
6703	HVAC	Energy Recovery Ventilator	HVAC	SF	NC	67%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%	67%	
6704	HVAC	Energy Recovery Ventilator	HVAC	MF	Retrofit	67%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%
6705	HVAC	Energy Recovery Ventilator	HVAC	MF	Retrofit	67%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%
6706	HVAC	Energy Recovery Ventilator	HVAC	MF	NC	67%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%	67%	
6707	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	SF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6708	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	SF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6709	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	SF	NC	67%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%	67%	
6710	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6711	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6712	HVAC	Smart Vents/Sensors - elec furnace / central AC	HVAC	MF	NC	67%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%	67%	
6713	HVAC	Smart Vents/Sensors - HP	HVAC	SF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6714	HVAC	Smart Vents/Sensors - HP	HVAC	SF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6715	HVAC	Smart Vents/Sensors - HP	HVAC	SF	NC	67%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%	67%	
6716	HVAC	Smart Vents/Sensors - HP	HVAC	MF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6717	HVAC	Smart Vents/Sensors - HP	HVAC	MF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6718	HVAC	Smart Vents/Sensors - HP	HVAC	MF	NC	67%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%	67%	
6719	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	SF	Retrofit	67%	19%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6720	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	SF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6721	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	SF	NC	67%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%	67%	
6722	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	MF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6723	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	MF	Retrofit	67%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6724	HVAC	Smart Vents/Sensors - gas furnace / central AC	HVAC	MF	NC	67%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%	67%	67%	67%	67%	67%	67%	67%	
6725	HVAC	ENERGY STAR Bath Vent/Fan	Efficient Products	SF	Retrofit	66%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
6726	HVAC	ENERGY STAR Bath Vent/Fan	Efficient Products	SF	NC	66%	3%	4%	6%	8%	11%	14%	18%	23%	28%	34%	40%	46%	50%	54%	57%	60%	62%	64%	65%	66%	66%	
6727	HVAC	ENERGY STAR Bath Vent/Fan	Efficient Products	MF	Retrofit	68%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6728	HVAC	ENERGY STAR Bath Vent/Fan	Efficient Products	MF	NC	68%	3%	3%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
7001	Lighting	LED - 6W (CFL baseline) (300-749 lumens)	PAYS	SF	MO	65%	28%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	
7002	Lighting	LED - 6W (CFL baseline) (300-749 lumens)	Single Family Income Eligible	SF	MO	62%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	20%	21%	22%	23%	24%	24%	24%	24%	
7003	Lighting	LED - 6W (CFL baseline) (300-749 lumens)	Multifamily Market Rate	MF	MO	66%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	
7004	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	Multifamily Income Eligible	MF	MO	57%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	14%	16%	18%	20%	21%	22%	23%	24%	24%	24%	
7005	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	PAYS	SF	MO	65%	28%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	
7006	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	Single Family Income Eligible	SF	MO	62%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	20%	21%	22%	23%	24%	24%	24%	24%	
7007	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	Multifamily Market Rate	MF	MO	66%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	
7008	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	Multifamily Income Eligible	MF	MO	57%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	14%	16%	18%	20%	21%	22%	23%	24%	24%	24%	

Appendix B: Residential MAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
9042	Water Heating	Heat Pump Hot Water Heater	Efficient Products	MF	MO	57%	3%	4%	5%	7%	10%	13%	16%	20%	25%	30%	35%	39%	44%	47%	50%	52%	54%	56%	57%	58%
9043	Water Heating	Heat Pump Hot Water Heater	Multifamily Income Eligible	MF	MO	57%	13%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	57%	58%	59%	59%	59%	59%	59%	59%
9044	Water Heating	Heat Pump Hot Water Heater	Efficient Products	MF	NC	53%	3%	4%	5%	7%	9%	11%	15%	18%	23%	27%	32%	36%	40%	43%	46%	48%	49%	51%	52%	52%
9045	Water Heating	Tankless Water Heater	Efficient Products	SF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	61%	63%	65%	66%	67%
9046	Water Heating	Tankless Water Heater	Efficient Products	SF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	61%	63%	65%	66%	67%
9047	Water Heating	Tankless Water Heater	Efficient Products	SF	NC	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%
9048	Water Heating	Tankless Water Heater	Efficient Products	MF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	61%	63%	65%	66%	67%
9049	Water Heating	Tankless Water Heater	Efficient Products	MF	MO	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	61%	63%	65%	66%	67%
9050	Water Heating	Tankless Water Heater	Efficient Products	MF	NC	67%	3%	5%	6%	8%	11%	15%	19%	24%	29%	35%	40%	46%	51%	55%	58%	61%	63%	65%	66%	67%
9051	Water Heating	Gravity Film/Heat Exchanger	Efficient Products	SF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
9052	Water Heating	Gravity Film/Heat Exchanger	Efficient Products	SF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
9053	Water Heating	Gravity Film/Heat Exchanger	Efficient Products	SF	NC	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
9054	Water Heating	Gravity Film/Heat Exchanger	Efficient Products	SF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
9055	Water Heating	Gravity Film/Heat Exchanger	Efficient Products	MF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
9056	Water Heating	Gravity Film/Heat Exchanger	Efficient Products	MF	NC	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
9057	Water Heating	Water Heater Time/Setback	Energy Efficiency Kits	SF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
9058	Water Heating	Water Heater Time/Setback	Energy Efficiency Kits	SF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
9059	Water Heating	Water Heater Time/Setback	Energy Efficiency Kits	SF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
9060	Water Heating	Water Heater Time/Setback	Energy Efficiency Kits	MF	Retrofit	67%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
10001	New Construction	Zero Energy Ready Home	New Construction	SF	NC	65%	11%	14%	18%	22%	28%	33%	39%	44%	48%	52%	56%	58%	60%	62%	63%	64%	64%	64%	64%	
10002	New Construction	Zero Energy Ready Home	New Construction	MF	NC	54%	9%	12%	15%	19%	23%	28%	32%	37%	40%	44%	47%	49%	50%	52%	53%	53%	53%	53%	53%	
10003	New Construction	ENERGY STAR® Townhomes and Duplexes	New Construction	SF	NC	65%	11%	14%	18%	22%	28%	33%	39%	44%	48%	52%	56%	58%	60%	62%	63%	64%	64%	64%	64%	
10004	New Construction	ENERGY STAR® Townhomes and Duplexes	New Construction	MF	NC	54%	9%	12%	15%	19%	23%	28%	32%	37%	40%	44%	47%	49%	50%	52%	53%	53%	53%	53%	53%	

Appendix B: Residential Program RAP Annual Penetration %

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1001	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	MO	62%	25%	30%	35%	40%	44%	47%	50%	53%	55%	56%	57%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%
1002	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	MO	49%	24%	28%	32%	35%	38%	40%	42%	44%	45%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%
1003	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	ERL	49%	24%	28%	31%	33%	35%	37%	39%	41%	43%	45%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%
1004	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	FR2	29%	22%	25%	27%	30%	32%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1005	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	SF	ER3	49%	24%	28%	31%	33%	35%	37%	39%	41%	43%	45%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%
1006	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	NC	62%	3%	4%	6%	8%	10%	10%	12%	12%	27%	32%	37%	42%	46%	50%	53%	56%	58%	59%	61%	61%	
1007	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	ERL	62%	25%	30%	35%	40%	44%	47%	50%	53%	55%	56%	57%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%
1008	Appliances	ENERGY STAR Refrigerator	Multi-Family Market Rate	MF	ERL	39%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
1009	Appliances	ENERGY STAR Refrigerator	Multi-Family Market Rate	MF	ER3	40%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
1010	Appliances	ENERGY STAR Refrigerator	Multi-Family Market Rate	MF	ER3	53%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%
1011	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	MO	62%	25%	30%	35%	40%	44%	47%	50%	53%	55%	56%	57%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%
1012	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	MF	ERL	20%	25%	27%	30%	32%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1013	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	MF	FR2	21%	25%	27%	30%	32%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1014	Appliances	ENERGY STAR Refrigerator	Single Family Income Eligible	MF	ER3	39%	25%	27%	30%	32%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1015	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	ER3	62%	3%	4%	6%	8%	10%	10%	12%	12%	27%	32%	37%	42%	46%	50%	53%	56%	58%	59%	61%	61%	
1016	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	NC	16%	1%	1%	1%	2%	2%	3%	3%	4%	5%	5%	7%	9%	11%	12%	12%	13%	13%	14%	14%	14%	
1017	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	21%	1%	1%	2%	2%	3%	3%	4%	5%	7%	8%	10%	11%	13%	16%	17%	17%	18%	19%	19%	19%	
1018	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	32%	2%	2%	3%	4%	5%	7%	9%	11%	13%	16%	17%	20%	23%	25%	27%	28%	29%	29%	30%	30%	
1019	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	13%	1%	1%	1%	1%	2%	2%	3%	4%	5%	6%	7%	8%	10%	12%	13%	14%	15%	16%	16%	16%	
1020	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	23%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1021	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	15%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1022	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	23%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1023	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	15%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1024	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	23%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1025	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	15%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1026	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	15%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1027	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	23%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1028	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	15%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1029	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	23%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1030	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	23%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1031	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	15%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1032	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	15%	1%	1%	2%	3%	4%	5%	6%	7%	8%	10%	13%	15%	16%	17%	17%	18%	19%	20%	21%	21%	
1033	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	39%	14%	17%	20%	23%	25%	27%	29%	30%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
1034	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	39%	17%	20%	23%	25%	27%	29%	30%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
1035	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	49%	26%	29%	33%	35%	38%	39%	41%	42%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	
1036	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	MO	49%	9%	12%	14%	17%	20%	23%	25%	27%	29%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	
1037	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	ERL	49%	9%	12%	14%	17%	20%	23%	25%	27%	29%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	
1038	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	62%	8%	10%	13%	17%	21%	25%	29%	33%	37%	42%	46%	50%	53%	56%	58%	59%	60%	61%	61%	61%	
1039	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	62%	8%	10%	13%	17%	21%	25%	29%	33%	37%	42%	46%	50%	53%	56%	58%	59%	60%	61%	61%	61%	
1040	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	62%	8%	10%	13%	17%	21%	25%	29%	33%	37%	42%	46%	50%	53%	56%	58%	59%	60%	61%	61%	61%	
1041	Appliances	ENERGY STAR Refrigerator	Efficient Products	SF	ERL	62%	8%	10%	13%	17%	21%	25%	29%	33%	37%	42%	46%	50%	53%	56%	58%	59%	60%	61%	61%	61%	
1042	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	MO	62%	8%	10%	13%	17%	21%	25%	29%	33%	37%	42%	46%	50%	53%	56%	58%	59%	60%	61%	61%	61%	
1043	Appliances	ENERGY STAR Refrigerator	Efficient Products	MF	NC	62%	3%	4%	6%	8%	10%	10%	12%	12%	27%	32%	37%	42%	46%	50%	53%	56%	58%	59%	61%	61%	
1044	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	SF	MO	62%	36%	42%	48%	53%	57%	61%	64%	66%	68%	69%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	
1045	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	SF	MO	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	46%	50%	53%	56%	58%	59%	61%	61%	
1046	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	SF	NC	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	46%	50%	53%	56%	58%	59%	61%	61%	
1047	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	MF	MO	62%	36%	42%	48%	53%	57%	61%	64%	66%	68%	69%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	
1048	Appliances	ENERGY STAR Clothes Washer (CEE Tier 2)	Efficient Products	MF	MO	62%	36%	42%	48%	53%	57%	61%	64%	66%	68%	69%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	
1049	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	NC	62%	3%	4%	6%	8%	10%	10%	12%	12%	27%	32%	37%	42%	46%	50%	53%	56%	58%	59%	61%	61%	
1050	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	MO	60%	14%	18%	23%	29%	35%	42%	49%	56%	62%	67%	71%	74%	77%	79%	79%	81%	82%	82%	82%	82%	
1051	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	ERL	49%	18%	23%	29%	35%	42%	49%	56%	62%	67%	71%	74%	77%	79%	79%	81%	82%	82%	82%	82%	82%	
1052	Appliances	ENERGY STAR Dishwasher	Efficient Products	SF	NC	60%	3%	4%	5%	7%	10%	10%	12%	12%	27%	32%	37%	42%	46%	50%	53%	56%	58%	59%	61%	61%	
1053	Appliances	ENERGY STAR Dishwasher	Efficient Products	MF	MO	58%	29%	35%	42%	49%	56%	62%	67%	71%	74%	77%	79%	81%	82%</								

Measure #	End Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
3139	Building Shell	Floor Insulation (R13 base) - heat pump base	PAYS	MF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3140	Building Shell	Floor Insulation (R13 base) - heat pump base	Multifamily Income Eligible	MF	Retrofit	66%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3141	Building Shell	Electric cool base - gas heat and electric cool base	PAYS	SF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3142	Building Shell	Floor Insulation (R13 base) - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	52%	12%	13%	13%	12%	11%	10%	10%	10%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
3143	Building Shell	Floor Insulation (R13 base) - gas heat and electric cool base	PAYS	MF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3144	Building Shell	Floor Insulation (R13 base) - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	66%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3145	Building Shell	Electric cool base	PAYS	SF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3146	Building Shell	Window Insulation	Single Family Income Eligible	SF	Retrofit	52%	5%	6%	6%	8%	9%	10%	10%	10%	8%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3147	Building Shell	Window Insulation	PAYS	MF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3148	Building Shell	Window Insulation	Multifamily Income Eligible	MF	Retrofit	81%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3149	Building Shell	Basement Wall Insulation - electric furnace base	PAYS	SF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3150	Building Shell	Basement Wall Insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	66%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
3151	Building Shell	Basement Wall Insulation - electric furnace base	PAYS	MF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3152	Building Shell	Basement Wall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retrofit	66%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3153	Building Shell	Basement Wall Insulation - heat pump base	PAYS	SF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3154	Building Shell	Basement Wall Insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	66%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
3155	Building Shell	Basement Wall Insulation - heat pump base	PAYS	MF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3156	Building Shell	Basement Wall Insulation - heat pump base	Multifamily Income Eligible	MF	Retrofit	66%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3157	Building Shell	Basement Wall Insulation - gas heat and electric cool base	PAYS	SF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3158	Building Shell	Basement Wall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	66%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
3159	Building Shell	Basement Wall Insulation - gas heat and electric cool base	PAYS	MF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3160	Building Shell	Basement Wall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	66%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3161	Building Shell	Foundation Sidewall Insulation - electric furnace base	PAYS	SF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3162	Building Shell	Foundation Sidewall Insulation - electric furnace base	Single Family Income Eligible	SF	Retrofit	66%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
3163	Building Shell	Foundation Sidewall Insulation - electric furnace base	PAYS	MF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3164	Building Shell	Foundation Sidewall Insulation - electric furnace base	Multifamily Income Eligible	MF	Retrofit	66%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3165	Building Shell	Foundation Sidewall Insulation - heat pump base	PAYS	SF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3166	Building Shell	Foundation Sidewall Insulation - heat pump base	Single Family Income Eligible	SF	Retrofit	66%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
3167	Building Shell	Foundation Sidewall Insulation - heat pump base	PAYS	MF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3168	Building Shell	Foundation Sidewall Insulation - heat pump base	Multifamily Income Eligible	MF	Retrofit	66%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3169	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	PAYS	SF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3170	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	66%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
3171	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	PAYS	MF	Retrofit	66%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3172	Building Shell	Foundation Sidewall Insulation - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	66%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%
3173	Building Shell	Insulated Cellular Shades - electric furnace base	PAYS	SF	Retrofit	37%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3174	Building Shell	Insulated Cellular Shades - electric furnace base	Single Family Income Eligible	SF	Retrofit	37%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3175	Building Shell	Insulated Cellular Shades - electric furnace base	PAYS	MF	Retrofit	42%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3176	Building Shell	Insulated Cellular Shades - electric furnace base	Multifamily Income Eligible	MF	Retrofit	42%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3177	Building Shell	Insulated Cellular Shades - heat pump base	PAYS	SF	Retrofit	37%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3178	Building Shell	Insulated Cellular Shades - heat pump base	Single Family Income Eligible	SF	Retrofit	37%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3179	Building Shell	Insulated Cellular Shades - heat pump base	PAYS	MF	Retrofit	42%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3180	Building Shell	Insulated Cellular Shades - heat pump base	Multifamily Income Eligible	MF	Retrofit	42%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3181	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	PAYS	SF	Retrofit	37%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3182	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	Single Family Income Eligible	SF	Retrofit	37%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3183	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	PAYS	MF	Retrofit	42%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3184	Building Shell	Insulated Cellular Shades - gas heat and electric cool base	Multifamily Income Eligible	MF	Retrofit	42%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3185	Building Shell	Storm Windows - electric furnace base	PAYS	SF	Retrofit	48%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3186	Building Shell	Storm Windows - electric furnace base	Single Family Income Eligible	SF	Retrofit	18%	12%	13%	13%	12%	11%	10%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
3187	Building Shell	Storm Windows - electric furnace base	PAYS	MF	Retrofit	54%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
3188	Building Shell	Storm Windows - electric furnace base	Multifamily Income Eligible	MF	Retrofit	59%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3189	Building Shell	Storm Windows - heat pump base	PAYS	SF	Retrofit	48%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	

Appendix B: Residential Program RMP Annual Penetration %

Measure #	End Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6130	HVAC	ASHP-15 SEER - elec-resis furnace baseline	HVAC	SF	ER1	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6131	HVAC	ASHP-15 SEER - elec-resis furnace baseline	HVAC	SF	ER2	28%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	27%	27%	27%	28%	28%	28%	28%	28%	28%
6132	HVAC	ASHP-15 SEER - elec-resis furnace baseline	HVAC	SF	ER3	50%	14%	18%	22%	26%	30%	34%	38%	41%	43%	46%	47%	48%	49%	50%	50%	50%	50%	50%	50%	50%
6133	HVAC	ASHP-15 SEER - elec-resis furnace baseline	Single Family Income Eligible	SF	ER1	56%	4%	5%	7%	9%	12%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	55%	56%	56%	56%	56%
6134	HVAC	ASHP-15 SEER - elec-resis furnace baseline	Single Family Income Eligible	SF	ER2	28%	2%	3%	3%	5%	6%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	27%	27%	27%	28%
6135	HVAC	ASHP-15 SEER - elec-resis furnace baseline	Single Family Income Eligible	SF	ER3	50%	3%	5%	6%	8%	11%	14%	18%	22%	26%	30%	34%	38%	41%	43%	46%	47%	48%	49%	50%	50%
6136	HVAC	ASHP-15 SEER - elec-resis furnace baseline	HVAC	MF	ER1	58%	16%	20%	23%	30%	35%	39%	44%	47%	50%	53%	54%	56%	57%	58%	58%	58%	58%	58%	58%	58%
6137	HVAC	ASHP-15 SEER - elec-resis furnace baseline	HVAC	MF	ER2	34%	9%	12%	15%	18%	20%	23%	26%	28%	29%	31%	32%	33%	33%	33%	34%	34%	34%	34%	34%	34%
6138	HVAC	ASHP-15 SEER - elec-resis furnace baseline	HVAC	MF	ER3	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6139	HVAC	ASHP-15 SEER - elec-resis furnace baseline	Multifamily Market Rate	MF	ER1	59%	30%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6140	HVAC	ASHP-15 SEER - elec-resis furnace baseline	Multifamily Market Rate	MF	ER2	34%	23%	26%	28%	29%	31%	32%	32%	33%	33%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%
6141	HVAC	ASHP-15 SEER - elec-resis furnace baseline	Multifamily Market Rate	MF	ER3	56%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
6142	HVAC	ASHP-15 SEER - elec-resis furnace baseline	HVAC	MF	ER1	78%	22%	28%	34%	40%	47%	53%	59%	64%	68%	71%	74%	76%	77%	78%	78%	78%	78%	78%	78%	78%
6143	HVAC	ASHP-15 SEER - elec-resis furnace baseline	HVAC	MF	ER2	40%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	38%	39%	40%	40%	40%	40%	40%	40%	40%
6144	HVAC	ASHP-15 SEER - elec-resis furnace baseline	HVAC	MF	ER3	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%
6145	HVAC	ASHP-15 SEER - elec-resis furnace baseline	Multifamily Income Eligible	MF	ER1	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%
6146	HVAC	ASHP-15 SEER - elec-resis furnace baseline	Multifamily Income Eligible	MF	ER2	40%	9%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	38%	39%	40%	40%	40%	40%	40%	40%
6147	HVAC	ASHP-15 SEER - elec-resis furnace baseline	Multifamily Income Eligible	MF	ER3	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%
6148	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	SF	ER1	62%	17%	22%	27%	32%	38%	43%	47%	51%	54%	57%	59%	60%	61%	62%	62%	62%	62%	62%	62%	62%
6149	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	SF	ER2	47%	2%	3%	4%	6%	8%	10%	13%	17%	20%	24%	28%	32%	35%	38%	41%	43%	44%	45%	46%	47%
6150	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	SF	ER3	64%	3%	4%	6%	8%	11%	14%	18%	23%	28%	33%	38%	44%	48%	52%	56%	58%	64%	64%	64%	64%
6151	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	SF	ER1	49%	2%	3%	4%	6%	8%	11%	14%	17%	21%	25%	29%	33%	37%	40%	42%	44%	46%	47%	48%	49%
6152	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	SF	ER2	47%	2%	3%	4%	6%	8%	10%	13%	17%	20%	24%	28%	32%	35%	38%	41%	43%	44%	45%	46%	47%
6153	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	SF	ER3	64%	3%	4%	6%	8%	11%	14%	18%	23%	28%	33%	38%	44%	48%	52%	56%	58%	60%	62%	63%	64%
6154	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	SF	ER1	51%	14%	18%	22%	26%	31%	35%	39%	42%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%
6155	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	SF	ER2	28%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	27%	27%	28%	28%	28%	28%	28%	28%	28%
6156	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	SF	ER3	50%	14%	18%	22%	26%	30%	34%	38%	41%	43%	46%	47%	48%	49%	50%	50%	50%	50%	50%	50%	50%
6157	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	SF	ER1	32%	2%	2%	3%	4%	5%	7%	9%	11%	14%	17%	19%	22%	24%	26%	28%	29%	30%	31%	32%	32%
6158	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	SF	ER2	28%	1%	2%	3%	3%	5%	6%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	27%	27%	28%
6159	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	SF	ER3	50%	2%	3%	5%	6%	8%	11%	14%	18%	22%	26%	30%	34%	38%	41%	43%	46%	47%	48%	49%	50%
6160	HVAC	ASHP-16 SEER - elec-resis furnace baseline	Single Family Income Eligible	SF	ER1	56%	4%	5%	7%	9%	12%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%
6161	HVAC	ASHP-16 SEER - elec-resis furnace baseline	Single Family Income Eligible	SF	ER2	28%	2%	3%	3%	5%	6%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	27%	27%	28%	28%
6162	HVAC	ASHP-16 SEER - elec-resis furnace baseline	Single Family Income Eligible	SF	ER3	50%	3%	5%	6%	8%	11%	14%	18%	23%	28%	33%	38%	44%	48%	52%	56%	58%	64%	64%	64%	64%
6163	HVAC	ASHP-16 SEER - elec-resis furnace baseline	Multifamily Market Rate	MF	ER1	59%	36%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6164	HVAC	ASHP-16 SEER - elec-resis furnace baseline	Multifamily Market Rate	MF	ER2	34%	20%	23%	26%	28%	29%	31%	32%	33%	33%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%
6165	HVAC	ASHP-16 SEER - elec-resis furnace baseline	Multifamily Market Rate	MF	ER3	50%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
6166	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	MF	ER1	54%	15%	19%	23%	28%	32%	37%	41%	44%	47%	49%	51%	52%	53%	54%	54%	54%	54%	54%	54%	54%
6167	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	MF	ER2	34%	9%	12%	15%	18%	20%	23%	26%	28%	29%	31%	32%	33%	33%	33%	34%	34%	34%	34%	34%	34%
6168	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	MF	ER3	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6169	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	MF	ER1	36%	2%	2%	3%	4%	6%	8%	10%	13%	16%	19%	22%	25%	27%	30%	31%	31%	34%	35%	36%	36%
6170	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	MF	ER2	34%	2%	2%	3%	4%	6%	7%	9%	12%	15%	18%	20%	23%	26%	28%	29%	31%	31%	33%	33%	34%
6171	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	MF	ER3	56%	3%	4%	5%	7%	9%	12%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%
6172	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	MF	ER1	71%	20%	25%	31%	37%	43%	48%	53%	58%	61%	64%	67%	68%	70%	71%	71%	71%	71%	71%	71%	71%
6173	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	MF	ER2	40%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	38%	39%	40%	40%	40%	40%	40%	40%	40%
6174	HVAC	ASHP-16 SEER - elec-resis furnace baseline	HVAC	MF	ER3	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%
6175	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	MF	ER1	40%	2%	3%	4%	5%	7%	9%	11%	14%	17%	21%	24%	28%	31%	33%	35%	37%	38%	39%	40%	40%
6176	HVAC	ASHP-16 SEER - elec-resis furnace baseline	PAYS	MF	ER2	40%	2%	3%	4%	5%	7%	9%	11%	14%	17%	21%	24%	27%	30%	33%	35%	37%	38%	38%	39%	40%

Appendix B: Residential Program RAP Annual Penetration %

Measure #	End Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
6177	HVAC	ASHP 16 SEER - elec:res: furnace:baseline	PAYS	MF	ER3	81%	4%	6%	8%	10%	13%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	
6178	HVAC	ASHP 16 SEER - elec:res: furnace:baseline	Multifamily Income Eligible	MF	ER1	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%
6179	HVAC	ASHP 16 SEER - elec:res: furnace:baseline	Multifamily Income Eligible	MF	ER2	40%	9%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	38%	39%	39%	40%	40%	40%	40%	40%	40%
6180	HVAC	ASHP 16 SEER - elec:res: furnace:baseline	Multifamily Income Eligible	MF	ER3	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%
6181	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	SF	ER1	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%	63%
6182	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	SF	ER2	47%	13%	17%	20%	24%	28%	32%	35%	38%	41%	43%	44%	45%	46%	47%	47%	47%	47%	47%	47%	47%	47%
6183	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	SF	ER3	64%	18%	23%	28%	33%	39%	44%	48%	52%	56%	58%	60%	62%	63%	64%	64%	64%	64%	64%	64%	64%	64%
6184	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	SF	ER1	52%	15%	18%	23%	27%	31%	36%	39%	43%	45%	48%	49%	50%	51%	52%	52%	52%	52%	52%	52%	52%	52%
6185	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	SF	ER2	28%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	27%	27%	28%	28%	28%	28%	28%	28%	28%	28%
6186	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	SF	ER3	50%	14%	18%	22%	26%	30%	34%	38%	41%	43%	45%	47%	48%	49%	50%	50%	50%	50%	50%	50%	50%	50%
6187	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	Multifamily Market Rate	MF	ER1	59%	30%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6188	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	Multifamily Market Rate	MF	ER2	34%	20%	23%	26%	28%	29%	31%	32%	33%	33%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%
6189	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	Multifamily Market Rate	MF	ER3	56%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
6190	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	MF	ER1	59%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6191	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	MF	ER2	34%	9%	12%	15%	18%	20%	23%	26%	28%	29%	31%	32%	33%	33%	33%	34%	34%	34%	34%	34%	34%	34%
6192	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	MF	ER3	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%
6193	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	MF	ER1	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%	81%
6194	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	MF	ER2	40%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	38%	39%	39%	40%	40%	40%	40%	40%	40%	40%
6195	HVAC	ASHP 17 SEER - elec:res: furnace:baseline	HVAC	MF	ER3	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%	81%
6196	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	SF	ER1	63%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	59%	61%	62%	63%	63%	63%	63%	63%	63%	63%	63%
6197	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	SF	ER2	47%	13%	17%	20%	24%	28%	32%	35%	38%	41%	43%	44%	45%	46%	47%	47%	47%	47%	47%	47%	47%	47%
6198	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	SF	ER3	64%	18%	23%	28%	33%	39%	44%	48%	52%	56%	58%	60%	62%	63%	64%	64%	64%	64%	64%	64%	64%	64%
6200	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	SF	ER1	52%	15%	18%	23%	27%	31%	36%	39%	43%	45%	48%	49%	50%	51%	52%	52%	52%	52%	52%	52%	52%	52%
6201	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	SF	ER2	28%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	27%	27%	28%	28%	28%	28%	28%	28%	28%	28%
6202	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	SF	ER3	50%	14%	18%	22%	26%	30%	34%	38%	41%	43%	46%	47%	48%	49%	50%	50%	50%	50%	50%	50%	50%	50%
6203	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	Multifamily Market Rate	MF	ER1	59%	30%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6204	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	Multifamily Market Rate	MF	ER2	34%	20%	23%	26%	28%	29%	31%	32%	33%	33%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%
6205	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	Multifamily Market Rate	MF	ER3	49%	30%	34%	37%	40%	43%	45%	46%	48%	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%
6206	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	MF	ER1	59%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6207	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	MF	ER2	34%	9%	12%	15%	18%	20%	23%	26%	28%	29%	31%	32%	33%	33%	33%	34%	34%	34%	34%	34%	34%	34%
6208	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	MF	ER3	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%
6209	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	MF	ER1	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%	81%
6210	HVAC	ASHP 18 SEER - elec:res: furnace:baseline	HVAC	MF	ER2	40%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	38%	39%	39%	40%	40%	40%	40%	40%	40%	40%
6211	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	MF	ER3	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%	81%
6212	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	SF	ER1	61%	17%	21%	26%	31%	37%	42%	46%	50%	53%	55%	57%	59%	60%	61%	61%	61%	61%	61%	61%	61%	61%
6213	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	SF	ER2	47%	13%	17%	20%	24%	28%	32%	35%	38%	41%	43%	44%	45%	46%	47%	47%	47%	47%	47%	47%	47%	47%
6214	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	SF	ER3	64%	18%	23%	28%	33%	39%	44%	48%	52%	56%	58%	60%	62%	63%	64%	64%	64%	64%	64%	64%	64%	64%
6215	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	SF	ER1	48%	13%	17%	21%	25%	29%	33%	36%	39%	42%	44%	45%	46%	47%	48%	48%	48%	48%	48%	48%	48%	48%
6216	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	SF	ER2	28%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	27%	27%	28%	28%	28%	28%	28%	28%	28%	28%
6217	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	SF	ER3	50%	14%	18%	22%	26%	30%	34%	38%	41%	43%	46%	47%	48%	49%	50%	50%	50%	50%	50%	50%	50%	50%
6218	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	MF	ER1	59%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6219	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	MF	ER2	34%	9%	12%	15%	18%	20%	23%	26%	28%	29%	31%	32%	33%	33%	33%	34%	34%	34%	34%	34%	34%	34%
6220	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	HVAC	MF	ER3	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%
6221	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	Multifamily Income Eligible	MF	ER1	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%
6222	HVAC	ASHP 19 SEER - elec:res: furnace:baseline	Multifamily Income Eligible	MF	ER2	40%	9%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	38%	39%	39%	40%	40%	40%	40%	40%	40%
6223	HVAC	ASHP 20 SEER - elec:res: furnace:baseline	Multifamily Income Eligible	MF	ER3	58%	13%	16%	20%	25%	30%	35%	39%	44%	47%	50%	53%	54%	56%	57%	58%	58%	58%	58%	58%	58%	58%
			HVAC	SF	ER1	64%	18%	23%	28%	33%	39%	44%	49%	53%	56%	59%	61%	62%	63%	64%	64%	64%	64%	64%	64%	64%	64%

Appendix B: Residential Program RAP Annual Penetration %

Measure #	End Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6224	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	HVAC	SF	ER2	47%	13%	17%	20%	24%	28%	32%	35%	38%	41%	43%	44%	45%	46%	47%	47%	47%	47%	47%	47%	47%
6225	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	HVAC	SF	ER3	64%	18%	23%	28%	33%	39%	44%	48%	52%	56%	58%	60%	62%	63%	64%	64%	64%	64%	64%	64%	64%
6226	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	HVAC	SF	ER1	55%	15%	19%	24%	28%	33%	37%	41%	45%	48%	50%	52%	53%	54%	55%	55%	55%	55%	55%	55%	55%
6227	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	HVAC	SF	ER2	28%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	27%	27%	27%	28%	28%	28%	28%	28%	28%	28%
6228	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	HVAC	SF	ER3	50%	14%	18%	22%	26%	30%	34%	38%	41%	43%	45%	47%	48%	49%	50%	50%	50%	50%	50%	50%	50%
6229	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	HVAC	MF	ER1	59%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%
6230	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	HVAC	MF	ER2	34%	9%	12%	15%	18%	20%	23%	26%	28%	29%	31%	32%	33%	33%	34%	34%	34%	34%	34%	34%	34%
6231	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	HVAC	MF	ER3	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6232	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	Multifamily Income Eligible	MF	ER1	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%
6233	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	Multifamily Income Eligible	MF	ER2	40%	9%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	38%	39%	40%	40%	40%	40%	40%	40%
6234	HVAC	ASHP 20 SEER - elec/ressi furnace baseline	Multifamily Income Eligible	MF	ER3	52%	11%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	52%	52%	52%	52%	52%	52%
6235	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	HVAC	SF	ER1	62%	17%	22%	27%	32%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%
6236	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	HVAC	SF	ER2	47%	13%	17%	20%	24%	28%	32%	35%	38%	41%	43%	44%	45%	46%	47%	47%	47%	47%	47%	47%	47%
6237	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	HVAC	SF	ER3	64%	18%	23%	28%	33%	39%	44%	48%	52%	56%	58%	60%	62%	63%	64%	64%	64%	64%	64%	64%	64%
6238	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	HVAC	SF	ER1	51%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	48%	50%	51%	51%	51%	51%	51%	51%	51%	51%
6239	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	HVAC	SF	ER2	28%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	27%	27%	28%	28%	28%	28%	28%	28%	28%
6240	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	HVAC	SF	ER3	50%	14%	18%	22%	26%	30%	34%	38%	41%	43%	45%	47%	48%	49%	50%	50%	50%	50%	50%	50%	50%
6241	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	HVAC	MF	ER1	59%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%
6242	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	HVAC	MF	ER2	34%	9%	12%	15%	18%	20%	23%	26%	28%	29%	31%	32%	33%	33%	34%	34%	34%	34%	34%	34%	34%
6243	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	HVAC	MF	ER3	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6244	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	Multifamily Income Eligible	MF	ER1	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%
6245	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	Multifamily Income Eligible	MF	ER2	40%	9%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	38%	39%	40%	40%	40%	40%	40%	40%
6246	HVAC	ASHP 21 SEER - elec/ressi furnace baseline	Multifamily Income Eligible	MF	ER3	47%	10%	13%	16%	20%	24%	28%	32%	35%	38%	41%	44%	44%	45%	46%	47%	47%	47%	47%	47%	47%
6247	HVAC	ASHP 15 SEER - elec/ressi furnace baseline	HVAC	SF	MO	65%	18%	23%	28%	34%	39%	45%	49%	53%	57%	59%	62%	63%	64%	65%	65%	65%	65%	65%	65%	65%
6248	HVAC	ASHP 15 SEER - elec/ressi furnace baseline	HVAC	SF	MO	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6249	HVAC	ASHP 15 SEER - elec/ressi furnace baseline	HVAC	SF	NC	65%	18%	23%	28%	33%	39%	44%	49%	53%	56%	59%	61%	62%	64%	65%	65%	65%	65%	65%	65%	65%
6250	HVAC	ASHP 15 SEER - elec/ressi furnace baseline	HVAC	MO	59%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6251	HVAC	ASHP 15 SEER - elec/ressi furnace baseline	Multifamily Income Eligible	MF	MO	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%
6252	HVAC	ASHP 15 SEER - elec/ressi furnace baseline	HVAC	MF	NC	59%	16%	21%	25%	30%	35%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	59%	59%
6253	HVAC	ASHP 16 SEER - elec/ressi furnace baseline	HVAC	SF	MO	65%	18%	23%	28%	34%	39%	45%	49%	53%	57%	59%	62%	63%	64%	65%	65%	65%	65%	65%	65%	65%
6254	HVAC	ASHP 16 SEER - elec/ressi furnace baseline	HVAC	SF	MO	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6255	HVAC	ASHP 16 SEER - elec/ressi furnace baseline	HVAC	SF	NC	65%	18%	23%	28%	33%	39%	44%	49%	53%	56%	59%	61%	62%	64%	65%	65%	65%	65%	65%	65%	65%
6256	HVAC	ASHP 16 SEER - elec/ressi furnace baseline	Multifamily Market Rate	MF	MO	59%	16%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6257	HVAC	ASHP 16 SEER - elec/ressi furnace baseline	HVAC	MF	MO	59%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%
6258	HVAC	ASHP 16 SEER - elec/ressi furnace baseline	HVAC	MF	MO	81%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%	81%
6259	HVAC	ASHP 16 SEER - elec/ressi furnace baseline	HVAC	MF	NC	59%	16%	21%	25%	30%	35%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	59%	59%
6260	HVAC	ASHP 17 SEER - elec/ressi furnace baseline	HVAC	SF	MO	65%	18%	23%	28%	34%	39%	45%	49%	53%	57%	59%	62%	63%	64%	65%	65%	65%	65%	65%	65%	65%
6261	HVAC	ASHP 17 SEER - elec/ressi furnace baseline	HVAC	SF	MO	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6262	HVAC	ASHP 17 SEER - elec/ressi furnace baseline	HVAC	SF	NC	65%	18%	23%	28%	33%	39%	44%	49%	53%	56%	59%	61%	62%	64%	65%	65%	65%	65%	65%	65%	65%
6263	HVAC	ASHP 17 SEER - elec/ressi furnace baseline	Multifamily Market Rate	MF	MO	59%	16%	41%	45%	49%	52%	54%	56%	57%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
6264	HVAC	ASHP 17 SEER - elec/ressi furnace baseline	Multifamily Income Eligible	MF	MO	81%	18%	23%	29%	35%	42%	49%	55%	61%	66%	71%	74%	77%	79%	80%	81%	81%	81%	81%	81%	81%
6265	HVAC	ASHP 17 SEER - elec/ressi furnace baseline	HVAC	MF	NC	59%	16%	21%	25%	30%	35%	40%	44%	48%	51%	53%	55%	57%	58%	59%	59%	59%	59%	59%	59%	59%
6266	HVAC	ASHP 18 SEER - elec/ressi furnace baseline	HVAC	SF	MO	65%	18%	23%	28%	34%	39%	45%	49%	53%	57%	59%	62%	63%	64%	65%	65%	65%	65%	65%	65%	65%
6267	HVAC	ASHP 18 SEER - elec/ressi furnace baseline	HVAC	SF	MO	56%	16%	20%	24%	29%	34%	39%	43%	46%	49%	51%	53%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6268	HVAC	ASHP 18 SEER - elec/ressi furnace baseline	HVAC	SF	NC	65%	18%	23%	28%	33%	39%	44%	49%	53%	56%	59%	61%	62%	64%	65%	65%	65%	65%	65%	65%	65%
6269	HVAC	ASHP 18 SEER - elec/ressi furnace baseline	Multifamily Market Rate	MF	MO	52%	31%	35%	39%	42%	45%	47%	49%	50%	51%	52%	52%	52%	52%	52%	52%	52%	52%	52%	52%	52%
6270	HVAC	ASHP 18 SEER - elec/ressi furnace baseline	Multifamily Income Eligible	MF	MO	67%	15%	19%	24%	29%	35%	41%	46%	51%	55%	59%	61%	64%	65%	67%	67%	67%	67%	67%	67%	67%

Appendix B. Residential Program RMP Annual Penetration %

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Adopt Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
6337	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER3	50%	45%	43%	44%	45%	46%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%	
6338	HVAC	Central AC, 2-STER, ER	PAYS	SF	ER1	36%	2%	3%	3%	3%	6%	7%	10%	13%	16%	17%	17%	22%	23%	23%	23%	28%	30%	32%	35%	36%	37%	
6339	HVAC	Central AC, 2-STER, ER	PAYS	SF	ER2	28%	2%	3%	3%	3%	6%	7%	10%	13%	16%	17%	17%	22%	23%	23%	23%	28%	30%	32%	35%	36%	37%	
6340	HVAC	Central AC, 2-STER, ER	PAYS	SF	ER3	50%	27%	31%	35%	39%	42%	45%	47%	48%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6341	HVAC	Central AC, 2-STER, ER	Single Family Income Eligible	SF	ER2	28%	20%	23%	25%	27%	29%	30%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6342	HVAC	Central AC, 2-STER, ER	Single Family Income Eligible	SF	ER3	50%	23%	27%	30%	33%	36%	38%	40%	42%	43%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%
6343	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER1	44%	44%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6344	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER2	34%	42%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6345	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER3	56%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6346	HVAC	Central AC, 2-STER, ER	Multifamily Market Rate	MF	ER1	44%	44%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6347	HVAC	Central AC, 2-STER, ER	Multifamily Market Rate	MF	ER2	34%	42%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6348	HVAC	Central AC, 2-STER, ER	Multifamily Market Rate	MF	ER3	56%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6349	HVAC	Central AC, 2-STER, ER	PAYS	MF	ER1	44%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6350	HVAC	Central AC, 2-STER, ER	PAYS	MF	ER2	34%	3%	3%	3%	3%	6%	7%	10%	13%	16%	17%	17%	22%	23%	23%	23%	28%	30%	32%	35%	36%	37%	
6351	HVAC	Central AC, 2-STER, ER	PAYS	MF	ER3	56%	3%	4%	3%	7%	9%	9%	12%	16%	20%	24%	29%	34%	39%	43%	46%	49%	52%	53%	55%	56%	57%	
6352	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER1	33%	44%	46%	47%	49%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
6353	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER2	40%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6354	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER3	81%	60%	65%	69%	72%	74%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
6355	HVAC	Central AC, 2-STER, ER	PAYS	MF	ER1	33%	2%	3%	4%	6%	6%	6%	7%	10%	13%	17%	21%	25%	29%	33%	36%	39%	41%	43%	45%	46%	47%	
6356	HVAC	Central AC, 2-STER, ER	PAYS	MF	ER2	40%	2%	2%	3%	4%	6%	6%	7%	10%	13%	17%	21%	25%	29%	33%	36%	39%	41%	43%	45%	46%	47%	
6357	HVAC	Central AC, 2-STER, ER	PAYS	MF	ER3	81%	5%	7%	10%	13%	17%	22%	28%	34%	41%	48%	54%	60%	65%	69%	72%	74%	76%	78%	79%	79%	79%	
6358	HVAC	Central AC, 2-STER, ER	Multifamily Income Eligible	MF	ER1	81%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
6359	HVAC	Central AC, 2-STER, ER	Multifamily Income Eligible	MF	ER2	40%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6360	HVAC	Central AC, 2-STER, ER	Multifamily Income Eligible	MF	ER3	81%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
6361	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER1	33%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6362	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER2	47%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6363	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER3	69%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6364	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER1	36%	34%	35%	36%	38%	39%	39%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
6365	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER2	28%	20%	23%	25%	27%	29%	30%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
6366	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER3	50%	38%	43%	48%	53%	58%	63%	68%	72%	76%	79%	82%	84%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
6367	HVAC	Central AC, 2-STER, ER	Single Family Income Eligible	SF	ER1	36%	28%	33%	37%	41%	44%	46%	47%	49%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
6368	HVAC	Central AC, 2-STER, ER	Single Family Income Eligible	SF	ER2	28%	20%	23%	25%	27%	29%	30%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
6369	HVAC	Central AC, 2-STER, ER	Single Family Income Eligible	SF	ER3	50%	42%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6370	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER1	42%	46%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6371	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER2	34%	44%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6372	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER3	50%	42%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6373	HVAC	Central AC, 2-STER, ER	Multifamily Market Rate	MF	ER1	42%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6374	HVAC	Central AC, 2-STER, ER	Multifamily Market Rate	MF	ER2	34%	44%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6375	HVAC	Central AC, 2-STER, ER	Multifamily Market Rate	MF	ER3	50%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6376	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER1	49%	40%	41%	42%	43%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%
6377	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER2	40%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6378	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER1	54%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6379	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER2	47%	33%	35%	36%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%
6380	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER3	61%	33%	35%	36%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%
6381	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER1	36%	30%	31%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6382	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER2	28%	20%	23%	25%	27%	29%	30%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
6383	HVAC	Central AC, 2-STER, ER	Single Family Income Eligible	SF	ER1	45%	35%	36%	37%	37%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
6384	HVAC	Central AC, 2-STER, ER	Single Family Income Eligible	SF	ER2	28%	20%	23%	25%	27%	29%	30%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
6385	HVAC	Central AC, 2-STER, ER	Single Family Income Eligible	SF	ER3	50%	42%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6386	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER1	43%	42%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6387	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER2	34%	42%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6388	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER3	51%	42%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6389	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER1	52%	43%	45%	47%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6390	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER2	40%	32%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
6391	HVAC	Central AC, 2-STER, ER	HVAC	MF	ER3	71%	55%	59%	62%	64%	65%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
6392	HVAC	Central AC, 2-STER, ER	HVAC	SF	ER1	33%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
6393	HVAC	Central AC, 2-STER, ER	HV																									

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Measure #	End Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
6686	HVAC	Learning Thermostat - Electric Furnace Heating	PAYS	MF	Retrofit	47%	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
6687	HVAC	Learning Thermostat - Electric Furnace Heating	Multifamily Income Eligible	MF	Retrofit	55%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6688	HVAC	Learning Thermostat - Electric Furnace Heating	New Construction	MF	NC	54%	3%	4%	5%	19%	23%	28%	32%	36%	40%	44%	46%	48%	50%	51%	52%	53%	53%	53%	53%	53%	53%
6689	HVAC	Learning Thermostat - Electric Furnace Heating	Efficient Products	MF	NC	63%	3%	4%	8%	8%	10%	14%	17%	22%	27%	32%	38%	43%	47%	51%	54%	57%	59%	60%	62%	62%	62%
6690	HVAC	Learning Thermostat - Gas Heated	HVAC	SF	Retrofit	60%	23%	20%	16%	13%	10%	6%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6691	HVAC	Learning Thermostat - Gas Heated	Efficient Products	SF	Retrofit	59%	8%	9%	10%	11%	13%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	1%
6692	HVAC	Learning Thermostat - Gas Heated	PAYS	SF	Retrofit	60%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%
6693	HVAC	Learning Thermostat - Gas Heated	Efficient Products	SF	NC	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	46%	50%	53%	56%	58%	59%	61%	61%	61%
6694	HVAC	Learning Thermostat - Gas Heated	Multifamily Market Rate	MF	Retrofit	41%	32%	25%	19%	14%	10%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6695	HVAC	Learning Thermostat - Gas Heated	Multifamily Income Eligible	MF	Retrofit	55%	6%	7%	9%	10%	10%	10%	10%	9%	7%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6696	HVAC	Learning Thermostat - Gas Heated	Multifamily Market Rate	MF	NC	41%	24%	27%	30%	32%	34%	36%	37%	38%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%
6697	HVAC	Room AC recycling - Primary	Appliance Recycling	SF	Recycle	38%	2%	2%	3%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
6698	HVAC	Room AC recycling - Primary	Appliance Recycling	SF	Recycle	44%	2%	2%	3%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
6699	HVAC	Room AC recycling - Secondary	Appliance Recycling	SF	Recycle	38%	2%	2%	3%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
6700	HVAC	Room AC recycling - Secondary	Appliance Recycling	SF	Recycle	44%	2%	2%	3%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
6701	HVAC	Energy Recovery Ventilator	HVAC	SF	Retrofit	57%	8%	9%	10%	11%	13%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6702	HVAC	Energy Recovery Ventilator	HVAC	SF	Retrofit	57%	8%	9%	10%	11%	13%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6703	HVAC	Energy Recovery Ventilator	HVAC	SF	NC	57%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6704	HVAC	Energy Recovery Ventilator	HVAC	SF	Retrofit	57%	8%	9%	10%	11%	13%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
6705	HVAC	Energy Recovery Ventilator	HVAC	MF	Retrofit	57%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%
6706	HVAC	Energy Recovery Ventilator	HVAC	MF	NC	57%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%

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Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6707	HVAC	Smart Vents/Sensors- elec furnace/ central AC	HVAC	SF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6708	HVAC	Smart Vents/Sensors- elec furnace/ central AC	HVAC	SF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6709	HVAC	Smart Vents/Sensors- elec furnace/ central AC	HVAC	SF	NC	57%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%
6710	HVAC	Smart Vents/Sensors- elec furnace/ central AC	HVAC	MF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6711	HVAC	Smart Vents/Sensors- elec furnace/ central AC	HVAC	MF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6712	HVAC	Smart Vents/Sensors- elec furnace/ central AC	HVAC	MF	NC	57%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%
6713	HVAC	Smart Vents/Sensors- HP	HVAC	SF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6714	HVAC	Smart Vents/Sensors- HP	HVAC	SF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6715	HVAC	Smart Vents/Sensors- HP	HVAC	SF	NC	57%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%
6716	HVAC	Smart Vents/Sensors- HP	HVAC	MF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6717	HVAC	Smart Vents/Sensors- HP	HVAC	MF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6718	HVAC	Smart Vents/Sensors- gas furnace/ central AC	HVAC	MF	NC	57%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%
6719	HVAC	Smart Vents/Sensors- gas furnace/ central AC	HVAC	SF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6720	HVAC	Smart Vents/Sensors- gas furnace/ central AC	HVAC	SF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6721	HVAC	Smart Vents/Sensors- gas furnace/ central AC	HVAC	SF	NC	57%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%
6722	HVAC	Smart Vents/Sensors- gas furnace/ central AC	HVAC	MF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6723	HVAC	Smart Vents/Sensors- gas furnace/ central AC	HVAC	MF	Retrofit	57%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6724	HVAC	Smart Vents/Sensors- gas furnace/ central AC	HVAC	MF	NC	57%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%
6725	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	SF	Retrofit	62%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6726	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	SF	NC	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	46%	50%	53%	56%	58%	59%	60%	61%
6727	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	MF	Retrofit	64%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6728	HVAC	ENERGY STAR Bath Vent Fan	Efficient Products	MF	NC	64%	3%	4%	6%	8%	10%	14%	18%	22%	27%	32%	38%	43%	48%	52%	55%	58%	60%	61%	62%	63%
7001	Lighting	LED- 6W (CFL baseline) (310-749 lumens)	PAYS	SF	MO	53%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
7002	Lighting	LED- 6W (CFL baseline) (310-749 lumens)	Single Family Income Eligible	SF	MO	31%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
7003	Lighting	LED- 6W (CFL baseline) (310-749 lumens)	Multifamily Market Rate	MF	MO	40%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
7004	Lighting	LED- 6W (CFL baseline) (310-749 lumens)	Multifamily Income Eligible	MF	MO	23%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
7005	Lighting	LED- 10W (CFL baseline) (750-1048 lumens)	PAYS	SF	MO	52%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
7006	Lighting	LED- 10W (CFL baseline) (750-1048 lumens)	Single Family Income Eligible	SF	MO	34%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
7007	Lighting	LED- 10W (CFL baseline) (750-1048 lumens)	Multifamily Market Rate	MF	MO	42%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
7008	Lighting	LED- 15W (CFL baseline) (1050-1489 lumens)	PAYS	MF	MO	39%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
7009	Lighting	LED- 15W (CFL baseline) (1050-1489 lumens)	Single Family Income Eligible	SF	MO	33%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
7010	Lighting	LED- 15W (CFL baseline) (1050-1489 lumens)	Multifamily Market Rate	MF	MO	44%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
7011	Lighting	LED- 15W (CFL baseline) (1050-1489 lumens)	Single Family Income Eligible	SF	MO	58%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
7012	Lighting	LED- 15W (CFL baseline) (1050-1489 lumens)	Multifamily Income Eligible	MF	MO	35%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
7013	Lighting	LED- 20W (CFL baseline) (1490-2600 lumens)	PAYS	SF	MO	30%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
7014	Lighting	LED- 20W (CFL baseline) (1490-2600 lumens)	Single Family Income Eligible	SF	MO	37%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
7015	Lighting	LED- 20W (CFL baseline) (1490-2600 lumens)	Multifamily Market Rate	MF	MO	33%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
7016	Lighting	LED- 20W (CFL baseline) (1490-2600 lumens)	Multifamily Income Eligible	MF	MO	29%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
7017	Lighting	LED- 10.5W Downlight E26 (CFL baseline)	PAYS	SF	MO	36%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
7018	Lighting	LED- 10.5W Downlight E26 (CFL baseline)	Single Family Income Eligible	SF	MO	29%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
7019	Lighting	LED- 10.5W Downlight E26 (CFL baseline)	Multifamily Market Rate	MF	MO	48%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
7020	Lighting	LED- 10.5W Downlight E26 (CFL baseline)	Multifamily Income Eligible	MF	MO	21%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
7021	Lighting	LED- 11W Flood Light BR30 Bulb (CFL baseline)	PAYS	MF	MO	43%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
7022	Lighting	LED- 11W Flood Light BR30 Bulb (CFL baseline)	Single Family Income Eligible	SF	MO	32%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
7023	Lighting	LED- 11W Flood Light BR30 Bulb (CFL baseline)	Multifamily Market Rate	MF	MO	48%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
7024	Lighting	LED- 11W Flood Light BR30 Bulb (CFL baseline)	Multifamily Income Eligible	MF	MO	39%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
7025	Lighting	LED- 15W Flood Light PAR30 Bulb (CFL baseline)	PAYS	SF	MO	52%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
7026	Lighting	LED- 15W Flood Light PAR30 Bulb (CFL baseline)	Single Family Income Eligible	SF	MO	49%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
7027	Lighting	LED- 15W Flood Light PAR30 Bulb (CFL baseline)	Multifamily Market Rate	MF	MO	58%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
7028	Lighting	LED- 18W Flood Light PAR38 Bulb (CFL baseline)	Multifamily Income Eligible	MF	MO	39%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
7029	Lighting	LED- 18W Flood Light PAR38 Bulb (CFL baseline)	PAYS	SF	MO	47%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%

Appendix B: Residential Program RAP Annual Penetration %

Measure #	End Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
9005	Water Heating	Kitchen Faucet Aerator	Multifamily Market Rate	MF	Retrofit	13%	43%	33%	24%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
9006	Water Heating	Kitchen Faucet Aerator	PAYS	MF	Retrofit	7%	2%	3%	4%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9007	Water Heating	Kitchen Faucet Aerator	Multifamily Income Eligible	MF	Retrofit	28%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9008	Water Heating	Kitchen Faucet Aerator	PAYS	MF	Retrofit	13%	2%	3%	4%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9009	Water Heating	Kitchen Faucet Aerator	Energy Efficiency Kits	SF	Retrofit	13%	28%	23%	18%	13%	10%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9010	Water Heating	Bathroom Faucet Aerator	PAYS	SF	Retrofit	13%	2%	3%	4%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9011	Water Heating	Bathroom Faucet Aerator	Single Family Income Eligible	SF	Retrofit	17%	12%	13%	13%	12%	11%	10%	8%	6%	3%	4%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
9012	Water Heating	Bathroom Faucet Aerator	PAYS	SF	Retrofit	10%	2%	3%	3%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9013	Water Heating	Bathroom Faucet Aerator	Multifamily Market Rate	MF	Retrofit	9%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9014	Water Heating	Bathroom Faucet Aerator	PAYS	MF	Retrofit	7%	2%	3%	3%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9015	Water Heating	Bathroom Faucet Aerator	Multifamily Income Eligible	MF	Retrofit	23%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9016	Water Heating	Bathroom Faucet Aerator	PAYS	MF	Retrofit	13%	2%	3%	3%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9017	Water Heating	Low Flow Showerhead	Energy Efficiency Kits	SF	Retrofit	24%	12%	13%	13%	12%	11%	10%	8%	6%	3%	4%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
9018	Water Heating	Low Flow Showerhead	PAYS	SF	Retrofit	2%	2%	3%	3%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9019	Water Heating	Low Flow Showerhead	Single Family Income Eligible	SF	Retrofit	28%	10%	11%	12%	12%	11%	10%	9%	7%	8%	8%	7%	6%	5%	4%	3%	3%	3%	3%	3%	3%	3%
9020	Water Heating	Low Flow Showerhead	PAYS	SF	Retrofit	13%	2%	3%	3%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9021	Water Heating	Low Flow Showerhead	Multifamily Market Rate	MF	Retrofit	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9022	Water Heating	Low Flow Showerhead	PAYS	MF	Retrofit	13%	2%	3%	3%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9023	Water Heating	Low Flow Showerhead	Multifamily Income Eligible	MF	Retrofit	28%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9024	Water Heating	Low Flow Showerhead	PAYS	MF	Retrofit	26%	2%	3%	3%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9025	Water Heating	Shower Start 1.5 gpm electric water heater	Energy Efficiency Kits	SF	Retrofit	43%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	1%
9026	Water Heating	Shower Start 1.5 gpm electric water heater	Single Family Income Eligible	SF	Retrofit	8%	26%	21%	17%	13%	10%	8%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9027	Water Heating	Shower Start 1.5 gpm electric water heater	Energy Efficiency Kits	MF	Retrofit	43%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	1%
9028	Water Heating	Shower Start 1.5 gpm electric water heater	Multifamily Income Eligible	MF	Retrofit	8%	26%	21%	17%	13%	10%	8%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9029	Water Heating	Shower Start 1.5 gpm electric water heater	Energy Efficiency Kits	SF	Retrofit	9%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9030	Water Heating	Pipe Insulation	Single Family Income Eligible	SF	Retrofit	20%	10%	11%	12%	12%	11%	10%	9%	7%	8%	8%	7%	6%	5%	4%	3%	3%	3%	3%	3%	3%	3%
9031	Water Heating	Pipe Insulation	PAYS	MF	Retrofit	5%	2%	3%	3%	4%	3%	3%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9032	Water Heating	Pipe Insulation	Multifamily Income Eligible	MF	Retrofit	8%	43%	33%	24%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9033	Water Heating	Water Heater Wrap	Energy Efficiency Kits	SF	Retrofit	62%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	1%
9034	Water Heating	Water Heater Wrap	Single Family Income Eligible	SF	Retrofit	26%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	1%
9035	Water Heating	Water Heater Wrap	Energy Efficiency Kits	MF	Retrofit	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9036	Water Heating	Water Heater Wrap	Multifamily Income Eligible	MF	Retrofit	20%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	1%
9037	Water Heating	Heat Pump hot Water Heater	Efficient Products	SF	MO	41%	2%	3%	4%	5%	7%	9%	11%	13%	14%	16%	18%	21%	24%	28%	31%	33%	35%	37%	38%	40%	41%
9038	Water Heating	Heat Pump hot Water Heater	Efficient Products	SF	MO	38%	2%	3%	4%	5%	6%	8%	11%	13%	16%	20%	23%	26%	29%	32%	35%	37%	38%	39%	40%	41%	42%
9039	Water Heating	Heat Pump hot Water Heater	Single Family Income Eligible	SF	MO	38%	3%	4%	5%	6%	8%	11%	13%	16%	20%	23%	26%	29%	32%	35%	37%	38%	39%	40%	41%	42%	43%
9040	Water Heating	Heat Pump hot Water Heater	Energy Efficiency Kits	SF	MO	41%	2%	3%	4%	5%	7%	9%	11%	13%	16%	20%	23%	26%	29%	32%	35%	37%	38%	39%	40%	41%	42%
9041	Water Heating	Heat Pump hot Water Heater	Efficient Products	SF	MO	42%	2%	3%	4%	5%	7%	9%	11%	13%	16%	20%	23%	26%	29%	32%	35%	37%	38%	39%	40%	41%	42%
9042	Water Heating	Heat Pump hot Water Heater	Efficient Products	MF	MO	58%	3%	4%	5%	7%	10%	13%	16%	20%	25%	30%	35%	39%	44%	47%	50%	52%	54%	56%	57%	58%	59%
9043	Water Heating	Heat Pump hot Water Heater	Single Family Income Eligible	MF	MO	59%	13%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	57%	58%	59%	59%	59%	59%	59%	59%	59%
9044	Water Heating	Heat Pump hot Water Heater	Multifamily Income Eligible	MF	MO	42%	2%	3%	4%	5%	7%	9%	11%	13%	16%	20%	23%	26%	29%	32%	35%	37%	38%	39%	40%	41%	42%
9045	Water Heating	Tankless Water Heater	Efficient Products	SF	MO	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	47%	51%	54%	56%	57%	58%	59%	59%	59%
9046	Water Heating	Tankless Water Heater	Efficient Products	SF	MO	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	47%	51%	54%	56%	57%	58%	59%	59%	59%
9047	Water Heating	Tankless Water Heater	Single Family Income Eligible	SF	MO	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	47%	51%	54%	56%	57%	58%	59%	59%	59%
9048	Water Heating	Tankless Water Heater	Energy Efficiency Kits	MF	MO	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	47%	51%	54%	56%	57%	58%	59%	59%	59%
9049	Water Heating	Tankless Water Heater	Efficient Products	MF	MO	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	47%	51%	54%	56%	57%	58%	59%	59%	59%
9050	Water Heating	Tankless Water Heater	Efficient Products	MF	MO	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	47%	51%	54%	56%	57%	58%	59%	59%	59%
9051	Water Heating	Tankless Water Heater	Single Family Income Eligible	MF	MO	62%	3%	4%	6%	8%	10%	13%	17%	22%	27%	32%	37%	42%	47%	51%	54%	56%	57%	58%	59%	59%	59%
9052	Water Heating	Gravity Film Heat Exchanger	Efficient Products	SF	Retrofit	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9053	Water Heating	Gravity Film Heat Exchanger	Efficient Products	SF	NC	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9054	Water Heating	Gravity Film Heat Exchanger	Single Family Income Eligible	MF	NC	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9055	Water Heating	Gravity Film Heat Exchanger	Energy Efficiency Kits	MF	Retrofit	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9056	Water Heating	Gravity Film Heat Exchanger	Efficient Products	MF	NC	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9057	Water Heating	Water Heater Timer/Saback	Energy Efficiency Kits	SF	Retrofit	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9058	Water Heating	Water Heater Timer/Saback	Efficient Products	SF	Retrofit	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9059	Water Heating	Water Heater Timer/Saback	Energy Efficiency Kits	MF	Retrofit	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
9060	Water Heating	Water Heater Timer/Saback	Efficient Products	MF	Retrofit	62%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	1%
10001	New Construction	Zero Energy Ready Home	New Construction	MF	NC	59%	10%	13%	16%	20%	25%	30%	35%	40%	44%	48%	51%	53%	55%	56%	57%	58%	58%	58%	58%	58%	58%
10002	New Construction	Zero Energy Ready Home	New Construction	SF	NC	54%	9%	12%	15%	19%	23%	28%	33%	36%	40%	43%	46%	49%	50%	52%	53%	53%	53%	53%	53%	53%	53%
10003	New Construction	ENERGY STAR [®] Townhomes and Duplexes	New Construction	SF	NC	53%	9%	11%	15%	18%	22%	27%	31%	35%	39%	43%	47%	48%	49%	50%	50%	51%	52%	52%	52%	52%	
10004	New Construction	ENERGY STAR [®] Townhomes and Duplexes	New Construction	MF	NC	50%	8%	11%	14%	17%	21%	25%	30%	34%	37%	40%	43%	45%	46%	48%	48%	48%	48%	48%	48%	48%	48%

APPENDIX C: BUSINESS SECTOR ENERGY EFFICIENCY DETAILS

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	MAP Incentive (\$)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
1	Compressed Air	Retro-commissioning, Compressed Air Optimization	Biz-Custom RCx	Assembly	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
2	Compressed Air	Compressed Air Leak Repair	Biz-Custom	Assembly	Retro	6	17%	1	0.00	5	\$0	100%	50%	1	100%	39%	per kWh	3.0	6.1	4.5
3	Compressed Air	Efficient Air Compressors (VSD)	Biz-Custom	Assembly	ROB	4,748	21%	987	0.00	10	\$1,573	100%	5%	3	100%	20%	per HP	0.3	5.3	0.4
4	Compressed Air	AODD Pump Controls	Biz-Custom	Assembly	Retro	103,919	35%	36,372	0.00	10	\$1,150	100%	50%	3	100%	50%	per measure	14.5	29.0	19.9
5	Compressed Air	No Loss Condensate Drain	Biz-Standard	Assembly	Retro	103,919	2%	2,320	0.00	13	\$700	100%	29%	4	100%	5%	per measure	1.9	6.6	2.8
6	Compressed Air	Efficient Air Nozzles	Biz-Standard	Assembly	Retro	2,260	50%	1,130	0.00	15	\$77	100%	97%	5	100%	20%	per measure	9.3	9.5	13.5
7	Compressed Air	Compressed Air - Custom	Biz-Custom	Assembly	Retro	5	20%	1	0.00	10	\$0	100%	47%	6	100%	20%	per kWh	2.2	4.6	3.4
8	Cooling	Commercial Combination Oven (Electric)	Biz-Custom	Assembly	ROB	23,958	38%	9,068	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
9	Cooling	Commercial Electric Convection Oven	Biz-Custom	Assembly	ROB	9,839	11%	1,065	0.00	12	\$0	100%	40%	1	18%	53%	per measure	n/a	0.0	n/a
10	Cooling	Commercial Electric Griddle	Biz-Custom	Assembly	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	2	14%	17%	per measure	n/a	0.0	n/a
11	Cooling	Commercial Electric Steam Cooker	Biz-Standard	Assembly	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	21%	3	6%	45%	per measure	1.5	7.1	1.9
12	Cooling	Dishwasher Low Temp Door (Energy Star)	Biz-Custom	Assembly	ROB	39,306	44%	17,369	0.00	15	\$662	100%	100%	4	26%	61%	per measure	14.0	14.0	23.4
13	Cooling	Dishwasher High Temp Door (Energy Star)	Biz-Custom	Assembly	ROB	26,901	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.3
14	Cooling	Energy efficient electric fryer	Biz-Custom	Assembly	ROB	17,451	5%	952	0.00	12	\$2,100	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
15	Cooling	Insulated Holding Cabinets (Full Size)	Biz-Standard	Assembly	ROB	1,534	46%	709	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
16	Cooling	Insulated Holding Cabinets (3/4 Size)	Biz-Standard	Assembly	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
17	Cooling	Insulated Holding Cabinets (Half-Size)	Biz-Standard	Assembly	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.6	6.2	2.0
18	Cooling	Air Conditioner -17 IER (5-20 Tons)	Biz-Standard/SBDI	Assembly	ROB	871	15%	128	0.00	15	\$191	100%	44%	1	21%	10%	per ton	1.3	2.9	1.0
19	Cooling	Air Conditioner -18 IER (5-20 Tons)	Biz-Standard/SBDI	Assembly	ROB	871	19%	169	0.00	15	\$254	100%	46%	1	21%	10%	per ton	1.3	2.7	1.0
20	Cooling	Air Conditioner -21 IER (5-20 Tons)	Biz-Standard/SBDI	Assembly	ROB	871	31%	270	0.00	15	\$465	100%	48%	1	21%	10%	per ton	1.1	2.3	1.0
21	Cooling	Air Conditioner -14.3 IER (20+ Tons)	Biz-Standard	Assembly	ROB	957	8%	74	0.00	15	\$59	100%	55%	2	21%	10%	per ton	2.3	4.4	1.6
22	Cooling	Air Conditioner -15 IER (20+ Tons)	Biz-Standard	Assembly	ROB	957	12%	115	0.00	15	\$97	100%	53%	2	21%	10%	per ton	2.2	4.2	1.5
23	Cooling	Air Conditioner -17 IER (20+ Tons)	Biz-Standard	Assembly	ROB	957	22%	214	0.00	15	\$204	100%	53%	2	21%	10%	per ton	2.0	3.7	1.4
24	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Assembly	Retro	0	7%	74	0.00	3	\$5	100%	50%	3	42%	50%	per ton	6.4	12.8	3.1
25	Cooling	Air-Side Economizer	Biz-Custom	Assembly	Retro	871	20%	174	0.00	10	\$84	100%	46%	4	42%	25%	per ton	2.8	6.2	1.7
26	Cooling	Advanced Rooftop Controls	Biz-Standard/SBDI	Assembly	ROB	6,773	56%	3,779	0.00	15	\$2,950	100%	4%	5	42%	20%	per measure	2.4	54.5	1.1
27	Cooling	HVAC Occupancy Controls	Biz-Custom	Assembly	ROB	893	20%	179	0.00	15	\$537	100%	7%	6	42%	20%	per ton	0.6	8.5	0.4
28	Cooling	Air Conditioner -16 SEER (<5 Tons)	Biz-Standard/SBDI	Assembly	ROB	903	13%	113	0.00	15	\$115	100%	52%	7	23%	10%	per ton	1.8	3.6	1.4
29	Cooling	Air Conditioner -17 SEER (<5 Tons)	Biz-Standard/SBDI	Assembly	ROB	903	18%	159	0.00	15	\$514	100%	17%	7	23%	10%	per ton	0.6	3.4	0.4
30	Cooling	Air Conditioner -18 SEER (<5 Tons)	Biz-Standard/SBDI	Assembly	ROB	903	22%	201	0.00	15	\$514	100%	23%	7	23%	10%	per ton	0.7	3.2	0.6
31	Cooling	Air Conditioner -21 SEER (<5 Tons)	Biz-Standard/SBDI	Assembly	ROB	903	33%	301	0.00	15	\$514	100%	40%	7	23%	10%	per ton	1.1	2.7	0.9
32	Cooling	Smart Thermostat	Biz-Standard/SBDI	Assembly	ROB	3,610	14%	502	0.00	10	\$224	100%	79%	9	23%	63%	per measure	3.1	3.9	2.2
33	Cooling	PTAC - <7,000 Btu/h - Iodging	Biz-Custom	Assembly	ROB	1,062	8%	90	0.00	8	\$84	100%	24%	9	0%	0%	per ton	1.2	5.2	0.8
34	Cooling	PTAC - 7,000 to 15,000 Btu/h - Iodging	Biz-Custom	Assembly	ROB	1,165	7%	85	0.00	8	\$84	100%	22%	10	0%	0%	per ton	1.1	5.2	0.7
35	Cooling	PTAC - >15,000 Btu/h - Iodging	Biz-Custom	Assembly	ROB	1,330	10%	127	0.00	8	\$84	100%	33%	11	0%	0%	per ton	1.7	5.2	1.1
36	Cooling	Air Cooled Chiller	Biz-Standard	Assembly	ROB	922	9%	83	0.00	20	\$106	100%	18%	12	31%	10%	per ton	1.8	10.9	1.0
37	Cooling	Water Cooled Chiller	Biz-Standard	Assembly	ROB	463	23%	105	0.00	20	\$106	100%	21%	13	3%	10%	per ton	2.3	10.9	1.2
38	Cooling	Chiller Tune-up	Biz-Custom	Assembly	Retro	0	7%	74	0.00	3	\$8	100%	50%	14	35%	50%	per ton	4.3	8.5	2.2
39	Cooling	Window Film	Biz-Custom	Assembly	Retro	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	25%	per measure	1.3	6.2	1.4
40	Cooling	Triple Pane Windows	Biz-Custom	Assembly	ROB	6,000	6%	360	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
41	Cooling	Energy Recovery Ventilator	Biz-Custom	Assembly	Retro	899	7%	64	0.00	15	\$1,050	100%	1%	16	100%	2%	per ton	0.9	65.3	0.1
42	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	655	66%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
43	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
44	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	1,205	68%	823	0.00	15	\$234	100%	35%	3	14%	69%	per measure	1.4	4.0	3.4
45	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	2,214	65%	1,436	0.00	15	\$234	100%	50%	4	14%	69%	per measure	3.7	7.3	5.7
46	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
47	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
48	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	181	69%	125	0.00	10	\$274	100%	5%	7	14%	35%	per measure	0.1	2.8	0.3
49	Heating	Heat Pump -16 SEER (<5 Tons)	Biz-Standard	Assembly	ROB	2,288	4%	85	0.00	15	\$135	100%	17%	10	30%	10%	per ton	0.8	4.9	0.7
50	Heating	Heat Pump -17 SEER (<5 Tons)	Biz-Standard	Assembly	ROB	2,288	8%	191	0.00	15	\$421	100%	11%	1	30%	10%	per ton	0.5	4.9	0.5
51	Heating	Heat Pump -18 SEER (<5 Tons)	Biz-Standard	Assembly	ROB	2,288	12%	275	0.00	15	\$446	100%	15%	1	30%	10%	per ton	0.7	4.7	0.7
52	Heating	Heat Pump -21 SEER (<5 Tons)	Biz-Standard	Assembly	ROB	2,288	18%	414	0.00	15	\$446	100%	30%	1	30%	10%	per ton	1.2	3.8	1.1
53	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Assembly	ROB	2,288	18%	414	0.00	16	\$224	100%	28%	1	30%	10%	per ton	2.4	8.7	1.9
54	Heating	Heat Pump -15.0 IER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Standard	Assembly	ROB	2,553	6%	158	0.00	15	\$100	100%	31%	2	19%	10%	per ton	1.6	5.2	1.7
55	Heating	Heat Pump -16.0 IER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Standard	Assembly	ROB	2,553	11%	175	0.00	15	\$171	100%	35%	2	19%	10%	per ton	1.7	4.9	1.8
56	Heating	Heat Pump -14.5 IER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Standard	Assembly	ROB	2,644	7%	192	0.00	15	\$100	100%	34%	3	18%	10%	per ton	1.9	5.5	1.8
57	Heating	Heat Pump -15.5 IER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Standard	Assembly	ROB	2,644	12%	318	0.00	15	\$182	100%	34%	3	18%	10%	per ton	1.8	5.2	1.8
58	Heating	Heat Pump -12 IER COP 3.4 (239,000-390,000 Btu/hr)	Biz-Standard	Assembly	ROB	2,774	7%	194	0.00	15	\$100	100%	34%	4	18%	10%	per ton	2.1	6.2	2.0
59	Heating	Heat Pump -13 IER COP 3.6 (239,000-390,000 Btu/hr)	Biz-Standard	Assembly	ROB	2,774	13%	350	0.00	15	\$202	100%	31%	4	18%	10%	per ton	1.8	5.9	1.8
60	Heating	Geothermal HP -17 IER <135kbtu	Biz-Custom	Assembly	ROB	1,815	4%	65	0.00	25	\$108	100%	90%	5	6%	20%	per ton	1.0	11.3	0.8
61	Heating	PTHP -<7,000 Btu/h - Iodging	Biz-Custom	Assembly	ROB	2,581	5%	136	0.00	8	\$84	100%	24%	6	0%	0%	per ton	2.9	14.4	1.8
62	Heating																			

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
64	Heating	PTHP ->15,000 Btu/h - Indiging	Biz-Custom	Assembly	ROB	3,140	17%	537	0.00	8	\$84	100%	96%	8	0%	20%	per ton	5.8	6.1	4.2
65	HotWater	Re-Size Heat Pump Water Heater	Biz-Standard	Assembly	ROB	3,027	67%	2,027	0.00	15	\$1,115	100%	45%	1	80%	0%	per measure	1.2	2.7	2.0
66	HotWater	Commercial-Size HPWH	Biz-Standard	Assembly	ROB	116,224	7%	89,384	0.00	15	\$7,450	100%	88%	2	20%	0%	per measure	0.8	8.9	11.1
67	HotWater	Hot Water Pipe Insulation	Biz-Custom	Assembly	Retro	3,027	2%	61	0.00	20	\$60	100%	11%	3	100%	80%	per measure	7.9	7.9	1.2
68	HotWater	Faucet Aerator	Biz-Custom	Assembly	Retro	400	22%	87	0.00	9	\$8	100%	50%	4	20%	85%	per measure	5.1	10.3	6.6
69	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Assembly	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	17.9	20.8
70	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Assembly	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	1.0	4.6	1.5
71	InteriorLighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Assembly	Retro	154	83%	127	0.00	10	\$16	100%	17%	1	1%	40%	per measure	4.3	24.8	5.2
72	InteriorLighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Assembly	Retro	144	85%	122	0.00	10	\$20	100%	14%	1	1%	40%	per measure	3.3	23.8	4.0
73	InteriorLighting	LED Specialty Lamp	Biz-Standard/SBDI	Assembly	Retro	114	87%	99	0.00	10	\$12	100%	23%	1	1%	40%	per measure	4.4	19.2	5.3
74	InteriorLighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Assembly	Retro	177	84%	148	0.00	10	\$48	100%	14%	2	7%	40%	per measure	1.6	11.5	2.0
75	InteriorLighting	LED <=13 Watt Lamp Replacing Interior Halogen MR 16 35-50 Watt Lamp	Biz-Standard/SBDI	Assembly	Retro	121	85%	103	0.00	10	\$37	100%	18%	2	7%	40%	per measure	1.5	8.0	1.9
76	InteriorLighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-80 Watt Lamp	Biz-Standard/SBDI	Assembly	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	7%	40%	per measure	1.4	15.1	1.7
77	InteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Standard/SBDI	Assembly	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	18%	40%	per measure	2.5	12.6	3.2
78	InteriorLighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Assembly	Retro	1,390	60%	836	0.00	15	\$234	100%	30%	3	18%	40%	per measure	2.6	8.7	3.3
79	InteriorLighting	LED Fixture with Network Controls Replacing Interior HID	Biz-Standard	Assembly	Retro	1,427	75%	1,070	0.00	15	\$367	100%	27%	3	18%	40%	per measure	2.1	7.9	2.8
80	InteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Assembly	Retro	1,525	68%	1,030	0.00	15	\$362	100%	35%	4	12%	40%	per measure	2.1	5.9	2.8
81	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Assembly	Retro	687	51%	350	0.00	10	\$30	100%	53%	5	9%	40%	per measure	6.2	11.8	7.8
82	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Assembly	Retro	834	57%	477	0.00	15	\$43	100%	100%	5	9%	40%	per measure	8.0	10.4	10.4
83	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Assembly	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	9%	40%	per measure	6.6	6.6	8.8
84	InteriorLighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Assembly	Retro	275	65%	178	0.00	15	\$56	100%	32%	5	9%	40%	per measure	2.3	7.2	3.0
85	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Assembly	Retro	382	54%	208	0.00	10	\$30	100%	33%	6	34%	40%	per measure	3.7	11.3	4.6
86	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Assembly	Retro	349	60%	209	0.00	15	\$30	100%	74%	6	34%	40%	per measure	5.1	6.9	6.7
87	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Assembly	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	34%	40%	per measure	5.0	10.0	6.4
88	InteriorLighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Assembly	Retro	358	63%	224	0.00	15	\$56	100%	14%	6	34%	40%	per measure	0.9	6.4	1.2
89	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Assembly	Retro	358	63%	224	0.00	10	\$30	100%	40%	7	19%	40%	per measure	4.0	10.0	5.0
90	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Assembly	Retro	384	71%	274	0.00	15	\$36	100%	100%	7	19%	40%	per measure	5.5	5.5	7.5
91	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Assembly	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	19%	40%	per measure	3.4	4.8	4.6
92	InteriorLighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Assembly	Retro	115	69%	80	0.00	15	\$56	100%	24%	7	19%	40%	per measure	1.0	4.3	1.5
93	InteriorLighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Assembly	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	27%	per measure	1.4	6.6	1.8
94	InteriorLighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Assembly	Retro	1,213	24%	291	0.00	10	\$105	100%	22%	9	32%	27%	per measure	1.5	6.6	1.9
95	InteriorLighting	Lighting Power Density	Biz-Custom	Assembly	Retro	4	20%	1	0.00	15	\$0	100%	30%	10	80%	20%	per sq ft	2.4	6.5	3.1
96	InteriorLighting	LED Lighting Redesign/Custom	Biz-Standard	Assembly	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
97	InteriorLighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Assembly	Retro	255	91%	231	0.00	7	\$45	100%	40%	12	1%	80%	per measure	2.0	4.9	2.7
98	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Assembly	Retro	385	61%	237	0.00	5	\$233	100%	9%	1	5%	30%	per measure	0.2	1.8	0.4
99	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Assembly	ROB	9,932	50%	4,966	0.00	20	\$1,180	100%	24%	2	8%	10%	per HP	3.2	13.6	4.6
100	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Assembly	Retro	262	83%	217	0.00	10	\$483	100%	4%	3	2%	10%	per measure	0.2	5.1	0.3
101	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Assembly	Retro	2,984	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0
102	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Assembly	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	0%	70%	per measure	1.0	7.8	1.4
103	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Assembly	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	0%	20%	per measure	3.6	5.7	5.0
104	Miscellaneous	Pool Pump Timer	Biz-Custom	Assembly	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	5%	20%	per measure	3.1	5.7	4.2
105	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Assembly	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	0%	20%	per measure	24.6	24.6	31.1
106	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Assembly	ROB	7,758	80%	6,206	0.00	15	\$1,000	100%	56%	9	0%	20%	per measure	4.3	7.8	5.9
107	Miscellaneous	High Efficiency Dryer	Biz-Custom	Assembly	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8
108	Miscellaneous	Miscellaneous Custom	Biz-Custom	Assembly	Retro	7	2%	0	0.00	10	\$0	100%	13%	11	29%	10%	per kWh	0.5	2.2	0.5
109	Motors	Cogged V-Belt	Biz-Custom	Assembly	Retro	17,237	3%	534	0.00	15	\$384	100%	13%	1	50%	10%	per measure	1.0	8.0	1.3
110	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Assembly	Retro	3,805	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per HP	8.4	13.8	7.2
111	Motors	Power Drive Systems	Biz-Custom	Assembly	Retro	4	23%	1	0.00	15	\$528	100%	50%	2	100%	1%	per kWh	5.5	11.0	7.0
112	Motors	Switch Reluctance Motors	Biz-Custom	Assembly	Retro	33,406	31%	10,222	0.00	15	\$528	100%	50%	2	100%	1%	per measure	10.1	20.2	17.0
113	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Assembly	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
114	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Assembly	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	30%	90%	per measure	n/a	0.0	n/a
115	Office_NonPC	Smart Power Strip - Commercial Use	Biz-Custom	Assembly	Retro	1,086	10%	169	0.00	7	\$50	100%	20%	2	60%	15%	per measure	0.7	3.8	1.2
116	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Assembly	Retro	1,126	15%	169	0.00	8	\$70	100%	22%	2	60%	15%	per measure	0.9	4.3	1.4
117	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Assembly	Retro	86,783	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5
118	Office_PC	Energy Star Server	Biz-Custom	Assembly	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
119	Office_PC	Server Virtualization	Biz-Custom	Assembly	Retro	2	45%	1	0.00	8	\$0	100%	23%	1	65%	25%	per kWh	0.6	2.8	1.5
120	Office_PC	High Efficiency CRAC Unit	Biz-Custom	Assembly	ROB	541	30%	162	0.00	15	\$63	100%	39%	2	65%	20%	per measure	1.6	6.9	4.1
121	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Assembly	Retro	764	47%	358	0.00	15	\$82	100%	23%	2	65%	20%	per measure	1.8	4.7	4.1
122	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Assembly	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4
123	Office_PC	Energy Star Laptop	Biz-Custom	Assembly	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
124	Office_PC	Energy Star Monitor	Biz-Custom	Assembly	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
125	Refrigeration	Strip Curtains	Biz-Custom	Assembly	Retro	0	0%	0	0.00	4	\$0	100%	0%	1	11%	30%	per sq ft	n/a	0.0	n/a

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
126	Refrigeration	Bare Suction Line	Biz-Custom	Assembly	Retro	23	93%	21	0.00	15	\$4	100%	47%	2	0%	50%	per measure	3.1	6.6	4.9
127	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Assembly	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	7%	25%	per HP	0.3	4.7	0.6
128	Refrigeration	Saturated Suction Controls	Biz-Custom	Assembly	Retro	831	50%	416	0.00	15	\$559	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7
129	Refrigeration	Compressor Retrofit	Biz-Custom	Assembly	Retro	813	20%	163	0.00	15	\$477	100%	3%	5	25%	25%	per measure	0.4	12.0	0.3
130	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Standard	Assembly	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	6	7%	80%	per measure	3.1	9.9	4.8
131	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Assembly	Retro	2,236	32%	716	0.00	15	\$155	100%	42%	7	7%	25%	per measure	1.9	4.7	4.4
132	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Assembly	Retro	2,960	50%	1,480	0.00	15	\$1,170	100%	11%	8	9%	25%	per HP	0.5	4.7	1.2
133	Refrigeration	Refrigeration Economizer	Biz-Custom	Assembly	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	34%	10%	per kWh	1.7	3.4	1.1
134	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Standard	Assembly	Retro	579	59%	338	0.00	10	\$151	100%	37%	10	12%	25%	per door	1.0	2.7	1.7
135	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Assembly	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	3%	25%	per door	0.5	6.2	0.7
136	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Standard	Assembly	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	12	2%	80%	per measure	3.1	9.9	4.8
137	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Biz-Custom	Assembly	Retro	441	34%	149	0.00	10	\$90	100%	15%	13	2%	2%	per measure	0.8	5.1	1.2
138	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Standard	Assembly	ROB	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	11%	54%	per door	0.3	2.9	0.5
139	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Standard	Assembly	ROB	1,410	20%	281	0.00	10	\$222	100%	9%	14	11%	54%	per door	0.1	1.3	0.3
140	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Assembly	Retro	1,278	12%	153	0.00	14	\$500	100%	3%	21	2%	30%	per measure	0.2	6.6	0.3
141	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Assembly	Retro	2,912	68%	1,461	0.00	10	\$151	100%	51%	15	4%	25%	per door	4.1	8.1	6.0
142	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Standard	Assembly	Retro	2,022	50%	1,453	0.00	12	\$686	100%	19%	16	4%	25%	per door	1.2	6.2	1.7
143	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Standard	Assembly	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	4%	54%	per door	0.4	5.5	0.6
144	Refrigeration	Refrigeration - Custom	Biz-Custom	Assembly	ROB	4,522	7%	305	0.00	12	\$1,521	100%	7%	17	4%	54%	per door	0.1	1.3	0.2
145	Refrigeration	Retro-commissioning, Refrigerator Optimization	Biz-Custom RxC	Assembly	ROB	7	2%	0	0.00	10	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
146	Refrigeration	Energy Star Ice Machine	Biz-Custom	Assembly	ROB	12,461	13%	1,630	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
147	Refrigeration	ESTAR Refrigerated Vending Machine	Biz-Custom	Assembly	ROB	1,278	12%	153	0.00	10	\$222	100%	66%	20	7%	44%	per measure	3.2	4.8	5.2
148	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Assembly	ROB	1,278	17%	213	0.00	14	\$500	100%	3%	21	2%	30%	per measure	0.2	6.6	0.3
149	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/lf	Biz-Custom	Assembly	Retro	115	74%	84	0.00	9	\$11	100%	50%	22	2%	30%	per measure	0.1	1.7	0.4
150	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Assembly	Retro	522	27%	141	0.00	10	\$56	100%	23%	23	7%	35%	per linear ft	3.9	7.8	4.8
151	Ventilation	Demand Controlled Ventilation	Biz-Standard	Assembly	Retro	1,688	20%	340	0.00	15	\$227	100%	63%	1	100%	13%	per measure	1.7	1.7	1.9
152	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Standard	Assembly	Retro	2,166	45%	940	0.00	15	\$168	100%	61%	2	100%	13%	per HP	6.1	10.0	5.4
153	Ventilation	High Volume Low Speed Fan, 20	Biz-Standard	Assembly	Retro	19,919	82%	16,287	0.00	15	\$4,130	100%	20%	3	5%	30%	per measure	3.2	15.6	3.6
154	Ventilation	High Volume Low Speed Fan, 22	Biz-Standard	Assembly	Retro	21,909	83%	18,277	0.00	15	\$4,190	100%	27%	4	5%	30%	per measure	3.5	13.1	4.0
155	Ventilation	High Volume Low Speed Fan, 24	Biz-Standard	Assembly	Retro	23,903	82%	19,579	0.00	15	\$4,230	100%	32%	5	5%	30%	per measure	3.7	11.7	4.3
156	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom	Assembly	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	100%	20%	per kWh	2.8	8.3	2.5
157	WholeBldg_HVAC	Coil Roof	Biz-Custom	Assembly	Retro	5	20%	1	0.00	25	\$1	100%	20%	2	73%	33%	per kWh	2.2	11.5	1.9
158	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RxC	Assembly	Retro	7	15%	1	0.00	5	\$0	100%	100%	3	100%	0%	per kWh	3.7	3.7	3.6
159	Wholebuilding	WholeBldg - Com RET	Biz-Custom	Assembly	Retro	7	15%	1	0.00	12	\$0	100%	38%	1	80%	0%	per kWh	1.5	3.9	2.2
160	Wholebuilding	WholeBldg - Custom (Other)	Biz-Custom	Assembly	Retro	5	20%	1	0.00	12	\$0	100%	38%	2	80%	2%	per kWh	1.5	3.9	2.2
161	Wholebuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Assembly	Retro	1,150	1%	6	0.00	30	\$8	100%	13%	3	100%	20%	per measure	1.0	8.1	1.2
162	WholeBldg_NC	WholeBldg - Com NC	Biz-Custom	Assembly	NC	4	25%	1	0.00	12	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
163	Behavioral	COM Competitions	Biz-Custom	Assembly	Retro	53	2%	1	0.00	2	\$0	100%	48%	1	100%	0%	per kWh	1.6	3.2	3.5
164	Behavioral	Business Energy Reports	Biz-Custom	Assembly	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
165	Behavioral	Building Benchmarking	Biz-Custom	Assembly	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
166	Behavioral	Strategic Energy Management	Biz-Custom SEM	Assembly	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
167	Behavioral	BEIMS	Biz-Custom	Assembly	Retro	50	2%	1	0.00	2	\$0	100%	18%	1	100%	2%	per kWh	0.1	0.8	0.5
168	Behavioral	Building Operator Certification	Biz-Custom	Assembly	Retro	10	3%	0	0.00	3	\$0	100%	11%	1	100%	2%	per kWh	0.2	1.7	0.4
169	CompressedAir	Retro-commissioning, Compressed Air Optimization	Biz-Custom RxC	Education	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
170	CompressedAir	Compressed Air Leak Repair	Biz-Custom	Education	Retro	6	17%	1	0.00	5	\$0	100%	50%	1	100%	39%	per kWh	3.0	6.1	4.5
171	CompressedAir	Efficient Air Compressors (VSD)	Biz-Standard	Education	ROB	4,748	21%	987	0.00	10	\$1,573	100%	5%	2	100%	20%	per HP	0.3	5.3	0.4
172	CompressedAir	AQDD Pump Controls	Biz-Custom	Education	Retro	103,919	35%	36,372	0.00	10	\$1,150	100%	50%	3	100%	50%	per measure	14.5	29.0	19.9
173	CompressedAir	No Loss Condensate Drain	Biz-Standard	Education	Retro	103,919	2%	2,320	0.00	13	\$700	100%	29%	4	100%	5%	per measure	1.9	6.6	2.8
174	CompressedAir	Efficient Air Nozzles	Biz-Standard	Education	Retro	2,260	50%	1,130	0.00	15	\$77	100%	97%	5	5%	20%	per measure	9.3	9.5	13.5
175	CompressedAir	Compressed Air - Custom	Biz-Custom	Education	Retro	5	20%	1	0.00	10	\$0	100%	47%	6	100%	20%	per kWh	2.2	4.6	3.4
176	Cooling	Commercial Combination Oven (Electric)	Biz-Custom	Education	ROB	23,958	38%	9,058	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
177	Cooling	Commercial Electric Connection Oven	Biz-Custom	Education	ROB	9,839	11%	1,065	0.00	12	\$1,783	100%	40%	1	18%	53%	per measure	n/a	0.0	n/a
178	Cooling	Commercial Electric Griddle	Biz-Custom	Education	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	2	14%	17%	per measure	n/a	0.0	n/a
179	Cooling	Commercial Electric Steam Cooker	Biz-Standard	Education	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	21%	3	6%	45%	per measure	1.5	7.1	1.9
180	Cooling	Dishwasher Low Temp Door (Energy Star)	Biz-Custom	Education	ROB	39,506	44%	17,369	0.00	15	\$662	100%	90%	4	26%	61%	per measure	14.0	14.0	23.4
181	Cooling	Dishwasher High Temp Door (Energy Star)	Biz-Custom	Education	ROB	26,901	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.3
182	Cooling	Energy efficient electric fryer	Biz-Custom	Education	ROB	17,451	5%	952	0.00	12	\$2,120	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
183	Cooling	Insulated Holding Cabinets (Full Size)	Biz-Standard	Education	ROB	1,534	46%	709	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
184	Cooling	Insulated Holding Cabinets (3/4 Size)	Biz-Standard	Education	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.0	3.9	1.4
185	Cooling	Insulated Holding Cabinets (Half-Size)	Biz-Standard	Education	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.6	6.2	2.0
186	Cooling	Air Conditioner - 17 IER (5-20 Tons)	Biz-Standard/SBDI	Education	ROB	856	15%	126	0.00	15	\$191	100%	44%	1	24%	10%	per ton	1.2	2.8	1.0
187	Cooling	Air Conditioner - 18 IER (5-20 Tons)	Biz-Standard/SBDI	Education	ROB	856	19%	165	0.00	15	\$244	100%	48%	1	24%	10%	per ton	1.2	2.7	1.0
188	Cooling	Air Conditioner - 21 IER (5-20 Tons)	Biz-Standard/SBDI	Education	ROB	856	31%	265	0.00	15	\$445	100%	46%	1	24%	10%	per ton	1.1	2.3	1.0
189	Cooling	Air Conditioner - 14.3 IER (20+ Tons)	Biz-Standard	Education	ROB	940	8%	72	0.00	15	\$59	100%	53%	2	24%	10%	per ton	2.3	4.3	1.6
190	Cooling	Air Conditioner - 15 IER (20+ Tons)	Biz-Standard	Education	ROB	940	12%	113	0.00	15	\$97	100%	53%	2	24%	10%	per ton	2.2	4.1	1.5
191	Cooling	Air Conditioner - 17 IER (20+ Tons)	Biz-Standard	Education	ROB	940	22%	210	0.00	15	\$204	100%	53%	2	24%	10%	per ton	1.9	3.6	1.4
192	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Education	Retro	0	7%	72	0.00	3	\$5	100%	50%	3	49%	50%	per ton	6.3	12.6	3.1

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TRC Score	UCT Score	Participant Test Score
193	Cooling	Air-Side Economizer	Biz-Custom	Education	Retro	856	20%	171	0.00	10	\$84	100%	45%	4	49%	25%	per ton	2.8	6.2	1.7
194	Cooling	Advanced Rooftop Controls	Biz-Standard/SBDI	Education	Retro	6,304	56%	3,518	0.00	15	\$2,950	100%	4%	5	49%	20%	per measure	2.2	50.8	1.1
195	Cooling	HVAC Occupancy Controls	Biz-Custom	Education	ROB	829	20%	166	0.00	15	\$537	100%	7%	6	49%	20%	per ton	0.2	2.2	0.3
196	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Standard/SBDI	Education	ROB	886	13%	111	0.00	15	\$515	100%	52%	7	0%	10%	per ton	1.8	3.5	1.3
197	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Standard/SBDI	Education	ROB	886	18%	156	0.00	15	\$514	100%	17%	7	0%	10%	per ton	0.6	3.3	0.4
198	Cooling	Air Conditioner - 18 SEER (<5 Tons)	Biz-Standard/SBDI	Education	ROB	886	22%	197	0.00	15	\$514	100%	23%	7	0%	10%	per ton	0.7	3.1	0.6
199	Cooling	Air Conditioner - 21 SEER (<5 Tons)	Biz-Standard/SBDI	Education	ROB	886	33%	295	0.00	15	\$514	100%	40%	7	0%	10%	per ton	1.1	2.7	0.9
200	Cooling	Smart Thermostat	Biz-Standard/SBDI	Education	ROB	3,545	14%	493	0.00	10	\$224	100%	79%	8	0%	63%	per measure	3.0	3.8	2.1
201	Cooling	PTAC - <7,000 Btu/h - Iodging	Biz-Custom	Education	ROB	1,043	8%	88	0.00	8	\$84	100%	23%	9	0%	20%	per ton	1.2	5.2	0.8
202	Cooling	PTAC - 7,000 to 15,000 Btu/h - Iodging	Biz-Custom	Education	ROB	1,144	7%	83	0.00	8	\$84	100%	22%	10	0%	20%	per ton	1.1	5.2	0.7
203	Cooling	PTAC - >15,000 Btu/h - Iodging	Biz-Custom	Education	ROB	1,306	10%	124	0.00	8	\$84	100%	33%	11	0%	20%	per ton	1.7	5.2	1.1
204	Cooling	Air Cooled Chiller	Biz-Standard	Education	ROB	906	9%	82	0.00	20	\$106	100%	18%	12	46%	10%	per ton	1.8	10.7	1.0
205	Cooling	Water Cooled Chiller	Biz-Standard	Education	ROB	455	23%	103	0.00	20	\$106	100%	21%	13	5%	10%	per ton	2.2	10.7	1.2
206	Cooling	Chiller Tune-up	Biz-Custom	Education	Retro	0	7%	72	0.00	3	\$8	100%	50%	14	51%	50%	per ton	4.2	8.4	2.2
207	Cooling	Window Film	Biz-Custom	Education	Retro	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	2%	per measure	1.3	6.2	1.4
208	Cooling	Triple Pane Windows	Biz-Custom	Education	ROB	6,000	6%	360	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
209	Cooling	Energy Recovery Ventilator	Biz-Custom	Education	Retro	883	12%	103	0.01	15	\$1,050	100%	2%	16	100%	2%	per ton	1.3	59.9	0.1
210	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Education	Retro	655	65%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
211	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Education	Retro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
212	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Education	Retro	1,205	68%	823	0.00	15	\$234	100%	33%	3	14%	69%	per measure	1.4	4.0	3.4
213	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Education	Retro	2,214	65%	1,436	0.00	15	\$234	100%	50%	4	14%	69%	per measure	3.7	7.3	5.7
214	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Education	Retro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
215	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Education	Retro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
216	Exterior Lighting	Bi-level Lighting Fixture - Garages	Biz-Custom	Education	Retro	262	69%	181	0.00	10	\$274	100%	7%	7	14%	35%	per measure	0.2	2.8	0.5
217	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Standard	Education	ROB	1,848	4%	74	0.00	15	\$135	100%	17%	1	0%	10%	per ton	0.8	4.6	0.6
218	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Standard	Education	ROB	1,848	9%	162	0.00	15	\$421	100%	11%	1	0%	10%	per ton	0.5	4.6	0.4
219	Heating	Heat Pump - 18 SEER (<5 Tons)	Biz-Standard	Education	ROB	1,848	13%	233	0.00	15	\$446	100%	15%	1	0%	10%	per ton	0.7	4.4	0.6
220	Heating	Heat Pump - 21 SEER (<5 Tons)	Biz-Standard	Education	ROB	1,848	19%	359	0.00	15	\$520	100%	26%	1	0%	10%	per ton	0.9	3.6	0.8
221	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Education	ROB	1,848	19%	359	0.00	16	\$224	100%	24%	1	0%	10%	per ton	2.3	9.5	1.7
222	Heating	Heat Pump - 15.0 IER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Standard	Education	ROB	2,054	6%	130	0.00	15	\$100	100%	31%	2	29%	10%	per ton	1.5	4.7	1.4
223	Heating	Heat Pump - 16.0 IER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Standard	Education	ROB	2,054	12%	239	0.00	15	\$171	100%	35%	2	29%	10%	per ton	1.6	4.5	1.5
224	Heating	Heat Pump - 14.5 IER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Standard	Education	ROB	2,129	7%	146	0.00	15	\$100	100%	34%	3	28%	10%	per ton	1.7	5.0	1.6
225	Heating	Heat Pump - 15.5 IER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Standard	Education	ROB	2,129	12%	262	0.00	15	\$182	100%	34%	3	28%	10%	per ton	1.6	4.8	1.6
226	Heating	Heat Pump - 12 IER 3.4 COP (>239,000 Btu/hr)	Biz-Standard	Education	ROB	2,242	7%	162	0.00	15	\$202	100%	31%	4	28%	10%	per ton	2.0	5.7	1.7
227	Heating	Heat Pump - 13 IER 3.6 COP (>239,000 Btu/hr)	Biz-Standard	Education	ROB	2,242	13%	290	0.00	15	\$202	100%	31%	4	28%	10%	per ton	1.7	5.4	1.5
228	Heating	Geothermal HP - 17 EER < 135kbtu	Biz-Custom	Education	ROB	1,497	4%	56	0.00	25	\$108	100%	8%	5	6%	20%	per ton	1.0	12.3	0.7
229	Heating	Geothermal HP - 19 EER < 135kbtu	Biz-Custom	Education	ROB	1,497	9%	133	0.00	25	\$108	100%	18%	5	6%	20%	per ton	2.8	15.0	1.6
230	Heating	PTHP - <7,000 Btu/h - Iodging	Biz-Custom	Education	ROB	2,067	6%	120	0.00	8	\$84	100%	21%	6	0%	20%	per ton	1.2	5.7	0.9
231	Heating	PTHP - 7,000 to 15,000 Btu/h - Iodging	Biz-Custom	Education	ROB	2,247	10%	228	0.00	8	\$84	100%	41%	7	0%	20%	per ton	2.8	7.0	1.8
232	Heating	PTHP - >15,000 Btu/h - Iodging	Biz-Custom	Education	ROB	2,552	19%	493	0.00	8	\$84	100%	88%	8	0%	20%	per ton	5.6	6.4	3.8
233	HotWater	Res-ized Heat Pump Water Heater	Biz-Standard	Education	ROB	5,042	67%	3,377	0.00	15	\$1,115	100%	45%	1	50%	23%	per measure	2.0	4.4	3.0
234	HotWater	Commercial-Sized HPWH	Biz-Standard	Education	ROB	116,224	77%	89,384	0.00	15	\$7,450	100%	88%	2	50%	23%	per measure	7.8	8.9	11.1
235	HotWater	Hot Water Pipe Insulation	Biz-Custom	Education	Retro	5,042	2%	101	0.00	20	\$60	100%	18%	3	100%	80%	per measure	1.5	7.9	1.9
236	HotWater	Faucet Aerator	Biz-Custom	Education	Retro	400	22%	87	0.00	9	\$8	100%	56%	4	20%	85%	per measure	5.1	10.3	6.6
237	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Education	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	20.8	17.9
238	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Education	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	4.0	4.6	1.5
239	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Education	Retro	154	83%	127	0.00	10	\$16	100%	17%	1	0%	40%	per measure	4.3	24.8	5.2
240	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Education	Retro	144	85%	122	0.00	10	\$20	100%	14%	1	0%	40%	per measure	3.3	23.8	4.0
241	Interior Lighting	LED Specialty Lamp	Biz-Standard/SBDI	Education	Retro	114	87%	99	0.00	10	\$12	100%	23%	1	0%	40%	per measure	4.4	19.2	5.3
242	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Education	Retro	177	84%	148	0.00	10	\$48	100%	14%	2	3%	40%	per measure	1.6	11.5	2.0
243	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Standard/SBDI	Education	Retro	121	85%	103	0.00	10	\$37	100%	18%	2	3%	40%	per measure	1.5	8.0	1.9
244	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Standard/SBDI	Education	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	3%	40%	per measure	1.4	15.1	1.7
245	Interior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Standard/SBDI	Education	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	7%	40%	per measure	2.5	12.6	3.2
246	Interior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Education	Retro	1,990	60%	836	0.00	15	\$234	100%	30%	3	7%	40%	per measure	2.6	8.7	3.3
247	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Biz-Standard	Education	Retro	1,427	75%	1,070	0.00	15	\$367	100%	27%	3	7%	40%	per measure	2.1	7.9	2.8
248	Interior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Education	Retro	1,525	68%	1,030	0.00	15	\$362	100%	35%	4	5%	40%	per measure	2.1	5.9	2.8
249	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Education	Retro	687	51%	350	0.00	10	\$30	100%	53%	5	13%	40%	per measure	6.2	11.8	7.8
250	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Education	Retro	834	57%	477	0.00	15	\$43	100%	100%	5	13%	40%	per measure	8.0	8.0	10.4
251	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Education	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	13%	40%	per measure	6.6	6.6	8.8

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
252	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Education	Retro	275	65%	178	0.00	15	\$56	100%	32%	5	13%	40%	per measure	2.3	7.2	3.0
253	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Education	Retro	382	54%	208	0.00	15	\$36	100%	33%	6	46%	40%	per measure	3.7	11.3	4.6
254	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Rits, and Fixtures)	Biz-Standard/SBDI	Education	Retro	349	61%	209	0.00	15	\$30	100%	74%	6	46%	40%	per measure	5.1	6.9	6.7
255	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Education	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	46%	40%	per measure	5.0	10.0	6.4
256	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Education	Retro	109	63%	69	0.00	15	\$56	100%	14%	6	46%	40%	per measure	0.9	6.4	1.2
257	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Education	Retro	358	63%	274	0.00	10	\$30	100%	40%	7	25%	40%	per measure	4.0	10.0	5.0
258	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Rits, and Fixtures)	Biz-Standard/SBDI	Education	Retro	384	71%	224	0.00	15	\$36	100%	100%	7	25%	40%	per measure	5.5	5.5	7.5
259	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Education	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	25%	40%	per measure	3.4	4.8	4.6
260	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Education	Retro	115	69%	80	0.00	15	\$56	100%	24%	7	25%	40%	per measure	1.0	4.3	1.5
261	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Education	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	27%	per measure	1.4	6.6	1.8
262	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Education	Retro	1,213	24%	291	0.00	10	\$105	100%	22%	9	32%	27%	per measure	1.5	6.6	1.9
263	Interior Lighting	Lighting Power Density	Biz-Custom	Education	Retro	4	20%	1	0.00	15	\$0	100%	36%	10	80%	20%	per sq ft	2.4	6.5	3.1
264	Interior Lighting	LED Lighting Redesign/Custom	Biz-Standard	Education	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
265	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Education	Retro	255	91%	231	0.00	7	\$45	100%	6%	12	1%	80%	per measure	2.0	4.9	2.7
266	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Education	Retro	1,278	12%	153	0.00	5	\$233	100%	6%	1	5%	30%	per measure	0.1	1.8	0.3
267	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Education	ROB	9,932	50%	4,966	0.00	20	\$1,180	100%	24%	2	8%	10%	per HP	3.2	13.6	4.6
268	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Education	Retro	2,093	83%	1,737	0.00	10	\$483	100%	32%	3	2%	10%	per measure	1.7	5.1	2.5
269	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Education	Retro	2,984	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0
270	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Education	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	0%	70%	per measure	1.0	7.8	1.4
271	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Education	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	5%	20%	per measure	3.6	5.7	5.0
272	Miscellaneous	Pool Pump Timer	Biz-Custom	Education	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	2%	20%	per measure	3.1	5.7	4.2
273	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Education	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	0%	20%	per measure	24.6	31.1	
274	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Education	ROB	7,758	80%	6,206	0.00	15	\$1,000	100%	56%	9	0%	20%	per measure	4.3	7.8	5.9
275	Miscellaneous	High Efficiency Dryer	Biz-Custom	Education	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8
276	Miscellaneous	Miscellaneous Custom	Biz-Custom	Education	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	44%	10%	per kWh	0.5	2.2	0.5
277	Motors	Cogged V-Belt	Biz-Custom	Education	Retro	17,237	3%	534	0.00	15	\$384	100%	13%	1	50%	10%	per measure	1.0	8.0	1.3
278	Motors	Pump and Fan Variable Frequency Drive Control (Pumps)	Biz-Standard	Education	Retro	3,805	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per HP	8.4	13.8	7.2
279	Motors	Power Drive Systems	Biz-Custom	Education	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	5.5	11.0	7.0
280	Motors	Switch Reluctance Motors	Biz-Custom	Education	Retro	33,406	31%	10,222	0.00	15	\$528	100%	50%	2	100%	1%	per measure	10.1	20.2	17.0
281	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Education	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
282	Office_NonPC	Smart Power Strip/Coil/Fax	Biz-Custom	Education	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	30%	90%	per measure	n/a	0.0	n/a
283	Office_NonPC	Smart Power Strip - Commercial Use	Biz-Custom	Education	Retro	1,086	10%	109	0.00	7	\$50	100%	20%	2	60%	19%	per measure	0.7	3.8	1.2
284	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Education	Retro	1,126	15%	169	0.00	8	\$70	100%	22%	2	60%	19%	per measure	0.9	4.3	1.4
285	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Education	Retro	867,83	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5
286	Office_PC	Energy Star Server	Biz-Custom	Education	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
287	Office_PC	Server Virtualization	Biz-Custom	Education	Retro	2	45%	1	0.00	8	\$0	100%	23%	1	65%	25%	per kWh	0.6	2.8	1.5
288	Office_PC	High Efficiency CFC unit	Biz-Custom	Education	ROB	541	30%	162	0.00	15	\$63	100%	23%	2	65%	20%	per measure	1.6	6.9	2.4
289	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Education	Retro	764	47%	358	0.00	15	\$82	100%	39%	2	65%	20%	per measure	1.8	4.7	4.1
290	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Education	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4
291	Office_PC	Energy Star Laptop	Biz-Custom	Education	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
292	Office_PC	Energy Star Monitor	Biz-Custom	Education	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
293	Refrigeration	Strip Curtains	Biz-Custom	Education	Retro	0	0%	0	0.00	4	\$0	100%	0%	1	11%	30%	per sq ft	n/a	0.0	n/a
294	Refrigeration	Bare Suction Line	Biz-Custom	Education	Retro	23	93%	21	0.00	15	\$4	100%	47%	2	0%	50%	per measure	3.1	6.6	4.9
295	Refrigeration	Floating Near Pressure Controls	Biz-Custom	Education	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	7%	25%	per HP	0.3	4.7	0.6
296	Refrigeration	Saturated Suction Controls	Biz-Custom	Education	Retro	831	50%	416	0.00	10	\$559	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7
297	Refrigeration	Compressor Retrofit	Biz-Custom	Education	Retro	813	20%	163	0.00	15	\$477	100%	3%	5	25%	25%	per measure	0.4	12.0	0.3
298	Refrigeration	Electrically Commutated (EC) Walk-in Evaporator Fan Motor	Biz-Standard	Education	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	12	2%	80%	per measure	3.1	9.9	4.8
299	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Education	Retro	441	34%	149	0.00	10	\$90	100%	15%	13	2%	2%	per measure	0.8	5.1	1.2
300	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Education	Retro	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	12%	54%	per door	0.3	2.9	0.5
301	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Education	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	12%	54%	per door	0.1	1.3	0.3
302	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Education	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	4%	75%	per door	4.1	8.1	6.0
303	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Standard	Education	Retro	2,922	50%	1,453	0.00	12	\$686	100%	19%	16	4%	25%	per door	1.2	6.2	1.7
304	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Education	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	4%	54%	per door	0.4	5.5	0.6
305	Refrigeration	Electronically Commutated (EC) Reach-in Evaporator Fan Motor	Biz-Standard	Education	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	3%	25%	per measure	0.5	6.2	0.7
306	Refrigeration	Q-Sync Motor for Walk-in and Reach-in Evaporator Fan Motor	Biz-Custom	Education	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	12	2%	80%	per measure	3.1	9.9	4.8
307	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Biz-Standard	Education	ROB	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	12%	54%	per door	0.3	2.9	0.5
308	Refrigeration	Energy Star Reach-in Refrigerator, Solid Doors	Biz-Standard	Education	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	12%	54%	per door	0.1	1.3	0.3
309	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Education	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	4%	75%	per door	4.1	8.1	6.0
310	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Education	Retro	2,922	50%	1,453	0.00	12	\$686	100%	19%	16	4%	25%	per door	1.2	6.2	1.7
311	Refrigeration	Energy Star Reach-in Freezer/Glass Doors	Biz-Standard	Education	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	4%	54%	per door	0.4	5.5	0.6
312	Refrigeration	Energy Star Reach-in Freezer/Solid Doors	Biz-Standard	Education	ROB	4,522	7%	305	0.00	12	\$1,521	100%	7%	17	4%	54%	per door	0.1	1.3	0.2
313	Refrigeration	Refrigeration - Custom	Biz-Custom	Education	Retro	7	2%	0	0.00	10	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
314	Refrigeration	Retro-commissioning, Refrigerator Optimization	Biz-Custom R/C	Education	Retro	5	21%	1	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
315	Refrigeration	ENERGY STAR Ice Machine	Biz-Custom	Education	ROB	12,611	13%	1,630	0.00	10	\$222	100%	66%	20	4%	44%	per measure	3.2	4.8	5.2
316	Refrigeration	ESTAR Refrigerated Vending Machine	Biz-Custom	Education	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	3%	30%	per measure	0.2	6.6	0.3
317	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Education	Retro	1,278	17%	213	0.00	5	\$245	100%	8%	22	3%	30%	per measure	0.1	1.7	0.4
317	Refrigeration	LED Refrig Display Case Lighting Average 6W/ft	Biz-Custom	Education	Retro	115	74%	84	0.00	9	\$11	100%	50%	23	7%	35%	per linear ft	3.9	7.8	4.8

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TRC Score	UCT Score	Participant Test Score
318	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Education	Retro	2,222	27%	445	0.00	10	\$56	100%	23%	24	7%	18%	per measure	1.4	6.2	1.8
319	Ventilation	Demand Controlled Ventilation	Biz-Standard	Education	Retro	2,223	20%	445	0.00	10	\$27	100%	63%	1	100%	25%	per measure	2.2	2.2	2.3
320	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Standard	Education	Retro	2,166	43%	940	0.00	15	\$168	100%	61%	2	100%	25%	per HP	6.1	10.0	5.4
321	Ventilation	High Volume Low Speed Fan, 20	Biz-Standard	Education	Retro	19,919	82%	16,287	0.00	15	\$4,130	100%	20%	3	5%	30%	per measure	3.2	15.6	3.6
322	Ventilation	High Volume Low Speed Fan, 22	Biz-Standard	Education	Retro	21,909	83%	18,277	0.00	15	\$4,130	100%	27%	4	5%	30%	per measure	3.5	13.1	4.0
323	Ventilation	High Volume Low Speed Fan, 24	Biz-Standard	Education	Retro	23,903	82%	19,979	0.00	15	\$4,229	100%	32%	5	5%	30%	per measure	3.7	11.7	4.3
324	WholeBldg HVAC	HVAC - Energy Management System	Biz-Custom	Education	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	100%	20%	per kWh	2.8	8.3	2.5
325	WholeBldg HVAC	Cool Roof	Biz-Custom	Education	Retro	5	20%	1	0.00	25	\$0	100%	39%	2	25%	33%	per kWh	4.4	11.5	3.6
326	WholeBldg HVAC	Retrol-commissioning, Bld Optimization	Biz-Custom R/C	Education	Retro	7	15%	1	0.00	5	\$0	100%	100%	3	100%	0%	per kWh	3.7	3.7	3.6
327	WholeBuilding	WholeBldg - Com RET	Biz-Custom	Education	Retro	7	15%	1	0.00	12	\$0	100%	38%	1	80%	0%	per kWh	1.5	3.9	2.2
328	WholeBuilding	WholeBldg - Custom (Other)	Biz-Custom	Education	Retro	5	20%	1	0.00	12	\$0	100%	38%	2	80%	0%	per kWh	1.5	3.9	2.2
329	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Education	Retro	1,150	1%	6	0.00	30	\$8	100%	13%	3	100%	20%	per measure	1.0	8.1	1.2
330	WholeBldg, NC	WholeBldg - Com NC	Biz-Custom	Education	NC	4	25%	1	0.00	12	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
331	Behavioral	COM Competitions	Biz-Custom	Education	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	n/a	n/a
332	Behavioral	Business Energy Reports	Biz-Custom	Education	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	n/a	n/a
333	Behavioral	Building Benchmarking	Biz-Custom	Education	Retro	83	1%	1	0.00	2	\$0	100%	36%	1	100%	0%	per kWh	0.3	0.8	0.9
334	Behavioral	Strategic Energy Management	Biz-Custom SEM	Education	Retro	33	3%	1	0.00	5	\$0	100%	30%	1	100%	0%	per kWh	0.6	2.0	1.5
335	Behavioral	BEMS	Biz-Custom	Education	Retro	43	2%	1	0.00	2	\$0	100%	18%	1	100%	2%	per kWh	0.1	0.8	0.5
336	Behavioral	Building Operator Certification	Biz-Custom	Education	Retro	41	3%	1	0.00	3	\$0	100%	44%	1	100%	2%	per kWh	0.8	1.8	1.5
337	CompressedAir	Retrol-commissioning, Compressed Air Optimization	Biz-Custom R/C	Food Sales	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
338	CompressedAir	Compressed Air Leak Repair	Biz-Custom	Food Sales	Retro	6	17%	1	0.00	5	\$0	100%	50%	1	100%	39%	per kWh	3.0	6.1	4.5
339	CompressedAir	Efficient Air Compressors (VSD)	Biz-Standard	Food Sales	ROB	4,748	21%	987	0.00	10	\$4,573	100%	5%	2	100%	20%	per measure	0.3	5.3	0.4
340	CompressedAir	AODD Pump Controls	Biz-Custom	Food Sales	Retro	103,919	35%	36,372	0.00	10	\$1,150	100%	50%	3	100%	50%	per measure	14.5	29.0	19.9
341	CompressedAir	No Loss Condensate Drain	Biz-Standard	Food Sales	Retro	103,919	2%	2,320	0.00	13	\$700	100%	29%	4	100%	5%	per measure	1.9	6.6	2.8
342	CompressedAir	Efficient Air Nozzles	Biz-Standard	Food Sales	Retro	2,460	50%	1,130	0.00	15	\$77	100%	97%	5	5%	20%	per measure	9.3	9.5	13.5
343	CompressedAir	Compressed Air - Custom	Biz-Custom	Food Sales	Retro	5	20%	1	0.00	1	\$0	100%	47%	6	100%	20%	per kWh	2.2	4.6	3.4
344	Cooling	Commercial Combination Oven (Electric)	Biz-Custom	Food Sales	ROB	2,958	38%	9,058	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
345	Cooling	Commercial Electric Convection Oven	Biz-Custom	Food Sales	ROB	9,839	11%	1,065	0.00	12	\$0	100%	40%	1	18%	53%	per measure	n/a	n/a	n/a
346	Cooling	Commercial Electric Griddle	Biz-Custom	Food Sales	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	2	14%	17%	per measure	n/a	n/a	n/a
347	Cooling	Commercial Electric Steam Cooker	Biz-Standard	Food Sales	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	21%	3	6%	45%	per measure	1.5	7.1	1.9
348	Cooling	Dishwasher Low Temp Door (Energy Star)	Biz-Custom	Food Sales	ROB	39,306	44%	17,369	0.00	15	\$662	100%	100%	4	26%	61%	per measure	14.0	14.0	23.4
349	Cooling	Dishwasher High Temp Door (Energy Star)	Biz-Custom	Food Sales	ROB	2,690	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.3
350	Cooling	Energy efficient electric fryer	Biz-Custom	Food Sales	ROB	17,451	5%	952	0.00	12	\$210	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
351	Cooling	Insulated Holding Cabinets (Full Size)	Biz-Standard	Food Sales	ROB	1,534	46%	709	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
352	Cooling	Insulated Holding Cabinets (3/4 Size)	Biz-Standard	Food Sales	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.0	3.9	1.4
353	Cooling	Insulated Holding Cabinets (Half-Size)	Biz-Standard	Food Sales	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.6	6.2	2.0
354	Cooling	Air Conditioner - 17' IER (5-20 Tons)	Biz-Standard/SBDI	Food Sales	ROB	700	15%	103	0.00	15	\$191	100%	44%	1	20%	10%	per ton	1.0	2.3	0.9
355	Cooling	Air Conditioner - 18' IER (5-20 Tons)	Biz-Standard/SBDI	Food Sales	ROB	700	19%	136	0.00	15	\$254	100%	46%	1	20%	10%	per ton	0.9	2.2	0.9
356	Cooling	Air Conditioner - 21' IER (5-20 Tons)	Biz-Standard/SBDI	Food Sales	ROB	700	31%	217	0.00	15	\$445	100%	49%	1	20%	10%	per ton	0.9	1.9	0.9
357	Cooling	Air Conditioner - 14.3' IER (20+ Tons)	Biz-Standard	Food Sales	ROB	769	8%	59	0.00	15	\$59	100%	53%	2	20%	10%	per ton	1.9	3.5	1.4
358	Cooling	Air Conditioner - 15' IER (20+ Tons)	Biz-Standard	Food Sales	ROB	769	12%	92	0.00	15	\$97	100%	53%	2	20%	10%	per ton	1.8	3.4	1.3
359	Cooling	Air Conditioner - 17' IER (20+ Tons)	Biz-Standard	Food Sales	ROB	769	22%	172	0.00	15	\$204	100%	53%	2	20%	10%	per ton	1.6	3.0	1.2
360	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Food Sales	Retro	0	7%	59	0.00	3	\$5	100%	50%	3	40%	50%	per ton	5.1	10.3	2.6
361	Cooling	Air-Side Economizer	Biz-Custom	Food Sales	Retro	700	20%	140	0.00	10	\$84	100%	37%	4	40%	25%	per ton	2.3	6.2	1.4
362	Cooling	Advanced Rooftop Controls	Biz-Standard/SBDI	Food Sales	Retro	6,900	56%	3,850	0.00	15	\$2,950	100%	4%	5	40%	20%	per measure	2.4	55.6	1.2
363	Cooling	HVAC Occupancy Controls	Biz-Custom	Food Sales	ROB	789	20%	158	0.00	15	\$537	100%	6%	6	40%	20%	per ton	0.6	8.5	0.3
364	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Standard/SBDI	Food Sales	ROB	725	13%	91	0.00	15	\$115	100%	52%	7	20%	10%	per ton	1.5	2.9	1.2
365	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Standard/SBDI	Food Sales	ROB	725	18%	128	0.00	15	\$514	100%	17%	7	20%	10%	per ton	0.5	2.7	0.4
366	Cooling	Air Conditioner - 18 SEER (<5 Tons)	Biz-Standard/SBDI	Food Sales	ROB	725	22%	161	0.00	15	\$514	100%	23%	7	20%	10%	per ton	0.6	2.5	0.5
367	Cooling	Air Conditioner - 21 SEER (<5 Tons)	Biz-Standard/SBDI	Food Sales	ROB	725	33%	242	0.00	15	\$631	100%	33%	7	20%	10%	per ton	0.7	2.2	0.7
368	Cooling	Smart Thermostat	Biz-Standard/SBDI	Food Sales	ROB	2,901	14%	403	0.00	10	\$224	100%	79%	8	20%	81%	per measure	2.5	3.1	1.9
369	Cooling	PTAC - <7,000 Btu/h - lodging	Biz-Custom	Food Sales	ROB	853	8%	72	0.00	8	\$84	100%	19%	9	13%	20%	per ton	1.0	5.2	0.6
370	Cooling	PTAC - 7,000 to 15,000 Btu/h - lodging	Biz-Custom	Food Sales	ROB	936	7%	68	0.00	8	\$84	100%	18%	10	13%	20%	per ton	0.9	5.2	0.6
371	Cooling	PTAC - >15,000 Btu/h - lodging	Biz-Custom	Food Sales	ROB	1,069	10%	102	0.00	8	\$84	100%	27%	11	13%	20%	per ton	1.4	5.2	0.9
372	Cooling	Air Cooled Chiller	Biz-Standard	Food Sales	ROB	741	9%	67	0.00	20	\$106	100%	16%	12	0%	10%	per ton	1.4	8.8	0.8
373	Cooling	Water Cooled Chiller	Biz-Standard	Food Sales	ROB	372	23%	85	0.00	20	\$106	100%	21%	13	0%	10%	per ton	1.8	8.8	1.0
374	Cooling	Chiller Tune-up	Biz-Custom	Food Sales	Retro	0	7%	59	0.00	3	\$8	100%	50%	14	0%	50%	per measure	3.4	6.8	1.9
375	Cooling	Window Film	Biz-Custom	Food Sales	Retro	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	25%	per measure	1.3	6.2	1.4
376	Cooling	Triple Pane Windows	Biz-Custom	Food Sales	Retro	6,000	6%	360	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
377	Cooling	Energy Recovery Ventilator	Biz-Custom	Food Sales	Retro	722	24%	176	0.00	15	\$1,050	100%	4%	16	100%	2%	per measure	0.8	22.7	0.2
378	ExteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Food Sales	Retro	655	66%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
379	ExteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Food Sales	Retro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
380	ExteriorLighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Food Sales	Retro	1,205	68%	823	0.00	15	\$234	100%	35%	3	14%					

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
382	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 300-500 Watt Lamp or Fixture	Biz-Custom	Food Sales	Retro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
383	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 300-500 Watt Lamp or Fixture	Biz-Custom	Food Sales	Retro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
384	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Biz-Custom	Food Sales	Retro	445	69%	307	0.00	10	\$274	100%	11%	7	14%	35%	per measure	0.3	2.8	0.8
385	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Standard	Food Sales	ROB	2,379	3%	80	0.00	15	\$135	100%	17%	1	25%	10%	per ton	0.7	4.2	0.7
386	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Standard	Food Sales	ROB	2,379	8%	188	0.00	15	\$441	100%	11%	1	25%	10%	per ton	0.5	4.3	0.5
387	Heating	Heat Pump - 18 SEER (<5 Tons)	Biz-Standard	Food Sales	ROB	2,379	11%	271	0.00	15	\$446	100%	15%	1	25%	10%	per ton	0.6	4.1	0.7
388	Heating	Heat Pump - 21 SEER (<5 Tons)	Biz-Standard	Food Sales	ROB	2,379	17%	398	0.00	15	\$520	100%	26%	1	25%	10%	per ton	0.9	3.3	0.9
389	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Food Sales	ROB	2,379	17%	398	0.00	16	\$224	100%	27%	1	25%	10%	per ton	2.1	7.8	1.9
390	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Standard	Food Sales	ROB	2,666	6%	161	0.00	15	\$100	100%	31%	2	17%	10%	per ton	1.5	4.6	1.7
391	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Standard	Food Sales	ROB	2,666	11%	300	0.00	15	\$171	100%	35%	2	17%	10%	per ton	1.6	4.4	1.8
392	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Standard	Food Sales	ROB	2,758	6%	177	0.00	15	\$100	100%	34%	3	16%	10%	per ton	1.7	4.9	1.9
393	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Standard	Food Sales	ROB	2,758	12%	324	0.00	15	\$182	100%	34%	3	16%	10%	per ton	1.6	4.7	1.9
394	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Standard	Food Sales	ROB	2,882	7%	194	0.00	15	\$100	100%	34%	4	16%	10%	per ton	1.9	5.5	2.0
395	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Standard	Food Sales	ROB	2,882	12%	354	0.00	15	\$202	100%	31%	4	16%	10%	per ton	1.6	5.3	1.8
396	Heating	Geothermal HP - 17 IEER - 135kbtu	Biz-Custom	Food Sales	ROB	1,846	3%	62	0.00	25	\$108	100%	9%	5	8%	20%	per ton	0.9	10.1	0.8
397	Heating	Geothermal HP - 19 IEER - 135kbtu	Biz-Custom	Food Sales	ROB	1,846	7%	125	0.00	25	\$108	100%	17%	5	8%	20%	per ton	2.3	13.5	1.5
398	Heating	PTHP - <7,000 Btu/h - lodging	Biz-Custom	Food Sales	ROB	2,707	5%	128	0.00	8	\$84	100%	36%	6	3%	20%	per ton	1.1	4.8	1.0
399	Heating	PTHP - 7,000 to 15,000 Btu/h - lodging	Biz-Custom	Food Sales	ROB	2,902	7%	202	0.00	8	\$84	100%	36%	7	3%	20%	per ton	2.4	6.6	1.6
400	Heating	PTHP - >15,000 Btu/h - lodging	Biz-Custom	Food Sales	ROB	3,244	15%	478	0.00	8	\$84	100%	85%	8	3%	20%	per ton	4.8	5.7	3.7
401	HotWater	Res-ized Heat Pump Water Heater	Biz-Standard	Food Sales	ROB	4,687	67%	3,139	0.00	15	\$1,115	100%	45%	1	80%	0%	per measure	1.9	4.1	2.9
402	HotWater	Commercial-ized HPWH	Biz-Standard	Food Sales	ROB	116,224	77%	89,384	0.00	15	\$7,450	100%	88%	2	20%	0%	per measure	7.8	8.9	11.1
403	HotWater	Hot Water Pipe Insulation	Biz-Custom	Food Sales	Retro	4,687	2%	94	0.00	20	\$60	100%	17%	3	100%	80%	per measure	1.4	7.9	1.8
404	HotWater	Faucet Aerator	Biz-Custom	Food Sales	Retro	400	22%	87	0.00	9	\$8	100%	56%	4	20%	85%	per measure	5.1	10.3	6.6
405	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Food Sales	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	20.8	17.9
406	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Food Sales	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	1.0	4.6	1.5
407	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Food Sales	Retro	154	83%	127	0.00	10	\$16	100%	17%	1	0%	40%	per measure	4.3	24.8	5.2
408	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Food Sales	Retro	144	85%	122	0.00	10	\$20	100%	14%	1	0%	40%	per measure	3.3	23.8	4.0
409	Interior Lighting	LED Specialty Lamp	Biz-Standard/SBDI	Food Sales	Retro	114	87%	99	0.00	10	\$12	100%	23%	1	0%	40%	per measure	4.4	19.2	5.3
410	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Food Sales	Retro	177	84%	148	0.00	10	\$48	100%	14%	2	3%	40%	per measure	1.6	11.5	2.0
411	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Standard/SBDI	Food Sales	Retro	231	85%	103	0.00	10	\$37	100%	18%	2	3%	40%	per measure	1.5	8.0	1.9
412	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-80 Watt Lamp	Biz-Standard/SBDI	Food Sales	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	3%	40%	per measure	1.4	15.1	1.7
413	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Sales	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	7%	40%	per measure	2.5	12.6	3.2
414	Interior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Sales	Retro	1,390	60%	836	0.00	15	\$234	100%	30%	3	7%	40%	per measure	2.6	8.7	3.3
415	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Biz-Standard	Food Sales	Retro	1,427	75%	1,070	0.00	15	\$367	100%	27%	3	7%	40%	per measure	2.1	7.9	2.8
416	Interior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Sales	Retro	1,525	68%	1,030	0.00	15	\$362	100%	35%	4	5%	40%	per measure	2.1	5.9	2.8
417	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Sales	Retro	687	51%	350	0.00	10	\$30	100%	53%	5	13%	40%	per measure	6.2	11.8	7.8
418	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Food Sales	Retro	834	57%	477	0.00	15	\$43	100%	100%	5	13%	40%	per measure	8.0	8.0	10.4
419	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Food Sales	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	13%	40%	per measure	6.6	6.6	8.0
420	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Food Sales	Retro	275	65%	178	0.00	15	\$56	100%	32%	5	13%	40%	per measure	2.3	7.2	3.0
421	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Sales	Retro	382	54%	208	0.00	10	\$30	100%	33%	6	46%	40%	per measure	3.7	11.3	4.6
422	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Food Sales	Retro	349	60%	209	0.00	15	\$30	100%	74%	6	46%	40%	per measure	5.1	6.9	6.7
423	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Food Sales	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	46%	40%	per measure	5.0	10.0	6.4
424	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard/SBDI	Food Sales	Retro	109	63%	69	0.00	15	\$56	100%	14%	6	46%	40%	per measure	0.9	6.4	1.2
425	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Sales	Retro	358	63%	224	0.00	10	\$30	100%	40%	7	25%	40%	per measure	4.0	10.0	5.0
426	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Food Sales	Retro	384	71%	274	0.00	15	\$36	100%	100%	7	25%	40%	per measure	5.5	5.5	7.5
427	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Food Sales	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	25%	40%	per measure	3.4	4.8	4.6
428	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Food Sales	Retro	115	69%	80	0.00	15	\$56	100%	24%	7	25%	40%	per measure	1.0	4.3	1.5
429	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Food Sales	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	20%	per measure	1.4	6.6	1.8
430	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Food Sales	Retro	1,213	24%	291	0.00	10	\$105	100%	22%	9	32%	20%	per measure	1.5	6.6	1.9
431	Interior Lighting	Lighting Power Density	Biz-Custom	Food Sales	Retro	4	20%	1	0.00	15	\$0	100%	36%	10	80%	20%	per sq ft	2.4	6.5	3.1
432	Interior Lighting	LED Lighting Redesign/Custom	Biz-Standard	Food Sales	Retro	126,345	67%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
433	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Food Sales	Retro	255	91%	231	0.00	7	\$45	100%	40%	12	1%	80%	per measure	2.0	4.9	2.7
434	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Food Sales	Retro	1,278	12%	153	0.00	5	\$233	100%	6%	1	5%	30%	per measure	0.1	1.8	0.3
435	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Food Sales	ROB	9,932	50%	4,966	0.00	20	\$1,180	100%	24%	2	4%	10%	per HP	3.2	13.6	4.6
436	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Food Sales	Retro	3,819	83%	3,170	0.00	10	\$483	100%	50%	3	2%	10%	per measure	3.0	6.0	4.5
437	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Food Sales	Retro	2,984	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	1.0
438	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Food Sales	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	0%	70%	per measure	1.0	7.8	1.4
439	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Food Sales	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	5%	20%	per measure	3.6	5.7	5.0
440	Miscellaneous	Pool Pump Timer	Biz-Custom	Food Sales	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	2%	20%	per measure	3.1	5.7	4.2
441	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Food Sales	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	0%	20%	per measure	24.6	24.6	31.1

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
442	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Food Sales	ROB	7,758	80%	6,206	0.00	15	\$1,000	100%	56%	9	3%	20%	per measure	4.3	7.8	5.9
443	Miscellaneous	High Efficiency Dryer	Biz-Custom	Food Sales	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8
444	Miscellaneous	Miscellaneous Custom	Biz-Custom	Food Sales	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	36%	10%	per kWh	0.5	2.2	0.5
445	Motors	Cogged V-Belt	Biz-Custom	Food Sales	Retro	19,471	3%	604	0.00	15	\$384	100%	14%	1	50%	10%	per measure	1.1	7.6	1.5
446	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Food Sales	Retro	3,805	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per HP	8.4	13.8	7.2
447	Motors	Power Drive Systems	Biz-Custom	Food Sales	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	5.2	10.5	7.0
448	Motors	Switch Reluctance Motors	Biz-Custom	Food Sales	Retro	37,735	31%	11,547	0.00	15	\$528	100%	50%	2	100%	1%	per measure	11.4	22.8	19.2
449	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Food Sales	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
450	Office_PC	Energy Star Printer/Copier/Fax	Biz-Custom	Food Sales	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	30%	90%	per measure	n/a	0.0	n/a
451	Office_PC	Smart Power Strip - Commercial Use	Biz-Custom	Food Sales	Retro	1,086	10%	109	0.00	7	\$50	100%	20%	2	60%	29%	per measure	0.7	3.8	1.2
452	Office_PC	Plug Load Occupancy Sensor	Biz-Custom	Food Sales	Retro	1,126	15%	169	0.00	8	\$70	100%	22%	2	60%	29%	per measure	0.9	4.3	1.4
453	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Food Sales	Retro	86,783	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5
454	Office_PC	Energy Star Server	Biz-Custom	Food Sales	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
455	Office_PC	Server Virtualization	Biz-Custom	Food Sales	Retro	2	45%	1	0.00	8	\$0	100%	23%	1	65%	25%	per kWh	0.6	2.8	1.5
456	Office_PC	High Efficiency CRAC Unit	Biz-Custom	Food Sales	ROB	541	30%	162	0.00	15	\$63	100%	39%	2	65%	20%	per measure	1.6	6.9	2.4
457	Office_PC	Computer Room Air Conditioner/Economizer	Biz-Custom	Food Sales	Retro	764	47%	358	0.00	15	\$82	100%	30%	2	65%	20%	per measure	1.8	4.7	4.1
458	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Food Sales	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4
459	Office_PC	Energy Star Laptop	Biz-Custom	Food Sales	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
460	Office_PC	Energy Star Monitor	Biz-Custom	Food Sales	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
461	Refrigeration	Strip Curtains	Biz-Custom	Food Sales	Retro	412	50%	206	0.00	4	\$10	100%	50%	1	16%	30%	per sq ft	3.7	7.4	5.6
462	Refrigeration	Base Suction Line	Biz-Custom	Food Sales	Retro	23	93%	21	0.00	10	\$50	100%	50%	9	52%	10%	per kWh	1.7	3.4	1.1
463	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Food Sales	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	11%	25%	per HP	0.8	4.7	0.6
464	Refrigeration	Saturated Suction Controls	Biz-Custom	Food Sales	Retro	1,584	50%	416	0.00	15	\$559	100%	7%	4	2%	10%	per measure	0.3	11.9	0.7
465	Refrigeration	Compressor Retrofit	Biz-Custom	Food Sales	Retro	813	20%	163	0.00	15	\$477	100%	3%	5	37%	25%	per measure	0.4	12.0	0.3
466	Refrigeration	Electronically Commutated (EC) Walk-in Evaporator Fan Motor	Biz-Standard	Food Sales	Retro	2,884	55%	1,586	0.00	15	\$305	100%	21%	13	1%	2%	per measure	1.1	5.1	1.7
467	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Food Sales	Retro	2,236	32%	716	0.00	15	\$165	100%	42%	7	10%	25%	per measure	1.9	4.7	4.4
468	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Food Sales	Retro	2,960	50%	1,480	0.00	15	\$1,170	100%	11%	8	14%	25%	per HP	0.5	4.7	1.2
469	Refrigeration	Refrigeration Economizer	Biz-Custom	Food Sales	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	52%	10%	per kWh	1.7	3.4	1.1
470	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Standard	Food Sales	Retro	579	59%	338	0.00	10	\$151	100%	3%	10	8%	75%	per door	1.0	2.7	1.7
471	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Food Sales	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	2%	25%	per door	0.5	6.2	0.7
472	Refrigeration	Electronically Commutated (EC) Reach-in Evaporator Fan Motor	Biz-Standard	Food Sales	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	12	1%	80%	per measure	3.1	9.9	4.8
473	Refrigeration	Q-Sync Motor for Walk-in and Reach-in Evaporator Fan Motor	Biz-Custom	Food Sales	Retro	41	38%	242	0.00	10	\$102	100%	21%	13	1%	2%	per measure	1.1	5.1	1.7
474	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Biz-Standard	Food Sales	ROB	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	8%	54%	per door	0.3	2.9	0.5
475	Refrigeration	Energy Star Reach-in Refrigerator, Solid Doors	Biz-Standard	Food Sales	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	8%	54%	per door	0.1	1.3	0.3
476	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Food Sales	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	3%	75%	per door	4.1	8.1	6.0
477	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Food Sales	Retro	2,922	50%	1,453	0.00	12	\$686	100%	19%	16	3%	25%	per door	1.2	6.2	1.7
478	Refrigeration	Energy Star Reach-in Freezer, Glass Doors	Biz-Standard	Food Sales	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	3%	54%	per door	0.4	5.5	0.6
479	Refrigeration	Energy Star Reach-in Freezer, Solid Doors	Biz-Standard	Food Sales	ROB	4,522	7%	305	0.00	12	\$1,521	100%	7%	17	3%	54%	per door	0.1	1.3	0.2
480	Refrigeration	Refrigeration - Custom	Biz-Custom	Food Sales	ROB	7	2%	0	0.00	10	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
481	Refrigeration	Retro-commissioning, Refrigerator Optimization	Biz-Custom RCX	Food Sales	Retro	5	21%	1	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
482	Refrigeration	Energy Star Ice Machine	Biz-Custom	Food Sales	ROB	12,461	13%	1,630	0.00	10	\$222	100%	66%	20	0%	44%	per measure	3.2	4.8	5.2
483	Refrigeration	ESTAR Refrigerated Vending Machine	Biz-Custom	Food Sales	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	0%	30%	per measure	0.2	6.6	0.3
484	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Food Sales	Retro	1,278	17%	213	0.00	5	\$245	100%	8%	22	0%	30%	per measure	0.1	1.7	0.4
485	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Custom	Food Sales	Retro	115	74%	84	0.00	9	\$11	100%	50%	23	5%	35%	per linear ft	3.9	7.8	4.8
486	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Food Sales	Retro	522	27%	141	0.00	10	\$56	100%	23%	24	5%	18%	per measure	1.4	6.2	1.8
487	Ventilation	Demand Controlled Ventilation	Biz-Standard	Food Sales	Retro	2,658	20%	532	0.00	15	\$227	100%	63%	1	100%	14%	per measure	3.4	3.6	2.6
488	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Standard	Food Sales	Retro	2,166	43%	940	0.00	15	\$168	100%	61%	2	100%	14%	per HP	6.1	10.0	5.4
489	Ventilation	High Volume Low Speed Fan, 20	Biz-Standard	Food Sales	Retro	19,919	82%	16,287	0.00	15	\$4,130	100%	20%	3	5%	30%	per measure	3.2	15.6	3.6
490	Ventilation	High Volume Low Speed Fan, 22	Biz-Standard	Food Sales	Retro	21,909	83%	18,277	0.00	15	\$4,130	100%	27%	4	5%	30%	per measure	3.5	13.1	4.0
491	Ventilation	High Volume Low Speed Fan, 24	Biz-Standard	Food Sales	Retro	23,903	82%	19,579	0.00	15	\$4,228	100%	32%	5	5%	30%	per measure	3.7	11.7	4.3
492	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom	Food Sales	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	100%	20%	per kWh	2.8	8.3	2.5
493	WholeBldg_HVAC	Cool Roof	Biz-Custom	Food Sales	Retro	5	20%	1	0.00	25	\$1	100%	23%	2	28%	33%	per kWh	2.6	11.5	2.2
494	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCX	Food Sales	Retro	7	15%	1	0.00	5	\$0	100%	100%	3	100%	0%	per kWh	3.7	3.7	3.6
495	WholeBuilding	WholeBldg - Com RET	Biz-Custom	Food Sales	Retro	7	15%	1	0.00	12	\$0	100%	38%	1	80%	0%	per kWh	1.5	3.9	2.2
496	WholeBuilding	WholeBldg - Custom (Other)	Biz-Custom	Food Sales	Retro	5	20%	1	0.00	12	\$0	100%	38%	2	80%	0%	per kWh	1.5	3.9	2.2
497	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Food Sales	Retro	1,150	1%	6	0.00	30	\$8	100%	13%	3	100%	20%	per measure	1.0	8.1	1.2
498	WholeBldg_NC	WholeBldg - Com NC	Biz-Custom	Food Sales	NC	4	25%	1	0.00	12	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
499	Behavioral	COM Competitions	Biz-Custom	Food Sales	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
500	Behavioral	Business Energy Reports	Biz-Custom	Food Sales	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
501	Behavioral	Building Benchmarking	Biz-Custom	Food Sales	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
502	Behavioral	Strategic Energy Management	Biz-Custom SEM	Food Sales	Retro	0	0%	0	0.00	5	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
503	Behavioral	BEIMS	Biz-Custom	Food Sales	Retro	20	5%	1	0.00	3	\$0	100%	18%	1	100%	2%	per kWh	0.1	0.8	0.5
504	Behavioral	Building Operator Certification	Biz-Custom	Food Sales	Retro	40	2%	0	0.00	2	\$0	100%	11%	1	100%	2%	per kWh	0.2	1.7	0.4
505	CompressedAir	Retro-commissioning, Compressed Air Optimization	Biz-Custom RCX	Food Service	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
506	CompressedAir	Compressed Air Leak Repair	Biz-Custom	Food Service	Retro	6	17%	1	0.00	5	\$0	100%	50%	2	100%	20%	per kWh	3.0	6.1	4.5
507	CompressedAir	Efficient Air Compressors (VSD)	Biz-Standard	Food Service	ROB	4,748	21%	987	0.00	10	\$1,573	100%	5%	2	100%	20%	per HP	0.3	5.3	0.4
508	CompressedAir	AODD Pump Controls	Biz-Custom	Food Service	Retro	103,919	35%	36,372	0.00	10	\$1,150	100%	50%	3	100%	50%	per measure	14.5	29.0	19.9

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
509	Compressed Air	No Loss Condensate Drain	Biz-Standard	Food Service	Retro	103,919	2%	2,320	0.00	13	\$700	100%	29%	4	100%	5%	per measure	1.9	6.6	2.8
510	Compressed Air	Efficient Air Nozzles	Biz-Standard	Food Service	Retro	2,260	50%	1,130	0.00	15	\$77	100%	97%	5	5%	20%	per measure	9.3	9.5	13.5
511	Compressed Air	Compressed Air - Custom	Biz-Custom	Food Service	Retro	5	20%	1	0.00	10	\$0	100%	47%	6	100%	20%	per kWh	2.2	4.6	3.4
512	Cooking	Commercial Combination Oven (Electric)	Biz-Custom	Food Service	ROB	23,958	38%	9,058	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
513	Cooking	Commercial Electric Convection Oven	Biz-Custom	Food Service	ROB	9,839	11%	1,085	0.00	12	\$0	100%	40%	1	18%	53%	per measure	n/a	0.0	n/a
514	Cooking	Commercial Electric Griddle	Biz-Custom	Food Service	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	2	14%	17%	per measure	n/a	0.0	n/a
515	Cooking	Commercial Electric Steam Cooker	Biz-Standard	Food Service	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	21%	3	6%	45%	per measure	1.5	7.1	1.9
516	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Custom	Food Service	ROB	39,306	44%	17,369	0.00	15	\$662	100%	100%	4	26%	61%	per measure	14.0	14.0	23.4
517	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Custom	Food Service	ROB	26,901	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.3
518	Cooking	Energy efficient electric fryer	Biz-Custom	Food Service	ROB	17,451	5%	952	0.00	12	\$210	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
519	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Standard	Food Service	ROB	1,134	46%	709	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
520	Cooking	Insulated Holding Cabinets (3/4 Size)	Biz-Standard	Food Service	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.0	3.9	1.4
521	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Standard	Food Service	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.6	6.2	2.0
522	Cooling	Air Conditioner -17 (EEER (5-20 Tons))	Biz-Standard/SBDI	Food Service	ROB	893	15%	131	0.00	15	\$191	100%	44%	1	22%	10%	per ton	1.3	3.0	1.0
523	Cooling	Air Conditioner -18 (IEER (5-20 Tons))	Biz-Standard/SBDI	Food Service	ROB	893	19%	174	0.00	15	\$254	100%	46%	1	22%	10%	per ton	1.3	2.8	1.0
524	Cooling	Air Conditioner -21 (IEER (5-20 Tons))	Biz-Standard/SBDI	Food Service	ROB	893	31%	277	0.00	15	\$445	100%	49%	1	22%	10%	per ton	1.2	2.4	1.0
525	Cooling	Air Conditioner -14.3 (IEER (20+ Tons))	Biz-Standard	Food Service	ROB	981	8%	75	0.00	15	\$59	100%	53%	2	22%	10%	per ton	2.4	4.5	1.6
526	Cooling	Air Conditioner -15 (IEER (20+ Tons))	Biz-Standard	Food Service	ROB	981	12%	118	0.00	15	\$97	100%	53%	2	22%	10%	per ton	2.3	4.3	1.6
527	Cooling	Air Conditioner -17 (IEER (20+ Tons))	Biz-Standard	Food Service	ROB	981	22%	219	0.00	15	\$204	100%	53%	2	22%	10%	per ton	2.0	3.8	1.4
528	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Food Service	Retro	0	7%	76	0.00	3	\$8	100%	50%	3	44%	50%	per ton	6.6	13.1	3.2
529	Cooling	Air-Side Economizer	Biz-Custom	Food Service	Retro	893	20%	179	0.00	10	\$84	100%	47%	4	44%	25%	per ton	2.9	6.2	1.8
530	Cooling	Advanced Rooftop Controls	Biz-Standard/SBDI	Food Service	Retro	7,672	56%	4,281	0.00	15	\$2,950	100%	4%	5	44%	20%	per measure	2.7	61.8	1.3
531	Cooling	HVAC Occupancy Controls	Biz-Custom	Food Service	ROB	1,567	20%	313	0.00	15	\$537	100%	13%	6	44%	20%	per ton	1.1	8.5	0.6
532	Cooling	Air Conditioner -16 (SEER (4-5 Tons))	Biz-Standard/SBDI	Food Service	ROB	925	13%	116	0.00	15	\$115	100%	52%	7	25%	10%	per ton	1.9	3.7	1.4
533	Cooling	Air Conditioner -17 (SEER (4-5 Tons))	Biz-Standard/SBDI	Food Service	ROB	925	18%	163	0.00	15	\$514	100%	17%	7	25%	10%	per ton	0.6	3.4	0.4
534	Cooling	Air Conditioner -18 (SEER (4-5 Tons))	Biz-Standard/SBDI	Food Service	ROB	925	22%	206	0.00	15	\$514	100%	23%	7	25%	10%	per ton	0.8	3.3	0.6
535	Cooling	Air Conditioner -21 (SEER (4-5 Tons))	Biz-Standard/SBDI	Food Service	ROB	925	33%	308	0.00	15	\$631	100%	33%	7	25%	10%	per ton	0.9	2.8	0.7
536	Cooling	Smart-Thermostat	Biz-Standard/SBDI	Food Service	ROB	3,701	14%	514	0.00	10	\$224	100%	79%	8	25%	81%	per measure	3.2	4.0	2.2
537	Cooling	PTAC -<7,000 Btu/h - loading	Biz-Custom	Food Service	ROB	1,089	8%	92	0.00	8	\$84	100%	24%	9	10%	20%	per ton	1.2	5.2	0.8
538	Cooling	PTAC -7,000 to 15,000 Btu/h - loading	Biz-Custom	Food Service	ROB	1,194	7%	87	0.00	8	\$84	100%	23%	10	10%	20%	per ton	1.2	5.2	0.8
539	Cooling	PTAC ->15,000 Btu/h - loading	Biz-Custom	Food Service	ROB	1,364	10%	130	0.00	8	\$84	100%	34%	11	10%	20%	per ton	1.8	5.2	1.1
540	Cooling	Air-Cooled Chiller	Biz-Standard	Food Service	ROB	946	9%	85	0.00	20	\$106	100%	16%	12	0%	10%	per ton	1.8	11.2	1.0
541	Cooling	Water Cooled Chiller	Biz-Standard	Food Service	ROB	475	23%	108	0.00	20	\$106	100%	21%	13	0%	10%	per ton	2.3	11.2	1.3
542	Cooling	Chiller Tune-up	Biz-Custom	Food Service	Retro	0	7%	76	0.00	3	\$8	100%	56%	14	0%	50%	per ton	4.4	8.7	2.3
543	Cooling	Window Film	Biz-Custom	Food Service	Retro	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	25%	per measure	1.3	6.2	1.4
544	Cooling	Triple Pane Windows	Biz-Custom	Food Service	ROB	6,000	6%	360	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
545	Cooling	Energy Recovery Ventilator	Biz-Custom	Food Service	Retro	921	0%	0	0.00	15	\$0	100%	0%	16	100%	2%	per ton	n/a	0.0	n/a
546	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Food Service	Retro	655	66%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
547	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Food Service	Retro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
548	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Food Service	Retro	1,205	68%	823	0.00	15	\$234	100%	35%	3	14%	69%	per measure	1.4	4.0	3.4
549	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Food Service	Retro	2,214	65%	1,436	0.00	15	\$234	100%	50%	4	14%	69%	per measure	3.7	7.3	5.7
550	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Food Service	Retro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
551	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Food Service	Retro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
552	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Food Service	Retro	467	69%	322	0.00	10	\$274	100%	13%	7	14%	35%	per measure	0.3	2.8	0.8
553	Heating	Bi-level Lighting Fixture - Ganges	Biz-Standard	Food Service	ROB	2,665	4%	94	0.00	15	\$135	100%	17%	1	31%	10%	per ton	0.9	5.2	0.8
554	Heating	Heat Pump -16 (SEER (4-5 Tons))	Biz-Standard	Food Service	ROB	2,665	8%	217	0.00	15	\$421	100%	11%	1	31%	10%	per ton	0.6	5.3	0.5
555	Heating	Heat Pump -17 (SEER (4-5 Tons))	Biz-Standard	Food Service	ROB	2,665	12%	311	0.00	15	\$446	100%	15%	1	31%	10%	per ton	0.8	5.0	0.7
556	Heating	Heat Pump -18 (SEER (4-5 Tons))	Biz-Standard	Food Service	ROB	2,665	17%	463	0.00	15	\$520	100%	26%	1	31%	10%	per ton	1.1	4.1	1.0
557	Heating	Heat Pump -21 (SEER (4-5 Tons))	Biz-Standard	Food Service	ROB	2,665	17%	463	0.00	16	\$524	100%	31%	1	31%	10%	per ton	2.6	8.3	2.2
558	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Food Service	ROB	2,981	6%	182	0.00	15	\$100	100%	31%	2	19%	10%	per ton	1.8	5.6	1.9
559	Heating	Heat Pump -15.0 (IEER COP 3.6 (65,000-134,000 Btu/hr))	Biz-Standard	Food Service	ROB	2,981	11%	338	0.00	15	\$171	100%	35%	2	19%	10%	per ton	1.9	5.3	2.0
560	Heating	Heat Pump -16.0 (IEER COP 3.8 (65,000-134,000 Btu/hr))	Biz-Standard	Food Service	ROB	3,085	7%	201	0.00	15	\$100	100%	34%	3	18%	10%	per ton	2.0	5.9	2.1
561	Heating	Heat Pump -14.5 (IEER COP 3.5 (135,000-239,000 Btu/hr))	Biz-Standard	Food Service	ROB	3,085	12%	366	0.00	15	\$182	100%	34%	3	18%	10%	per ton	1.9	5.6	2.1
562	Heating	Heat Pump -15.5 (IEER COP 3.7 (135,000-239,000 Btu/hr))	Biz-Standard	Food Service	ROB	3,230	7%	222	0.00	15	\$100	100%	34%	4	18%	10%	per ton	2.3	6.7	2.2
563	Heating	Heat Pump -12 (IEER 3.4 COP (>239,000 Btu/hr))	Biz-Standard	Food Service	ROB	3,230	12%	402	0.00	15	\$202	100%	31%	4	18%	10%	per ton	2.0	6.4	2.0
564	Heating	Geothermal HP -17 (IEER < 135kWh)	Biz-Custom	Food Service	ROB	2,090	3%	72	0.00	25	\$108	100%	10%	5	6%	20%	per ton	1.1	10.7	0.9
565	Heating	Geothermal HP -19 (IEER < 135kWh)	Biz-Custom	Food Service	ROB	2,090	7%	153	0.00	25	\$108	100%	21%	5	6%	20%	per ton	3.0	13.9	1.9
566	Heating	PTHP -<7,000 Btu/h - loading	Biz-Custom	Food Service	ROB	3,020	5%	151	0.00	8	\$84	100%	27%	7	0%	20%	per ton	1.4	5.1	1.2
567	Heating	PTHP -7,000 to 15,000 Btu/h - loading	Biz-Custom	Food Service	ROB	3,249	8%	251	0.00	8	\$84	100%	45%	7	0%	20%	per ton	3.0	6.7	2.0
568	Hot Water	PTHP ->15,000 Btu/h - loading	Biz-Custom	Food Service	ROB	3,645	16%	578	0.00	8	\$84	100%	100%	8	0%	20%	per ton	6.1	6.1	4.5
569	Hot Water	Res-Sized Heat Pump Water Heater	Biz-Standard	Food Service	ROB	5														

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
572	HotWater	Faucet Aerator	Biz-Custom	Food Service	Retro	400	22%	87	0.00	9	\$8	100%	50%	4	20%	85%	per measure	5.1	10.3	6.6
573	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Food Service	ROB	11,079	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	20.8	20.8
574	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Food Service	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	1.0	4.6	1.5
575	InteriorLighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	154	83%	127	0.00	10	\$16	100%	17%	1	1%	40%	per measure	4.3	24.8	5.2
576	InteriorLighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	144	85%	122	0.00	10	\$20	100%	14%	1	1%	40%	per measure	3.3	23.8	4.0
577	InteriorLighting	LED Specialty Lamp	Biz-Standard/SBDI	Food Service	Retro	114	87%	99	0.00	10	\$12	100%	23%	1	1%	40%	per measure	4.4	19.2	5.3
578	InteriorLighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	177	84%	148	0.00	10	\$48	100%	14%	2	8%	40%	per measure	1.6	11.5	2.0
579	InteriorLighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	121	85%	103	0.00	10	\$37	100%	18%	2	8%	40%	per measure	1.5	8.0	1.9
580	InteriorLighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-36 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	8%	40%	per measure	1.4	15.1	1.7
581	InteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Service	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	21%	40%	per measure	2.5	12.6	3.2
582	InteriorLighting	LED 60 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Service	Retro	1,390	60%	836	0.00	15	\$234	100%	30%	3	21%	40%	per measure	2.6	8.7	3.3
583	InteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard	Food Service	Retro	1,427	75%	1,070	0.00	15	\$367	100%	27%	3	21%	40%	per measure	2.1	7.9	2.8
584	InteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Service	Retro	1,525	68%	1,030	0.00	15	\$362	100%	35%	4	14%	40%	per measure	2.1	11.8	7.8
585	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Service	Retro	687	51%	350	0.00	10	\$30	100%	53%	5	8%	40%	per measure	6.2	11.8	7.8
586	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Food Service	Retro	834	57%	477	0.00	15	\$43	100%	100%	5	8%	40%	per measure	8.0	8.0	10.4
587	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Food Service	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	8%	40%	per measure	6.6	6.6	8.8
588	InteriorLighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Food Service	Retro	275	65%	178	0.00	15	\$56	100%	32%	5	8%	40%	per measure	2.3	7.2	3.0
589	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Service	Retro	382	54%	208	0.00	10	\$30	100%	33%	6	30%	40%	per measure	3.7	11.3	4.6
590	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Food Service	Retro	349	60%	209	0.00	15	\$30	100%	74%	6	30%	40%	per measure	5.1	6.7	6.7
591	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Food Service	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	30%	40%	per measure	5.0	10.0	6.4
592	InteriorLighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Food Service	Retro	109	63%	69	0.00	15	\$56	100%	14%	6	30%	40%	per measure	0.9	6.4	1.2
593	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Service	Retro	358	63%	224	0.00	10	\$30	100%	40%	7	17%	40%	per measure	4.0	10.0	5.0
594	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Food Service	Retro	384	71%	274	0.00	15	\$36	100%	100%	7	17%	40%	per measure	5.5	5.5	7.5
595	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Food Service	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	17%	40%	per measure	3.4	4.8	4.6
596	InteriorLighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Food Service	Retro	115	69%	80	0.00	15	\$56	100%	24%	7	17%	40%	per measure	1.0	4.3	1.5
597	InteriorLighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Food Service	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	20%	per measure	1.4	6.6	1.8
598	InteriorLighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Food Service	Retro	1,213	24%	291	0.00	10	\$105	100%	22%	9	32%	20%	per measure	1.5	6.6	1.9
599	InteriorLighting	Lighting Power Density	Biz-Custom	Food Service	Retro	4	20%	1	0.00	15	\$0	100%	36%	10	80%	20%	per sq ft	2.4	6.5	3.1
600	InteriorLighting	LED Lighting Redesign/Custom	Biz-Standard	Food Service	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
601	InteriorLighting	LED or Electroluminescent Replacing Interior Incandescent/QL Exit Sign	Biz-Standard/SBDI	Food Service	Retro	255	91%	231	0.00	7	\$45	100%	40%	12	1%	80%	per measure	2.0	4.9	2.7
602	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Food Service	Retro	1,278	12%	153	0.00	5	\$233	100%	6%	1	5%	30%	per measure	0.1	1.8	0.3
603	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Food Service	ROB	9,932	50%	4,966	0.00	20	\$1,180	100%	24%	2	7%	10%	per HP	3.2	13.6	4.6
604	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Food Service	Retro	1,899	83%	1,585	0.00	10	\$483	100%	30%	3	2%	10%	per measure	1.5	5.1	2.3
605	Miscellaneous	Onsite Commercial Laundry	Biz-Custom	Food Service	Retro	2,384	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0
606	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Food Service	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	0%	70%	per measure	1.0	7.8	1.4
607	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Food Service	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	5%	20%	per measure	3.6	5.7	5.0
608	Miscellaneous	Pool Pump Timer	Biz-Custom	Food Service	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	2%	20%	per measure	3.1	5.7	4.2
609	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Food Service	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	3%	20%	per measure	24.6	31.1	31.1
610	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Food Service	ROB	7,758	80%	6,206	0.00	15	\$1,000	100%	56%	9	5%	20%	per measure	4.3	7.8	5.9
611	Miscellaneous	High Efficiency Dyer	Biz-Custom	Food Service	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8
612	Miscellaneous	Miscellaneous Custom	Biz-Custom	Food Service	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	38%	10%	per kWh	0.5	2.2	0.5
613	Motors	Cogged V-Belt	Biz-Standard	Food Service	Retro	17,237	3%	534	0.00	15	\$384	100%	13%	1	50%	10%	per measure	1.0	8.0	1.3
614	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Food Service	Retro	3,805	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per kWh	8.4	13.8	7.2
615	Motors	Power Drive Systems	Biz-Custom	Food Service	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	5.5	11.0	7.0
616	Motors	Switch Reluctance Motors	Biz-Custom	Food Service	Retro	33,406	31%	10,222	0.00	15	\$5,208	100%	50%	2	100%	1%	per measure	10.1	20.2	17.0
617	Motors	Escalators, Motor Efficiency Controllers	Biz-Custom	Food Service	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
618	Office, NonPC	Energy Star Printer/Copier/Scan	Biz-Custom	Food Service	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	30%	90%	per measure	n/a	0.0	n/a
619	Office, NonPC	Smart Power Strip - Commercial Use	Biz-Custom	Food Service	Retro	1,086	10%	109	0.00	7	\$50	100%	20%	2	60%	29%	per measure	0.7	3.8	1.2
620	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Food Service	Retro	1,126	15%	169	0.00	8	\$70	100%	22%	2	60%	29%	per measure	0.9	4.3	1.4
621	Office_PC	Energy Star Server	Biz-Custom	Food Service	ROB	867,83	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5
622	Office_PC	Server Virtualization	Biz-Custom	Food Service	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
623	Office_PC	High Efficiency CRAC unit	Biz-Custom	Food Service	ROB	541	30%	162	0.00	15	\$63	100%	23%	2	65%	20%	per kWh	0.6	2.8	1.5
624	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Food Service	Retro	764	47%	358	0.00	15	\$82	100%	30%	2	65%	20%	per measure	1.6	6.9	2.4
625	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Food Service	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	4.1
626	Office_PC	Energy Star Laptop	Biz-Custom	Food Service	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
628	Refrigeration	Energy Star Monitor	Biz-Custom	Food Service	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
629	Refrigeration	Strip Curtains	Biz-Custom	Food Service	Retro	88	50%	44	0.00	4	\$10	100%	39%	1	6%	30%	per sq ft	0.8	2.0	1.5
630	Refrigeration	Base Suction Line	Biz-Custom	Food Service	Retro	23	23%	21	0.00	15	\$4	100%	47%	2	0%	50%	per measure	3.1	6.6	3.1
631	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Food Service	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	4%	25%	per HP	0.3	4.7	0.6
632	Refrigeration	Saturated Suction Controls	Biz-Custom	Food Service	Retro	831	50%	416	0.00	15	\$559	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7
633	Refrigeration	Compressor Retrofit	Biz-Custom	Food Service	Retro	813	20%	163	0.00	15	\$477	100%	3%	5	13%	25%	per measure	0.4	12.0	0.3

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TRC Score	UCT Score	Participant Test Score
634	Refrigeration	Electronically Commutated (EC) Walk-in Evaporator Fan Motor	Biz-Standard	Food Service	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	6	4%	80%	per measure	3.1	9.9	4.8
635	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Food Service	Retro	2,236	32%	716	0.00	15	\$155	100%	42%	7	4%	25%	per measure	1.9	4.7	4.4
636	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Food Service	Retro	2,960	50%	1,480	0.00	15	\$1,170	100%	11%	8	5%	25%	per HP	0.5	3.7	1.1
637	Refrigeration	Refrigeration - Economizer	Biz-Custom	Food Service	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	18%	10%	per kWh	1.7	3.4	1.2
638	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Standard	Food Service	Retro	579	59%	338	0.00	10	\$151	100%	37%	10	18%	75%	per door	1.0	2.7	1.7
639	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Food Service	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	5%	25%	per door	0.5	6.2	0.7
640	Refrigeration	Electronically Commutated (EC) Reach-in Evaporator Fan Motor	Biz-Standard	Food Service	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	11	3%	80%	per measure	3.1	9.9	4.8
641	Refrigeration	Q-Sync Motor for Walk-in and Reach-in Evaporator Fan Motor	Biz-Custom	Food Service	Retro	441	38%	242	0.00	10	\$102	100%	21%	13	3%	2%	per measure	1.1	5.1	1.7
642	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Biz-Standard	Food Service	ROB	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	18%	54%	per door	0.3	2.9	0.5
643	Refrigeration	Energy Star Reach-in Refrigerator, Solid Doors	Biz-Standard	Food Service	ROB	1,410	20%	291	0.00	12	\$1,211	100%	9%	14	18%	54%	per door	0.1	1.3	0.3
644	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Food Service	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	6%	75%	per door	0.1	8.1	6.0
645	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Food Service	Retro	2,922	50%	1,453	0.00	12	\$686	100%	18%	16	6%	25%	per door	1.2	6.2	1.7
646	Refrigeration	Energy Star Reach-in Freezer, Glass Doors	Biz-Standard	Food Service	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	6%	54%	per door	0.4	5.5	0.6
647	Refrigeration	Energy Star Reach-in Freezer, Solid Doors	Biz-Standard	Food Service	ROB	4,522	7%	305	0.00	12	\$1,521	100%	7%	17	6%	54%	per door	0.1	1.3	0.2
648	Refrigeration	Refrigeration - Custom	Biz-Custom	Food Service	ROB	7	2%	0	0.00	10	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
649	Refrigeration	Retro-commissioning, Refrigerator Optimization	Biz-Custom R/C	Food Service	Retro	5	21%	1	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
650	Refrigeration	Energy Star Ice Machine	Biz-Custom	Food Service	ROB	12,611	13%	1,630	0.00	10	\$222	100%	66%	20	5%	44%	per measure	3.2	4.8	5.2
651	Refrigeration	ESTAR Refrigerated Vending Machine	Biz-Custom	Food Service	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	0%	30%	per measure	0.2	6.6	0.3
652	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Food Service	Retro	1,278	17%	213	0.00	5	\$245	100%	8%	22	0%	30%	per measure	0.1	1.7	0.4
653	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/ft	Biz-Custom	Food Service	Retro	115	74%	84	0.00	9	\$11	100%	50%	23	11%	35%	per linear ft	3.9	7.8	4.8
654	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Food Service	Retro	522	27%	141	0.00	10	\$56	100%	23%	24	11%	18%	per measure	1.4	6.2	1.8
655	Ventilation	Demand Controlled Ventilation	Biz-Standard	Food Service	Retro	2,669	20%	534	0.00	15	\$227	100%	63%	1	100%	15%	per measure	1.7	2.2	2.6
656	Ventilation	Pump and Fan Variable Frequency Drive Control (Fans)	Biz-Standard	Food Service	Retro	2,166	43%	940	0.00	15	\$168	100%	61%	2	100%	15%	per HP	6.1	10.0	5.4
657	Ventilation	High Volume Low Speed Fan, 20	Biz-Standard	Food Service	Retro	19,919	82%	16,287	0.00	15	\$4,130	100%	27%	3	5%	30%	per measure	3.2	15.6	3.6
658	Ventilation	High Volume Low Speed Fan, 22	Biz-Standard	Food Service	Retro	21,909	83%	18,277	0.00	15	\$4,130	100%	27%	4	5%	30%	per measure	3.5	13.1	4.0
659	Ventilation	High Volume Low Speed Fan, 24	Biz-Standard	Food Service	Retro	23,903	82%	19,579	0.00	15	\$4,227	100%	32%	5	5%	30%	per measure	3.7	11.7	4.3
660	WholeBldg HVAC	HVAC - Energy Management System	Biz-Custom	Food Service	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	100%	20%	per kWh	2.8	8.3	2.5
661	WholeBldg HVAC	Coal Roof	Biz-Custom	Food Service	Retro	5	20%	1	0.00	25	\$0	100%	42%	2	36%	33%	per kWh	4.8	11.5	4.1
662	WholeBldg HVAC	Retro-commissioning, Bid Optimization	Biz-Custom R/C	Food Service	Retro	7	15%	1	0.00	5	\$0	100%	100%	3	100%	0%	per kWh	3.7	3.7	3.6
663	Wholebuilding	WholeBldg - Com RET	Biz-Custom	Food Service	Retro	7	15%	1	0.00	12	\$0	100%	38%	1	80%	0%	per kWh	1.5	3.9	2.2
664	Wholebuilding	WholeBldg - Custom (Other)	Biz-Custom	Food Service	Retro	5	20%	1	0.00	10	\$0	100%	38%	2	80%	0%	per kWh	1.5	3.9	2.2
665	Wholebuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Food Service	Retro	1,150	1%	6	0.00	30	\$8	100%	13%	3	100%	20%	per measure	1.0	8.1	1.2
666	WholeBldg NC	WholeBldg - Com NC	Biz-Custom	Food Service	NC	4	25%	1	0.00	12	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
667	Behavioral	COM Computations	Biz-Custom	Food Service	Retro	53	2%	1	0.00	2	\$0	100%	48%	1	100%	0%	per kWh	1.6	3.2	3.5
668	Behavioral	Business Energy Reports	Biz-Custom	Food Service	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
669	Behavioral	Building Benchmarking	Biz-Custom	Food Service	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
670	Behavioral	Strategic Energy Management	Biz-Custom SEM	Food Service	Retro	0	0%	0	0.00	5	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
671	Behavioral	BEIMS	Biz-Custom	Food Service	Retro	20	5%	1	0.00	2	\$0	100%	18%	1	100%	2%	per kWh	0.1	0.8	0.5
672	Behavioral	Building Operator Certification	Biz-Custom	Food Service	Retro	40	3%	1	0.00	3	\$0	100%	44%	1	100%	2%	per kWh	0.8	1.8	1.5
673	CompressedAir	Retro-commissioning, Compressed Air Optimization	Biz-Custom R/C	Health	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
674	CompressedAir	Compressed Air Leak Repair	Biz-Custom	Health	Retro	6	17%	1	0.00	5	\$0	100%	50%	1	100%	39%	per kWh	3.0	6.1	4.5
675	CompressedAir	Efficient Air Compressors (VSD)	Biz-Standard	Health	ROB	4,748	21%	987	0.00	10	\$1,373	100%	5%	2	100%	20%	per HP	0.3	5.3	0.4
676	CompressedAir	AODD Pump Controls	Biz-Custom	Health	Retro	103,919	35%	36,372	0.00	10	\$1,150	100%	50%	3	100%	50%	per measure	14.5	29.0	19.9
677	CompressedAir	No Loss Condensate Drain	Biz-Standard	Health	Retro	103,919	2%	2,320	0.00	13	\$700	100%	29%	4	100%	5%	per measure	1.9	6.6	2.8
678	CompressedAir	Efficient Air Nozzles	Biz-Standard	Health	Retro	2,260	50%	1,130	0.00	15	\$77	100%	97%	5	5%	20%	per measure	9.3	9.5	13.5
679	CompressedAir	Compressed Air - Custom	Biz-Custom	Health	Retro	5	20%	1	0.00	10	\$0	100%	47%	6	100%	20%	per kWh	2.2	4.6	3.4
680	Cooling	Commercial Combination Oven (Electric)	Biz-Custom	Health	ROB	23,958	38%	9,058	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
681	Cooling	Commercial Electric Convexion Oven	Biz-Custom	Health	ROB	9,859	11%	1,085	0.00	12	\$1,783	100%	25%	2	18%	53%	per measure	n/a	0.0	n/a
682	Cooling	Commercial Electric Griddle	Biz-Standard	Health	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	2	14%	17%	per measure	n/a	0.0	n/a
683	Cooling	Commercial Electric Steam Cooler	Biz-Standard	Health	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	21%	3	6%	45%	per ton	1.5	7.1	1.9
684	Cooling	Dishwasher Low Temp Door (Energy Star)	Biz-Custom	Health	ROB	39,306	44%	17,369	0.00	15	\$662	100%	100%	4	26%	61%	per measure	14.0	14.0	23.4
685	Cooling	Dishwasher High Temp Door (Energy Star)	Biz-Custom	Health	ROB	26,901	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.3
686	Cooling	Energy efficient electric fryer	Biz-Custom	Health	ROB	17,451	5%	952	0.00	12	\$210	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
687	Cooling	Insulated Holding Cabinets (Full Size)	Biz-Standard	Health	ROB	1,154	46%	709	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
688	Cooling	Insulated Holding Cabinets (3/4 Size)	Biz-Standard	Health	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.0	3.9	1.4
689	Cooling	Insulated Holding Cabinets (Half Size)	Biz-Standard	Health	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.6	6.2	2.0
690	Cooling	Air Conditioner -17 IEEER (5-20 Tons)	Biz-Standard/SBDI	Health	ROB	2,763	15%	406	0.00	15	\$191	100%	44%	1	25%	10%	per ton	4.0	9.1	2.3
691	Cooling	Air Conditioner -18 IEEER (5-20 Tons)	Biz-Standard/SBDI	Health	ROB	2,763	19%	537	0.00	15	\$254	100%	46%	1	25%	10%	per ton	4.0	8.6	2.3
692	Cooling	Air Conditioner -21 IEEER (5-20 Tons)	Biz-Standard/SBDI	Health	ROB	2,763	31%	835	0.00	15	\$445	100%	49%	1	25%	10%	per ton	3.6	7.4	2.1
693	Cooling	Air Conditioner -14.3 IEEER (20+ Tons)	Biz-Standard	Health	ROB	3,035	8%	233	0.00	15	\$59	100%	53%	2	25%	10%	per ton	7.4	14.0	3.9
694	Cooling	Air Conditioner -15 IEEER (20+ Tons)	Biz-Standard	Health	ROB	3,035	12%	364	0.00	15	\$97	100%	53%	2	25%	10%	per ton	7.1	13.3	3.7
695	Cooling	Air Conditioner -17 IEEER (20+ Tons)	Biz-Standard	Health	ROB	3,035	22%	679	0.00	15	\$204	100%	53%	2	25%	10%	per ton	6.2	11.8	3.4
696	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Health	Retro	0	7%	234	0.00	3	\$5	100%	50%	3	50%	50%	per ton	20.3	40.5	8

Appendix C: Business Measure Assumptions

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EU	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
701	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Standard/SBDI	Health	ROB	2,862	28%	505	0.00	15	\$514	100%	17%	7	0%	10%	per ton	1.8	10.7	1.0
702	Cooling	Air Conditioner - 18 SEER (<5 Tons)	Biz-Standard/SBDI	Health	ROB	2,862	22%	636	0.00	15	\$514	100%	23%	7	0%	10%	per ton	2.3	10.1	1.3
703	Cooling	Air Conditioner - 21 SEER (<5 Tons)	Biz-Standard/SBDI	Health	ROB	2,862	33%	954	0.00	15	\$631	100%	33%	7	0%	10%	per ton	2.8	8.6	1.6
704	Cooling	Smart Thermostat	Biz-Standard/SBDI	Health	ROB	11,448	14%	1,591	0.00	10	\$224	100%	79%	8	0%	63%	per measure	9.8	12.3	5.2
705	Cooling	PTAC - <7,000 Btu/h - lodging	Biz-Custom	Health	ROB	3,367	8%	285	0.00	8	\$84	100%	75%	9	0%	20%	per ton	3.9	5.2	2.5
706	Cooling	PTAC - 7,000 to 15,000 Btu/h - lodging	Biz-Custom	Health	ROB	3,693	7%	268	0.00	8	\$84	100%	70%	10	0%	20%	per ton	3.6	5.2	2.3
707	Cooling	PTAC - >15,000 Btu/h - lodging	Biz-Custom	Health	ROB	4,218	10%	402	0.00	8	\$84	100%	70%	11	0%	20%	per ton	5.4	5.4	3.4
708	Cooling	Air Cooled Chiller	Biz-Standard	Health	ROB	2,925	9%	263	0.00	20	\$106	100%	16%	12	45%	10%	per ton	5.7	34.6	2.7
709	Cooling	Water Cooled Chiller	Biz-Standard	Health	ROB	1,469	23%	334	0.00	20	\$106	100%	21%	13	5%	10%	per ton	7.2	34.6	3.5
710	Cooling	Chiller Tune-up	Biz-Custom	Health	Retro	0	7%	234	0.00	3	\$8	100%	50%	14	50%	50%	per ton	13.5	27.0	6.0
711	Cooling	Window Film	Biz-Custom	Health	Retro	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	25%	per measure	1.3	6.2	1.4
712	Cooling	Triple Pane Windows	Biz-Custom	Health	ROB	6,000	6%	360	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
713	Cooling	Energy Recovery Ventilator	Biz-Custom	Health	Retro	2,850	30%	862	0.00	15	\$1,050	100%	18%	16	100%	2%	per ton	2.2	12.2	0.9
714	ExteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Health	Retro	655	66%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
715	ExteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Health	Retro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
716	ExteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 175-300 Watt Lamp or Fixture	Biz-Custom	Health	Retro	1,205	68%	823	0.00	15	\$234	100%	35%	3	14%	69%	per measure	1.4	4.0	3.4
717	ExteriorLighting	LED 60 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 175-300 Watt Lamp or Fixture	Biz-Custom	Health	Retro	2,214	65%	1,436	0.00	15	\$234	100%	50%	4	14%	69%	per measure	3.7	7.3	5.7
718	ExteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 300-500 Watt Lamp or Fixture	Biz-Custom	Health	Retro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
719	ExteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 300-500 Watt Lamp or Fixture	Biz-Custom	Health	Retro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
720	ExteriorLighting	Bi-Level Lighting Fixture - Garages	Biz-Custom	Health	Retro	509	69%	351	0.00	10	\$274	100%	13%	7	14%	35%	per measure	0.4	2.8	0.9
721	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Standard	Health	ROB	6,887	4%	261	0.00	15	\$135	100%	17%	1	0%	10%	per ton	2.6	15.4	1.8
722	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Standard	Health	ROB	6,887	8%	583	0.00	15	\$421	100%	11%	1	0%	10%	per ton	1.6	15.4	1.3
723	Heating	Heat Pump - 18 SEER (<5 Tons)	Biz-Standard	Health	ROB	6,887	12%	836	0.00	15	\$446	100%	15%	1	0%	10%	per ton	2.2	14.6	1.8
724	Heating	Heat Pump - 21 SEER (<5 Tons)	Biz-Standard	Health	ROB	6,887	18%	1,269	0.00	15	\$520	100%	20%	1	0%	10%	per ton	3.1	12.0	2.3
725	Heating	Variable Refrigerant Flow Heat Pump - 15.0 IER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Custom	Health	ROB	6,887	18%	1,269	0.00	16	\$224	100%	85%	1	0%	10%	per ton	7.6	8.9	5.9
726	Heating	Heat Pump - 15.0 IER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Standard	Health	ROB	7,678	6%	478	0.00	15	\$100	100%	31%	2	17%	10%	per ton	5.0	16.1	4.4
727	Heating	Heat Pump - 16.0 IER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Standard	Health	ROB	7,678	12%	883	0.00	15	\$171	100%	35%	2	17%	10%	per ton	10.3	15.3	4.8
728	Heating	Heat Pump - 14.5 IER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Standard	Health	ROB	7,953	7%	532	0.00	15	\$100	100%	34%	3	17%	10%	per ton	5.8	17.0	4.9
729	Heating	Heat Pump - 15.5 IER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Standard	Health	ROB	7,953	12%	962	0.00	15	\$182	100%	34%	3	17%	10%	per ton	5.6	16.3	4.8
730	Heating	Heat Pump - 12 IER 3.4 COP (>239,000 Btu/hr)	Biz-Standard	Health	ROB	8,353	7%	589	0.00	15	\$100	100%	34%	4	17%	10%	per ton	6.6	19.4	5.4
731	Heating	Heat Pump - 13 IER 3.6 COP (>239,000 Btu/hr)	Biz-Standard	Health	ROB	8,353	13%	1,060	0.00	15	\$202	100%	31%	4	17%	10%	per ton	5.7	18.4	4.8
732	Heating	Geothermal HP - 17 EER < 135kbtu	Biz-Custom	Health	ROB	5,493	4%	198	0.00	25	\$108	100%	27%	5	0%	20%	per ton	3.2	11.6	2.4
733	Heating	Geothermal HP - 19 EER < 135kbtu	Biz-Custom	Health	ROB	5,493	8%	446	0.00	25	\$108	100%	62%	5	0%	20%	per ton	9.0	14.5	5.5
734	Heating	PTHP - <7,000 Btu/h - lodging	Biz-Custom	Health	ROB	7,752	5%	420	0.00	8	\$84	100%	75%	6	0%	20%	per ton	4.1	9.4	3.3
735	Heating	PTHP - 7,000 to 15,000 Btu/h - lodging	Biz-Custom	Health	ROB	8,385	9%	753	0.00	8	\$84	100%	100%	7	0%	20%	per ton	9.2	9.2	5.5
736	Heating	PTHP - >15,000 Btu/h - lodging	Biz-Custom	Health	ROB	9,467	18%	1,670	0.00	8	\$84	100%	100%	8	0%	20%	per ton	18.4	18.4	11.0
737	HotWater	Res-Size Heat Pump Water Heater	Biz-Standard	Health	ROB	6,995	67%	4,684	0.00	15	\$1,115	100%	45%	1	50%	29%	per measure	2.8	6.2	4.0
738	HotWater	Commercial-Size HP/WH	Biz-Standard	Health	ROB	116,224	77%	89,384	0.00	15	\$7,450	100%	88%	2	50%	29%	per measure	7.8	8.9	11.1
739	HotWater	Hot Water Pipe Insulation	Biz-Custom	Health	Retro	6,995	2%	140	0.00	20	\$60	100%	26%	3	100%	80%	per measure	2.0	7.9	2.7
740	HotWater	Faucet Aerator	Biz-Custom	Health	Retro	400	22%	87	0.00	9	\$8	100%	50%	4	20%	85%	per measure	5.1	10.3	6.6
741	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Health	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	20.8	15.5
742	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Health	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	1.0	4.6	1.5
743	InteriorLighting	LED <=11 Watt Lamp Replacing Interior Halogen A, 28-52 Watt Lamp	Biz-Standard/SBDI	Health	Retro	154	83%	127	0.00	10	\$16	100%	17%	1	0%	40%	per measure	4.3	24.8	5.2
744	InteriorLighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Health	Retro	144	85%	122	0.00	10	\$20	100%	14%	1	0%	40%	per measure	3.3	23.8	4.0
745	InteriorLighting	LED Specialty Lamp	Biz-Standard/SBDI	Health	Retro	114	87%	99	0.00	10	\$12	100%	23%	1	0%	40%	per measure	4.4	19.2	5.3
746	InteriorLighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Health	Retro	177	84%	148	0.00	10	\$48	100%	14%	2	3%	40%	per measure	1.6	11.5	2.0
747	InteriorLighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Standard/SBDI	Health	Retro	121	85%	103	0.00	10	\$37	100%	18%	2	3%	40%	per measure	1.5	8.0	1.9
748	InteriorLighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-30 Watt Lamp	Biz-Standard/SBDI	Health	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	3%	40%	per measure	1.4	15.1	1.7
749	InteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Standard/SBDI	Health	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	9%	40%	per measure	2.5	12.6	3.2
750	InteriorLighting	LED 60 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Health	Retro	1,920	60%	836	0.00	15	\$234	100%	30%	3	9%	40%	per measure	2.6	8.7	3.3
751	InteriorLighting	LED Fixture with Network Controls Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard	Health	Retro	1,437	75%	1,070	0.00	15	\$367	100%	27%	3	9%	40%	per measure	2.1	7.9	2.8
752	InteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing interior HID 301-500 Watt Lamp or Fixture	Biz-Standard	Health	Retro	1,525	68%	1,030	0.00	15	\$362	100%	35%	4	6%	40%	per measure	2.1	5.9	2.8
753	InteriorLighting	LED Replacing interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Health	Retro	687	51%	350	0.00	10	\$30	100%	53%	5	12%	40%	per measure	6.2	11.8	7.8
754	InteriorLighting	LED Replacing interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Health	Retro	834	57%	477	0.00	15	\$43	100%	100%	5	12%	40%	per measure	8.0	8.0	10.4
755	InteriorLighting	LED Replacing interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Health	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	12%	40%	per measure	6.6	6.6	8.8
756	InteriorLighting	LED Fixture with Network Controls Replacing interior T5 Fluorescent	Biz-Standard	Health	Retro	275	65%	178	0.00	15	\$56	100%	32%	5	12%	40%	per measure	2.3	7.2	3.0
757	InteriorLighting	LED Replacing interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Health	Retro	382	54%	208	0.00	10	\$30	100%	100%	6	44%	40%	per measure	3.7	11.3	4.6
758	InteriorLighting	LED Replacing interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Health	Retro	349	60%	209	0.00	15	\$30	100%	74%	6	44%	40%	per measure	5.1	6.9	6.7
759	InteriorLighting	LED Replacing interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Health	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	44%	40%	per measure	5.0	10.0	6.4

Appendix C: Business Measure Assumptions

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EU	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TRC Score	UCT Score	Participant Test Score
760	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Health	Retro	109	63%	69	0.00	15	\$36	100%	14%	6	44%	40%	per measure	0.9	6.4	1.2
761	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Health	Retro	358	63%	224	0.00	10	\$56	100%	40%	7	24%	40%	per measure	4.0	10.0	5.0
762	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Health	Retro	384	71%	274	0.00	15	\$36	100%	100%	7	24%	40%	per measure	5.5	5.5	7.5
763	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Health	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	24%	40%	per measure	3.4	4.8	4.6
764	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Health	Retro	115	69%	80	0.00	15	\$56	100%	24%	7	24%	40%	per measure	1.0	4.3	1.5
765	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Health	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	27%	per measure	1.4	6.6	1.8
766	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Health	Retro	1,213	24%	291	0.00	10	\$105	100%	28%	9	32%	27%	per measure	1.5	6.6	1.9
767	Interior Lighting	Lighting Power Density	Biz-Custom	Health	Retro	4	20%	1	0.00	15	\$0	100%	36%	10	80%	20%	per sq ft	2.4	6.5	3.1
768	Interior Lighting	LED Lighting Redesign/Custom	Biz-Standard	Health	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
769	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Health	Retro	255	91%	231	0.00	7	\$45	100%	40%	12	1%	80%	per measure	2.0	4.9	2.7
770	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Health	Retro	1,278	12%	153	0.00	5	\$233	100%	6%	1	5%	30%	per measure	0.1	1.8	0.3
771	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Health	ROB	9,932	50%	4,966	0.00	20	\$1,180	100%	24%	2	6%	10%	per HP	3.2	13.6	4.6
772	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Health	Retro	1,909	83%	1,585	0.00	10	\$483	100%	30%	3	2%	10%	per measure	1.5	5.1	2.3
773	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Health	Retro	2,984	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0
774	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Health	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	0%	70%	per measure	1.0	7.8	1.4
775	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Health	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	0%	20%	per measure	3.6	5.7	5.0
776	Miscellaneous	Pool Pump Timer	Biz-Custom	Health	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	2%	20%	per measure	3.1	5.7	4.2
777	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Health	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	3%	20%	per measure	24.6	24.6	31.1
778	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Health	ROB	7,758	80%	6,206	0.00	15	\$1,000	100%	56%	9	5%	20%	per measure	4.3	7.8	5.9
779	Miscellaneous	High Efficiency Dryer	Biz-Custom	Health	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8
780	Miscellaneous	Miscellaneous Custom	Biz-Custom	Health	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	26%	10%	per kWh	0.5	2.2	0.5
781	Motors	Cogged V-Belt	Biz-Custom	Health	Retro	17,237	3%	534	0.00	15	\$384	100%	13%	1	50%	10%	per measure	1.0	8.0	1.3
782	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Health	Retro	3,865	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per HP	8.4	13.8	7.2
783	Motors	Power Drive Systems	Biz-Custom	Health	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	5.5	11.0	7.0
784	Motors	Switch Reluctance Motors	Biz-Custom	Health	Retro	33,406	31%	10,222	0.00	15	\$528	100%	50%	2	100%	1%	per measure	10.1	20.2	17.0
785	Motors	Escalator Motor Efficiency Controllers	Biz-Custom	Health	ROB	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
786	Office, NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Health	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	5%	90%	per measure	n/a	0.0	n/a
787	Office, NonPC	Smart Power Strip - Commercial Use	Biz-Custom	Health	Retro	1,086	10%	109	0.00	7	\$50	100%	20%	2	60%	19%	per measure	0.7	3.8	1.2
788	Office, NonPC	Plug Load, Occupancy Sensor	Biz-Custom	Health	Retro	1,126	15%	169	0.00	8	\$70	100%	22%	2	60%	18%	per measure	0.9	4.3	1.4
789	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Health	Retro	86,783	18%	15,778	0.00	15	\$480	100%	58%	1	65%	20%	per measure	19.5	39.1	28.5
790	Office_PC	Energy Star Server	Biz-Custom	Health	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
791	Office_PC	Server Virtualization	Biz-Custom	Health	Retro	2	45%	1	0.00	8	\$0	100%	23%	1	65%	25%	per kWh	0.6	2.8	1.5
792	Office_PC	High Efficiency GRAC Unit	Biz-Custom	Health	ROB	541	30%	162	0.00	15	\$63	100%	33%	2	65%	20%	per measure	1.6	6.9	2.4
793	Office_PC	Computer Room Air Conditioner/Economizer	Biz-Custom	Health	Retro	764	47%	358	0.00	15	\$82	100%	39%	2	65%	20%	per measure	1.8	4.7	4.1
794	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Health	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4
795	Office_PC	Energy Star Laptop	Biz-Custom	Health	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
796	Office_PC	Energy Star Monitor	Biz-Custom	Health	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
797	Refrigeration	Strip Curtains	Biz-Custom	Health	Retro	0	0%	0	0.00	4	\$0	100%	0%	1	5%	30%	per sq ft	n/a	0.0	n/a
798	Refrigeration	Bare Suction Line	Biz-Custom	Health	Retro	23	93%	21	0.00	15	\$4	100%	47%	2	0%	50%	per measure	3.1	6.6	4.9
799	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Health	Retro	1,112	25%	278	0.00	15	\$559	100%	6%	3	4%	25%	per HP	0.3	4.7	0.6
800	Refrigeration	Saturated Suction Controls	Biz-Custom	Health	Retro	831	50%	416	0.00	15	\$477	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7
801	Refrigeration	Compressor Retrofit	Biz-Custom	Health	Retro	813	20%	163	0.00	15	\$305	100%	3%	5	12%	25%	per measure	0.4	12.0	0.3
802	Refrigeration	Electrically Commutated (EC) Walk-in Evaporator Fan Motor	Biz-Standard	Health	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	6	3%	80%	per measure	3.1	9.9	4.8
803	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Health	Retro	2,236	32%	716	0.00	15	\$155	100%	43%	7	3%	25%	per measure	1.9	4.7	4.4
804	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Health	Retro	2,960	50%	1,480	0.00	15	\$1,170	100%	11%	8	5%	25%	per HP	0.5	4.7	1.2
805	Refrigeration	Refrigeration Economizer	Biz-Custom	Health	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	17%	10%	per kWh	1.7	3.4	1.1
806	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Standard	Health	Retro	579	59%	338	0.00	10	\$151	100%	37%	10	17%	25%	per door	1.0	2.7	1.7
807	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Health	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	5%	25%	per door	0.5	6.2	0.7
808	Refrigeration	Electrically Commutated (EC) Reach-in Evaporator Fan Motor	Biz-Standard	Health	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	12	3%	80%	per measure	3.1	9.9	4.8
809	Refrigeration	Q-Sync Motor for Walk-in and Reach-in Evaporator Fan Motor	Biz-Custom	Health	Retro	441	34%	149	0.00	10	\$90	100%	15%	13	3%	2%	per measure	0.8	5.1	1.2
810	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Biz-Standard	Health	ROB	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	17%	54%	per door	0.3	2.9	0.5
811	Refrigeration	Energy Star Reach-in Refrigerator, Solid Doors	Biz-Standard	Health	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	17%	54%	per door	0.1	1.3	0.3
812	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Health	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	6%	25%	per door	4.1	8.1	6.0
813	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Health	Retro	2,922	50%	1,453	0.00	12	\$686	100%	19%	16	6%	25%	per door	1.2	6.2	1.7
814	Refrigeration	Energy Star Reach-in Freezer, Glass Doors	Biz-Standard	Health	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	6%	54%	per door	0.4	5.5	0.6
815	Refrigeration	Energy Star Reach-in Freezer, Solid Doors	Biz-Standard	Health	ROB	4,522	7%	305	0.00	12	\$1,521	100%	7%	17	6%	54%	per door	0.1	1.3	0.2
816	Refrigeration	Refrigeration - Custom	Biz-Custom	Health	ROB	7	2%	0	0.00	10	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
817	Refrigeration	Retro-commissioning, Refrigerator Optimization	Biz-Custom R/C	Health	Retro	5	21%	1	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
818	Refrigeration	Energy Star Ice Machine	Biz-Custom	Health	ROB	12,461	13%	1,630	0.00	10	\$222	100%	66%	20	6%	44%	per measure	3.2	4.8	5.2
819	Refrigeration	ESYAR Refrigerated Vending Machine	Biz-Custom	Health	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	3%	30%	per measure	0.2	6.6	0.3
820	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Health	Retro	1,278	17%	213	0.00	5	\$245	100%	8%	22	3%	30%	per measure	0.1	1.7	0.4
821	Refrigeration	LED Refrigerated Display Case - Refrigerated	Biz-Custom	Health	Retro	115	74%	84	0.00	9	\$11	100%	50%	23	10%	35%	per linear ft	3.9	7.8	4.8
822	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Health	Retro	522	27%	141	0.00	10	\$56	100%	23%	24	100%	18%	per measure	1.4	6.2	1.8
823	Ventilation	Demand Controlled Ventilation	Biz-Standard	Health	Retro	2,639	20%	528	0.00	15	\$227	100%	63%	1	100%	39%	per measure	2.7	2.7	2.6
824	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Standard	Health	Retro	2,166	43%	940	0.00	15	\$168	100%	61%	2	100%	38%	per HP	6.1	10.0	5.4
825	Ventilation	High Volume Low speed Fan, 20	Biz-Standard	Health	Retro	1,919	82%	16,387	0.00	15	\$4,130	100%	20%	3	5%	30%	per measure	3.2	15.6	3.6

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EU	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
889	Heating	Heat Pump -16 SEER (<5 Tons)	Biz-Standard	Logding	ROB	3,306	4%	148	0.00	15	\$135	100%	17%	1	0%	10%	per ton	1.7	10.1	1.1
890	Heating	Heat Pump -17 SEER (<5 Tons)	Biz-Standard	Logding	ROB	3,306	9%	311	0.00	15	\$421	100%	11%	1	0%	10%	per ton	1.0	9.8	0.7
891	Heating	Heat Pump -18 SEER (<5 Tons)	Biz-Standard	Logding	ROB	3,306	13%	444	0.00	15	\$420	100%	15%	1	0%	10%	per ton	1.4	9.3	1.0
892	Heating	Heat Pump -21 SEER (<5 Tons)	Biz-Standard	Logding	ROB	3,306	21%	704	0.00	15	\$520	100%	26%	1	0%	10%	per ton	2.0	7.8	1.4
893	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Logding	ROB	3,306	21%	704	0.00	16	\$224	100%	47%	1	0%	10%	per ton	4.9	10.4	3.3
894	Heating	Heat Pump -15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Standard	Logding	ROB	3,652	7%	238	0.00	15	\$100	100%	31%	2	9%	10%	per ton	3.1	9.9	2.3
895	Heating	Heat Pump -16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Standard	Logding	ROB	3,652	12%	436	0.00	15	\$171	100%	35%	2	9%	10%	per ton	3.3	9.3	2.5
896	Heating	Heat Pump -14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Standard	Logding	ROB	3,792	7%	270	0.00	15	\$100	100%	34%	3	9%	10%	per ton	3.6	10.5	2.6
897	Heating	Heat Pump -15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Standard	Logding	ROB	3,792	13%	481	0.00	15	\$182	100%	34%	3	9%	10%	per ton	3.4	10.0	2.6
898	Heating	Heat Pump -13 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Standard	Logding	ROB	4,015	8%	304	0.00	15	\$200	100%	34%	4	9%	10%	per ton	4.1	12.1	2.9
899	Heating	Heat Pump -12 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Standard	Logding	ROB	4,015	13%	538	0.00	15	\$202	100%	31%	4	9%	10%	per ton	3.5	11.4	2.6
900	Heating	Geothermal HP -17 IEER <135kbtu	Biz-Custom	Logding	ROB	2,757	4%	109	0.00	25	\$108	100%	15%	5	15%	20%	per ton	2.1	13.6	1.3
901	Heating	Geothermal HP -19 IEER <135kbtu	Biz-Custom	Logding	ROB	2,757	10%	241	0.00	25	\$108	100%	39%	5	15%	20%	per ton	6.1	15.6	3.5
902	Heating	PTHP -<7/000 Btu/h - logding	Biz-Custom	Logding	ROB	3,652	7%	241	0.00	8	\$84	100%	43%	6	5%	20%	per ton	2.7	6.2	1.9
903	Heating	PTHP -7/000 to 15,000 Btu/h - logding	Biz-Custom	Logding	ROB	4,012	12%	497	0.00	8	\$84	100%	89%	7	5%	20%	per ton	6.3	7.1	3.9
904	Heating	PTHP ->15,000 Btu/h - logding	Biz-Custom	Logding	ROB	4,605	22%	1,033	0.00	8	\$84	100%	100%	8	5%	20%	per ton	12.4	12.4	7.2
905	HotWater	Res-Sized Heat Pump Water Heater	Biz-Standard	Logding	ROB	6,347	67%	4,250	0.00	15	\$1,115	100%	45%	1	30%	26%	per measure	2.5	5.6	3.7
906	HotWater	Commercial-Sized HPWH	Biz-Standard	Logding	ROB	116,224	77%	89,384	0.00	15	\$7,450	100%	88%	2	70%	26%	per measure	7.8	8.9	11.1
907	HotWater	Hot Water Pipe Insulation	Biz-Custom	Logding	Retro	6,347	2%	127	0.00	20	\$60	100%	23%	3	100%	80%	per measure	1.8	7.9	2.4
908	HotWater	Faucet Aerator	Biz-Custom	Logding	Retro	400	22%	87	0.00	9	\$9	100%	50%	4	20%	85%	per measure	5.1	10.3	6.6
909	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Logding	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	17.9	20.8
910	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Logding	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	4.0	4.6	1.5
911	InteriorLighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Logding	Retro	154	83%	127	0.00	10	\$16	100%	17%	1	2%	40%	per measure	4.3	24.8	5.2
912	InteriorLighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Logding	Retro	144	85%	122	0.00	10	\$20	100%	14%	1	2%	40%	per measure	3.3	23.8	4.0
913	InteriorLighting	LED Specialty Lamp	Biz-Standard/SBDI	Logding	Retro	114	87%	99	0.00	10	\$12	100%	23%	1	2%	40%	per measure	4.4	19.2	5.3
914	InteriorLighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Logding	Retro	177	84%	148	0.00	10	\$48	100%	14%	2	10%	40%	per measure	1.6	11.5	2.0
915	InteriorLighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Standard/SBDI	Logding	Retro	121	85%	103	0.00	10	\$37	100%	18%	2	10%	40%	per measure	1.5	8.0	1.9
916	InteriorLighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Standard/SBDI	Logding	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	10%	40%	per measure	1.4	15.1	1.7
917	InteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Standard/SBDI	Logding	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	29%	40%	per measure	2.5	11.6	3.2
918	InteriorLighting	LED 62 -130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Logding	Retro	1,390	60%	836	0.00	15	\$234	100%	30%	3	29%	40%	per measure	2.6	8.7	3.3
919	InteriorLighting	LED Fixture with Network Controls Replacing Interior HID	Biz-Standard	Logding	Retro	1,427	75%	1,070	0.00	15	\$367	100%	27%	3	29%	40%	per measure	2.1	7.9	2.8
920	InteriorLighting	LED 85 -225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Logding	Retro	1,525	68%	1,030	0.00	15	\$362	100%	35%	4	19%	40%	per measure	2.1	5.9	2.8
921	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Logding	Retro	687	51%	350	0.00	10	\$30	100%	53%	5	6%	40%	per measure	6.2	11.8	7.8
922	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Logding	Retro	834	57%	477	0.00	11	\$43	100%	100%	5	6%	40%	per measure	8.0	8.0	8.8
923	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Logding	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	6%	40%	per measure	6.6	6.6	10.4
924	InteriorLighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Logding	Retro	275	65%	178	0.00	15	\$56	100%	32%	5	6%	40%	per measure	2.3	7.2	3.0
925	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Logding	Retro	382	54%	208	0.00	10	\$30	100%	33%	6	22%	40%	per measure	3.7	11.3	4.6
926	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Logding	Retro	349	60%	209	0.00	15	\$30	100%	78%	6	22%	40%	per measure	5.1	6.9	6.7
927	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Logding	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	22%	40%	per measure	5.0	10.0	6.4
928	InteriorLighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Logding	Retro	109	63%	69	0.00	15	\$56	100%	14%	6	22%	40%	per measure	0.9	6.4	1.2
929	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Logding	Retro	358	63%	224	0.00	10	\$30	100%	40%	7	12%	40%	per measure	4.0	10.0	5.0
930	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Logding	Retro	384	71%	274	0.00	15	\$36	100%	100%	7	12%	40%	per measure	5.5	5.5	7.5
931	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Logding	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	12%	40%	per measure	3.4	4.8	4.6
932	InteriorLighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Logding	Retro	115	69%	80	0.00	15	\$56	100%	24%	7	12%	40%	per measure	1.0	4.3	1.5
933	InteriorLighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Logding	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	21%	per measure	1.4	6.6	1.8
934	InteriorLighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Logding	Retro	1,213	24%	291	0.00	10	\$105	100%	22%	9	32%	21%	per measure	1.5	6.6	1.9
935	InteriorLighting	Lighting Power Density	Biz-Custom	Logding	Retro	4	20%	1	0.00	15	\$0	100%	36%	10	80%	20%	per sq ft	2.4	6.5	3.1
936	InteriorLighting	LED Lighting Redesign/Custom	Biz-Standard	Logding	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
937	InteriorLighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Logding	Retro	255	91%	231	0.00	7	\$45	100%	40%	12	1%	80%	per measure	2.0	4.9	2.7
938	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Logding	Retro	1,278	12%	153	0.00	5	\$233	100%	6%	1	27%	5%	per measure	0.1	1.8	0.3
939	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Logding	ROB	9,932	50%	4,966	0.00	20	\$1,180	100%	24%	2	9%	10%	per HP	3.2	13.6	4.6
940	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Logding	Retro	262	83%	217	0.00	10	\$483	100%	4%	3	2%	10%	per measure	0.2	5.1	0.3
941	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Logding	Retro	2,984	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0
942	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Logding	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	3%	70%	per measure	1.0	7.8	1.4
943	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Logding	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	0%	20%	per measure	3.6	5.7	5.0
944	Miscellaneous	Pool Pump Timer	Biz-Custom	Logding	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	2%	20%	per measure	3.1	5.7	4.2
945	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Logding	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	3%	20%	per measure	24.6	24.6	31.1
946	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Logding	ROB	7,758	80%	6,206	0.00	15	\$1,000	100%	56%	9	0%	20%	per measure	4.3	7.8	5.9
947	Miscellaneous	High Efficiency Dryer	Biz-Custom	Logding	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	15%	20%	per measure	2.5	6.7	3.8
948	Miscellaneous	Miscellaneous Custom	Biz-Custom	Logding	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	14%	10%	per kWh	0.5	2.2	0.5
949	Motors	Cogged V-Belt	Biz-Custom	Logding	Retro	29,207	3%	905	0.00	15	\$384	100%	21%	1	50%	10%	per measure	1.4	6.6	2.2
950	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Logding	Retro	3,865	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per HP	8.4	13.8	7.2

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
951	Motors	Power Drive Systems	Biz-Custom	Lodging	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	4.6	9.2	7.0
952	Motors	Switch Reluctance Motors	Biz-Custom	Lodging	Retro	56,602	31%	17,320	0.00	15	\$528	100%	50%	2	100%	1%	per measure	17.1	34.2	28.5
953	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Lodging	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
954	Office, NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Lodging	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	5%	90%	per measure	n/a	0.0	n/a
955	Office, NonPC	Smart Power Strip - Commercial Use	Biz-Custom	Lodging	Retro	1,086	10%	109	0.00	7	\$50	100%	20%	2	60%	17%	per measure	0.7	3.8	1.2
956	Office, NonPC	Plug Load Occupancy Sensor	Biz-Custom	Lodging	Retro	1,126	15%	169	0.00	8	\$70	100%	22%	2	60%	17%	per measure	0.9	4.3	1.4
957	Office, PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Lodging	Retro	86,783	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5
958	Office, PC	Energy Star Server	Biz-Custom	Lodging	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
959	Office, PC	Server Virtualization	Biz-Custom	Lodging	Retro	2	45%	1	0.00	8	\$0	100%	23%	1	65%	25%	per kWh	0.6	2.8	1.5
960	Office, PC	High Efficiency CRAC unit	Biz-Custom	Lodging	ROB	541	30%	162	0.00	15	\$63	100%	23%	2	65%	20%	per measure	1.6	6.9	2.4
961	Office, PC	Computer Room Air Conditioner Economizer	Biz-Custom	Lodging	Retro	764	47%	358	0.00	15	\$82	100%	39%	2	65%	20%	per measure	1.8	4.7	4.1
962	Office, PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Lodging	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4
963	Office, PC	Energy Star Laptop	Biz-Custom	Lodging	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
964	Office, PC	Energy Star Monitor	Biz-Custom	Lodging	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
965	Refrigeration	Strip Curtains	Biz-Custom	Lodging	Retro	0	0%	0	0.00	4	\$0	100%	0%	1	10%	30%	per sq ft	n/a	0.0	n/a
966	Refrigeration	Bare Suction Line	Biz-Custom	Lodging	Retro	23	93%	21	0.00	15	\$4	100%	47%	2	0%	50%	per measure	3.1	6.6	4.9
967	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Lodging	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	7%	25%	per HP	0.3	4.7	0.6
968	Refrigeration	Saturated Suction Controls	Biz-Custom	Lodging	Retro	831	50%	416	0.00	15	\$559	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7
969	Refrigeration	Compressor Retrofit	Biz-Custom	Lodging	Retro	813	20%	163	0.00	15	\$477	100%	3%	5	23%	25%	per measure	0.4	12.0	0.3
970	Refrigeration	Electronically Commutated (EC) Walk-in Evaporator Fan Motor	Biz-Standard	Lodging	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	6	6%	80%	per measure	3.1	9.9	4.8
971	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Lodging	Retro	2,236	32%	716	0.00	15	\$155	100%	42%	7	6%	25%	per measure	1.9	4.7	4.4
972	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Lodging	Retro	2,960	50%	1,480	0.00	15	\$1,170	100%	11%	8	9%	25%	per HP	0.5	4.7	1.2
973	Refrigeration	Refrigeration Economizer	Biz-Custom	Lodging	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	32%	10%	per kWh	1.7	3.4	1.1
974	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Standard	Lodging	Retro	579	59%	338	0.00	10	\$151	100%	37%	10	11%	25%	per door	1.0	2.7	1.7
975	Refrigeration	Display Case Door Retrofits, Medium Temp	Biz-Custom	Lodging	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	3%	25%	per door	0.5	6.2	0.7
976	Refrigeration	Electronically Commutated (EC) Reach-in Evaporator Fan Motor	Biz-Standard	Lodging	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	12	2%	80%	per measure	3.1	9.9	4.8
977	Refrigeration	Q-Sync Motor for Walk-in and Reach-in Evaporator Fan Motor	Biz-Custom	Lodging	Retro	441	34%	149	0.00	10	\$90	100%	15%	13	2%	2%	per measure	0.8	5.1	1.2
978	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Biz-Standard	Lodging	ROB	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	11%	54%	per door	0.3	2.9	0.5
979	Refrigeration	Energy Star Reach-in Refrigerator, Solid Doors	Biz-Standard	Lodging	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	11%	54%	per door	0.1	1.3	0.3
980	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Lodging	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	4%	25%	per door	4.1	8.1	6.0
981	Refrigeration	Display Case Door Retrofits, Low Temp	Biz-Custom	Lodging	Retro	2,922	50%	1,463	0.00	12	\$686	100%	19%	16	4%	25%	per door	1.2	6.2	1.7
982	Refrigeration	Energy Star Reach-in Freezer, Glass Doors	Biz-Standard	Lodging	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	4%	54%	per door	0.4	5.5	0.6
983	Refrigeration	Energy Star Reach-in Freezer, Solid Doors	Biz-Standard	Lodging	ROB	4,522	7%	305	0.00	12	\$1,521	100%	7%	17	4%	54%	per door	0.1	1.3	0.2
984	Refrigeration	Refrigeration - Custom	Biz-Custom	Lodging	ROB	7	2%	0	0.00	10	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
985	Refrigeration	Retro-commissioning, Refrigerator Optimization	Biz-Custom RxC	Lodging	Retro	5	21%	1	0.00	5	\$168	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
986	Refrigeration	Energy Star Ice Machine	Biz-Custom	Lodging	ROB	12,461	13%	1,630	0.00	10	\$222	100%	66%	20	10%	44%	per measure	3.2	4.8	5.2
987	Refrigeration	ESTAR Refrigerated Vending Machine	Biz-Custom	Lodging	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	4%	30%	per measure	0.2	6.6	0.3
988	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Lodging	Retro	1,278	17%	213	0.00	5	\$245	100%	8%	22	4%	30%	per measure	0.1	1.7	0.4
989	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/1F	Biz-Custom	Lodging	Retro	115	74%	84	0.00	9	\$11	100%	50%	23	7%	35%	per linear ft	3.9	7.8	4.8
990	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Lodging	Retro	522	27%	141	0.00	10	\$56	100%	23%	24	7%	18%	per measure	1.4	6.2	1.8
991	Ventilation	Demand Controlled Ventilation	Biz-Standard	Lodging	Retro	2,659	20%	528	0.00	15	\$227	100%	65%	1	100%	22%	per measure	2.7	2.7	2.6
992	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Standard	Lodging	Retro	2,166	43%	940	0.00	15	\$168	100%	61%	2	100%	22%	per HP	6.1	10.0	5.4
993	Ventilation	High Volume Low Speed Fan, 20	Biz-Standard	Lodging	Retro	19,919	82%	16,287	0.00	15	\$4,130	100%	20%	3	5%	30%	per measure	3.2	15.6	3.6
994	Ventilation	High Volume Low Speed Fan, 22	Biz-Standard	Lodging	Retro	21,909	83%	18,277	0.00	15	\$4,190	100%	27%	4	5%	30%	per measure	3.5	13.1	4.0
995	Ventilation	High Volume Low Speed Fan, 24	Biz-Standard	Lodging	Retro	23,903	82%	19,579	0.00	15	\$4,225	100%	32%	5	5%	30%	per measure	3.7	11.7	4.3
996	Whole Bldg, HVAC	HVAC - Energy Management System	Biz-Custom	Lodging	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	15%	20%	per kWh	2.8	8.3	2.5
997	Whole Bldg, HVAC	Guest room energy management system	Biz-Custom RxC	Lodging	Retro	7,167	19%	1,382	0.00	15	\$260	100%	50%	2	85%	20%	per measure	5.9	11.9	5.0
998	Whole Bldg, HVAC	Retro-commissioning, Bld Optimization	Biz-Custom RxC	Lodging	Retro	7	15%	1	0.00	5	\$0	100%	36%	3	100%	0%	per kWh	3.7	3.7	3.6
999	Whole Building	WholeBldg - Com RET	Biz-Custom	Lodging	Retro	5	20%	1	0.00	12	\$0	100%	38%	1	80%	0%	per kWh	1.5	3.9	2.2
1000	Whole Building	WholeBldg - Custom (Other)	Biz-Custom	Lodging	Retro	5	20%	1	0.00	12	\$0	100%	38%	2	80%	0%	per kWh	1.5	3.9	2.2
1001	Whole Building	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Lodging	Retro	1,150	1%	6	0.00	30	\$8	100%	13%	3	100%	20%	per measure	1.0	8.1	1.2
1002	Whole Bldg, NC	WholeBldg - Com NC	Biz-Custom	Lodging	NC	4	25%	1	0.00	2	\$0	100%	100%	1	100%	60%	per kWh	7.6	3.6	9.5
1003	Behavioral	COM Competitions	Biz-Custom	Lodging	Retro	53	2%	1	0.00	2	\$0	100%	48%	1	100%	0%	per kWh	1.6	3.2	3.5
1004	Behavioral	Business Energy Reports	Biz-Custom	Lodging	Retro	313	0%	1	0.00	2	\$0	100%	40%	1	100%	0%	per kWh	0.3	0.8	1.0
1005	Behavioral	Building Benchmarking	Biz-Custom	Lodging	Retro	263	0%	1	0.00	2	\$0	100%	36%	1	100%	0%	per kWh	0.3	0.8	0.9
1006	Behavioral	Strategic Energy Management	Biz-Custom SEM	Lodging	Retro	0	0%	0	0.00	5	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
1007	Behavioral	BEIMS	Biz-Custom	Lodging	Retro	20	5%	1	0.00	2	\$0	100%	18%	1	100%	2%	per kWh	0.1	0.8	0.5
1008	Behavioral	Building Operator Certification	Biz-Custom	Lodging	Retro	12	3%	0	0.00	3	\$0	100%	11%	1	100%	2%	per kWh	0.2	2.1	0.4
1009	Compressed Air	Retro-commissioning, Compressed Air Optimization	Biz-Custom RxC	Retail	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
1010	Compressed Air	Compressed Air Leak Repair	Biz-Custom	Retail	Retro	6	17%	1	0.00	5	\$0	100%	50%	1	100%	39%	per kWh	3.0	6.1	4.5
1011	Compressed Air	Efficient Air Compressors (VSD)	Biz-Standard	Retail	ROB	4,748	21%	987	0.00	10	\$1,573	100%	5%	2	100%	20%	per HP	0.3	5.3	0.4
1012	Compressed Air	AODD Pump Controls	Biz-Custom	Retail	Retro	103,919	95%	36,372	0.00	10	\$1,150	100%	50%	3	100%	50%	per measure	14.5	29.0	19.9
1013	Compressed Air	No Loss Condensate Drain	Biz-Standard	Retail	Retro	103,919	2%	2,320	0.00	13	\$700	100%	29%	4	100%	5%	per measure	1.9	6.6	2.8
1014	Compressed Air	Efficient Air Nozzles	Biz-Custom	Retail	Retro	5	20%	1	0.00	15	\$77	100%	97%	5	5%	20%	per measure	9.3	9.5	13.5
1015	Compressed Air	Compressed Air - Custom	Biz-Custom	Retail	Retro	23,958	38%	9,058	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
1016	Cooling	Commercial Combination Oven (Electric)	Biz-Custom	Retail	ROB	5	20%	1	0.00	15	\$0	100%	47%	6	100%	20%	per kWh	2.2	4.6	3.4
1017	Cooling	Commercial Electric Connection Oven	Biz-Custom	Retail	ROB	9,839	11%	1,065	0.00	12	\$0	100%	40%	1	18%	53%	per measure	n/a	0.0	n/a

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EU	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TRC Score	UCT Score	Participant Test Score
1018	Cooling	Commercial Electric Griddle	Biz-Custom	Retail	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	3	14%	17%	per measure	n/a	0.0	n/a
1019	Cooling	Commercial Electric Steam Cooker	Biz-Standard	Retail	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	21%	2	6%	45%	per measure	1.5	7.1	1.9
1020	Cooling	Dishwasher Low Temp Door (Energy Star)	Biz-Custom	Retail	ROB	39,306	44%	17,369	0.00	15	\$662	100%	100%	4	26%	61%	per measure	14.0	14.0	23.4
1021	Cooling	Dishwasher High Temp Door (Energy Star)	Biz-Custom	Retail	ROB	26,901	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.3
1022	Cooling	Energy efficient electric fryer	Biz-Custom	Retail	ROB	17,451	5%	952	0.00	12	\$210	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
1023	Cooling	Insulated Holding Cabinets (Full Size)	Biz-Standard	Retail	ROB	1,534	46%	709	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
1024	Cooling	Insulated Holding Cabinets (1/4 Size)	Biz-Standard	Retail	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.0	3.9	1.4
1025	Cooling	Insulated Holding Cabinets (Half-Size)	Biz-Standard/SBDI	Retail	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.6	6.2	2.0
1026	Cooling	Air Conditioner -17 IEER (5-20 Tons)	Biz-Standard/SBDI	Retail	ROB	804	15%	118	0.00	10	\$191	100%	44%	1	15%	10%	per ton	1.2	2.7	1.0
1027	Cooling	Air Conditioner -18 IEER (5-20 Tons)	Biz-Standard/SBDI	Retail	ROB	804	19%	156	0.00	15	\$254	100%	46%	1	15%	10%	per ton	1.2	2.5	1.0
1028	Cooling	Air Conditioner -21 IEER (5-20 Tons)	Biz-Standard/SBDI	Retail	ROB	804	31%	249	0.00	15	\$445	100%	49%	1	15%	10%	per ton	1.0	2.2	1.0
1029	Cooling	Air Conditioner -14.3 IEER (20+ Tons)	Biz-Standard	Retail	ROB	883	8%	68	0.00	15	\$59	100%	53%	2	15%	10%	per ton	2.2	4.1	1.5
1030	Cooling	Air Conditioner -17 IEER (20+ Tons)	Biz-Standard	Retail	ROB	883	12%	107	0.00	15	\$97	100%	53%	2	15%	10%	per ton	2.1	3.9	1.5
1031	Cooling	Air Conditioner -17 IEER (20+ Tons)	Biz-Standard	Retail	ROB	883	22%	197	0.00	15	\$204	100%	53%	2	15%	10%	per ton	1.8	3.4	1.4
1032	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Retail	Retiro	0	7%	68	0.00	3	\$5	100%	50%	3	29%	50%	per ton	5.9	11.8	2.9
1033	Cooling	Air Side Economizer	Biz-Custom	Retail	Retiro	804	20%	161	0.00	10	\$84	100%	42%	4	29%	25%	per ton	2.6	6.2	1.6
1034	Cooling	Advanced Rooftop Controls	Biz-Standard/SBDI	Retail	Retiro	6,683	56%	3,729	0.00	15	\$2,950	100%	4%	5	29%	20%	per measure	2.4	53.8	1.1
1035	Cooling	HVAC Occupancy Controls	Biz-Custom	Retail	ROB	972	20%	194	0.00	15	\$537	100%	8%	6	29%	20%	per measure	0.7	8.5	0.4
1036	Cooling	Air Conditioner -16 SEER (4.5 Tons)	Biz-Standard/SBDI	Retail	ROB	832	13%	104	0.00	15	\$115	100%	52%	7	18%	10%	per ton	1.7	3.3	1.3
1037	Cooling	Air Conditioner -17 SEER (4.5 Tons)	Biz-Standard/SBDI	Retail	ROB	832	18%	147	0.00	15	\$514	100%	27%	7	18%	10%	per ton	0.5	3.1	0.4
1038	Cooling	Air Conditioner -18 SEER (4.5 Tons)	Biz-Standard/SBDI	Retail	ROB	832	22%	185	0.00	15	\$514	100%	27%	7	18%	10%	per ton	0.7	2.9	0.5
1039	Cooling	Air Conditioner -21 SEER (4.5 Tons)	Biz-Standard/SBDI	Retail	ROB	832	33%	277	0.00	15	\$631	100%	33%	7	18%	10%	per ton	0.8	2.5	0.7
1040	Cooling	Smart Thermostat	Biz-Standard/SBDI	Retail	ROB	3,329	14%	463	0.00	10	\$224	100%	79%	8	18%	63%	per measure	2.8	3.6	2.1
1041	Cooling	PTAC - <7,000 Btu/h - loading	Biz-Custom	Retail	ROB	979	8%	83	0.00	8	\$84	100%	22%	9	6%	20%	per ton	1.1	5.2	0.7
1042	Cooling	PTAC - 7,000 to 15,000 Btu/h - loading	Biz-Custom	Retail	ROB	1,074	7%	78	0.00	8	\$84	100%	20%	10	6%	20%	per ton	1.1	5.2	0.7
1043	Cooling	PTAC - >15,000 Btu/h - loading	Biz-Custom	Retail	ROB	1,227	10%	117	0.00	8	\$84	100%	31%	11	6%	20%	per ton	1.6	5.2	1.0
1044	Cooling	Air Cooled Chiller	Biz-Standard	Retail	ROB	851	9%	77	0.00	20	\$106	100%	16%	12	32%	10%	per ton	1.6	10.0	0.9
1045	Cooling	Water Cooled Chiller	Biz-Standard	Retail	ROB	427	23%	97	0.00	20	\$106	100%	21%	13	4%	10%	per ton	2.1	10.0	1.2
1046	Cooling	Chiller Tune-up	Biz-Custom	Retail	Retiro	0	7%	68	0.00	3	\$8	100%	50%	14	35%	50%	per ton	3.9	7.9	2.1
1047	Cooling	Window Film	Biz-Custom	Retail	Retiro	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	25%	per measure	1.3	6.2	1.4
1048	Cooling	Triple Pane Windows	Biz-Custom	Retail	Retiro	6,000	6%	360	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
1049	Cooling	Energy Recovery Ventilator	Biz-Custom	Retail	Retiro	829	36%	298	0.00	15	\$1,050	100%	6%	16	100%	2%	per ton	1.0	16.7	0.3
1050	ExteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Retail	Retiro	655	66%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
1051	ExteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Retail	Retiro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
1052	ExteriorLighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Retail	Retiro	1,205	68%	823	0.00	15	\$234	100%	35%	3	14%	69%	per measure	1.4	4.0	3.4
1053	ExteriorLighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Retail	Retiro	2,214	65%	1,436	0.00	15	\$234	100%	50%	4	14%	69%	per measure	3.7	7.3	5.7
1054	ExteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Retail	Retiro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
1055	ExteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Retail	Retiro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
1056	ExteriorLighting	Bi-Level Lighting Fixture -Garages	Biz-Custom	Retail	Retiro	346	69%	239	0.00	10	\$274	100%	9%	7	14%	35%	per measure	0.2	2.8	0.6
1057	Heating	Heat Pump -16 SEER (4.5 Tons)	Biz-Standard	Retail	ROB	2,137	4%	79	0.00	15	\$135	100%	17%	1	28%	10%	per ton	0.8	4.5	0.7
1058	Heating	Heat Pump -17 SEER (4.5 Tons)	Biz-Standard	Retail	ROB	2,137	8%	178	0.00	15	\$421	100%	11%	1	28%	10%	per ton	0.5	4.6	0.5
1059	Heating	Heat Pump -18 SEER (4.5 Tons)	Biz-Standard	Retail	ROB	2,137	12%	256	0.00	15	\$446	100%	15%	1	28%	10%	per ton	0.7	4.3	0.6
1060	Heating	Heat Pump -21 SEER (4.5 Tons)	Biz-Standard	Retail	ROB	2,137	18%	385	0.00	15	\$520	100%	26%	1	28%	10%	per ton	0.9	3.5	0.9
1061	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Retail	ROB	2,137	18%	385	0.00	16	\$224	100%	26%	1	28%	10%	per ton	2.2	8.7	1.8
1062	Heating	Heat Pump -15.0 IEER COP 3.6 (65,000-134,000 Btu/h)	Biz-Standard	Retail	ROB	2,386	6%	147	0.00	15	\$100	100%	31%	2	16%	10%	per ton	1.5	4.8	1.6
1063	Heating	Heat Pump -16.0 IEER COP 3.8 (65,000-134,000 Btu/h)	Biz-Standard	Retail	ROB	2,476	11%	273	0.00	15	\$171	100%	35%	2	16%	10%	per ton	1.6	4.6	1.7
1064	Heating	Heat Pump -14.5 IEER COP 3.5 (135,000-239,000 Btu/h)	Biz-Standard	Retail	ROB	2,470	7%	164	0.00	15	\$100	100%	34%	3	15%	10%	per ton	1.7	5.1	1.7
1065	Heating	Heat Pump -15.5 IEER COP 3.7 (135,000-239,000 Btu/h)	Biz-Standard	Retail	ROB	2,470	12%	297	0.00	15	\$182	100%	34%	3	15%	10%	per ton	1.7	4.8	1.7
1066	Heating	Heat Pump -12 IEER 3.4 COP (>239,000 Btu/h)	Biz-Standard	Retail	ROB	2,591	7%	181	0.00	15	\$100	100%	34%	4	15%	10%	per ton	2.0	5.8	1.9
1067	Heating	Heat Pump -13 IEER 3.6 COP (>239,000 Btu/h)	Biz-Standard	Retail	ROB	2,591	13%	326	0.00	15	\$202	100%	31%	4	15%	10%	per ton	1.7	5.5	1.7
1068	Heating	Geothermal HP - 17 IEER <1350btu	Biz-Custom	Retail	ROB	1,693	4%	60	0.00	25	\$108	100%	8%	5	8%	20%	per ton	0.9	11.3	0.7
1069	Heating	Geothermal HP - 19 IEER <1350btu	Biz-Custom	Retail	ROB	1,693	8%	132	0.00	25	\$108	100%	18%	5	8%	20%	per ton	2.6	14.3	1.6
1070	Heating	PTHP -<7,000 Btu/h - loading	Biz-Custom	Retail	ROB	2,412	5%	127	0.00	8	\$84	100%	23%	6	3%	20%	per ton	2.2	5.3	1.0
1071	Heating	PTHP -7,000 to 15,000 Btu/h - loading	Biz-Custom	Retail	ROB	2,603	9%	221	0.00	8	\$84	100%	40%	7	3%	20%	per ton	2.7	6.8	1.7
1072	Heating	PTHP ->15,000 Btu/h - loading	Biz-Custom	Retail	ROB	2,932	17%	497	0.00	8	\$84	100%	89%	8	3%	20%	per ton	5.4	6.1	3.9
1073	HotWater	Res-Sized Heat Pump Water Heater	Biz-Standard	Retail	ROB	4,687	67%	3,139	0.00	15	\$1,115	100%	45%	1	80%	23%	per measure	1.9	4.1	2.9
1074	HotWater	Commercial-Sized HPWH	Biz-Standard	Retail	ROB	116,224	77%	89,384	0.00	15	\$7,650	100%	88%	2	20%	23%	per measure	7.8	8.9	11.1
1075	HotWater	Hot Water Pipe Insulation	Biz-Custom	Retail	Retiro	4,687	2%	94	0.00	20	\$60	100%	17%	3	100%	80%	per measure	1.4	7.9	1.8
1076	HotWater	Faucet Aerator	Biz-Custom	Retail	Retiro	400	22%	87	0.00	9	\$8	100%	50%	4	20%	85%	per measure	5.1	10.3	6.6
1077	HotWater	Low Flow Pre-Rinse Sprayer	Biz-Custom	Retail	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	6	25%	per measure	17.9	20.8	17.9
1078	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Retail	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	5	33%	per measure	1.0	4.6	1.5
1079	InteriorLighting	LED <=11 Watt Lamp Replacing Interior -Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Retail	Retiro	154	83%	127	0.00	10	\$16	100%	17%	1	0%	40%	per measure	4.3	24.8	5.2
1080	InteriorLighting	LED 7-20 Watt Lamp Replacing Interior -Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Retail	Retiro	144	85%	122	0.00	10	\$20	100%	14%	1	0%	40%	per measure	3.3	23.8	4.0

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Effic Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TRE Score	UCT Score	Participant Test Score
1081	Interior Lighting	LED Specialty Lamp	Biz-Standard/SBDI	Retail	Retro	114	87%	99	0.00	10	\$12	100%	23%	1	0%	40%	per measure	4.4	19.2	5.3
1082	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Retail	Retro	177	84%	148	0.00	10	\$48	100%	14%	2	4%	40%	per measure	1.6	11.5	2.0
1083	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen MR 16 35-50 Watt Lamp	Biz-Standard/SBDI	Retail	Retro	121	85%	103	0.00	10	\$37	100%	18%	2	4%	40%	per measure	1.5	8.0	1.9
1084	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Standard/SBDI	Retail	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	4%	40%	per measure	1.4	15.1	1.7
1085	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Standard/SBDI	Retail	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	11%	40%	per measure	2.5	12.6	3.2
1086	Interior Lighting	LED 60 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Retail	Retro	1,390	60%	836	0.00	15	\$234	100%	30%	3	11%	40%	per measure	2.6	8.7	3.3
1087	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Biz-Standard	Retail	Retro	1,427	75%	1,070	0.00	15	\$367	100%	27%	3	11%	40%	per measure	2.1	7.9	2.8
1088	Interior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Retail	Retro	1,525	68%	1,030	0.00	15	\$362	100%	35%	4	8%	40%	per measure	2.1	5.9	2.8
1089	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Retail	Retro	687	51%	350	0.00	10	\$30	100%	53%	5	11%	40%	per measure	6.2	11.8	7.8
1090	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Retail	Retro	834	57%	477	0.00	15	\$43	100%	100%	5	11%	40%	per measure	8.0	8.0	10.4
1091	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Retail	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	11%	40%	per measure	6.6	6.6	8.8
1092	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Retail	Retro	275	65%	178	0.00	11	\$56	100%	32%	5	11%	40%	per measure	2.3	7.2	3.0
1093	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Retail	Retro	382	54%	208	0.00	10	\$30	100%	33%	6	41%	40%	per measure	3.7	11.3	4.6
1094	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Retail	Retro	349	60%	209	0.00	15	\$30	100%	74%	6	41%	40%	per measure	5.1	6.9	6.7
1095	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Retail	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	41%	40%	per measure	5.0	10.0	6.4
1096	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Retail	Retro	109	63%	69	0.00	15	\$36	100%	14%	6	41%	40%	per measure	0.9	6.4	1.2
1097	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Retail	Retro	358	63%	224	0.00	10	\$30	100%	40%	7	23%	40%	per measure	4.0	10.0	5.0
1098	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Retail	Retro	384	71%	274	0.00	15	\$36	100%	100%	7	23%	40%	per measure	5.5	5.5	7.5
1099	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Retail	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	23%	40%	per measure	3.4	4.8	4.6
1100	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Retail	Retro	115	69%	80	0.00	15	\$56	100%	24%	7	23%	40%	per measure	1.0	4.3	1.5
1101	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Retail	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	19%	per measure	1.4	6.6	1.8
1102	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Retail	Retro	1,213	24%	291	0.00	10	\$105	100%	22%	9	32%	19%	per measure	1.5	6.6	1.9
1103	Interior Lighting	Lighting Power Density	Biz-Custom	Retail	Retro	4	20%	1	0.00	15	\$0	100%	36%	10	80%	20%	per sq ft	2.4	6.5	3.1
1104	Interior Lighting	LED Lighting Redesign/Custom	Biz-Standard	Retail	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
1105	Interior Lighting	LED or Electrochromic Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Retail	Retro	255	91%	231	0.00	7	\$45	100%	40%	12	1%	80%	per measure	2.0	4.9	2.7
1106	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Retail	Retro	1,278	12%	153	0.00	5	\$233	100%	6%	1	5%	30%	per measure	0.1	1.8	0.3
1107	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Retail	ROB	9,992	50%	4,966	0.00	20	\$1,180	100%	24%	2	12%	10%	per HP	3.2	13.6	4.6
1108	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Retail	ROB	1,899	83%	1,585	0.00	10	\$483	100%	30%	3	2%	10%	per measure	1.5	5.1	2.3
1109	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Retail	Retro	2,384	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0
1110	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Retail	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	3%	70%	per measure	1.0	7.8	1.4
1111	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Retail	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	5%	20%	per measure	3.6	5.7	5.0
1112	Miscellaneous	Pool Pump Timer	Biz-Custom	Retail	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	15%	20%	per measure	3.1	5.7	4.2
1113	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Retail	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	0%	20%	per measure	24.6	24.6	31.1
1114	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Retail	ROB	7,758	80%	6,206	0.00	15	\$1,000	100%	56%	9	0%	20%	per measure	4.3	7.8	5.9
1115	Miscellaneous	High Efficiency Dryer	Biz-Custom	Retail	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8
1116	Miscellaneous	Miscellaneous Custom	Biz-Custom	Retail	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	29%	10%	per kWh	0.5	2.2	0.5
1117	Motors	Cogged V-Belt	Biz-Custom	Retail	Retro	14,670	3%	455	0.00	15	\$384	100%	11%	1	50%	10%	per measure	0.9	8.5	1.1
1118	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Retail	Retro	3,805	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per HP	8.4	13.8	7.2
1119	Motors	Power Drive Systems	Biz-Custom	Retail	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	5.9	11.8	7.0
1120	Motors	Switch Reluctance Motors	Biz-Custom	Retail	Retro	28,430	31%	8,700	0.00	15	\$528	100%	50%	2	100%	1%	per measure	8.6	17.2	14.6
1121	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Retail	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
1122	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Retail	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	30%	90%	per measure	n/a	n/a	n/a
1123	Office_NonPC	Smart Power Strip - Commercial Use	Biz-Custom	Retail	ROB	1,086	10%	109	0.00	7	\$50	100%	20%	2	60%	24%	per measure	0.7	3.8	1.2
1124	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Retail	Retro	1,126	15%	169	0.00	8	\$70	100%	22%	2	60%	24%	per measure	0.9	4.3	1.4
1125	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Retail	ROB	86,783	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5
1126	Office_PC	Energy Star Server	Biz-Custom	Retail	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
1127	Office_PC	Server Virtualization	Biz-Custom	Retail	Retro	2	45%	1	0.00	8	\$0	100%	23%	1	65%	25%	per kWh	0.6	2.8	1.5
1128	Office_PC	High Efficiency CRAC Unit	Biz-Custom	Retail	ROB	541	30%	162	0.00	15	\$63	100%	23%	2	65%	20%	per measure	1.6	6.9	2.4
1129	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Retail	ROB	764	47%	358	0.00	15	\$82	100%	39%	2	65%	20%	per measure	1.8	4.7	4.1
1130	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Retail	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4
1131	Office_PC	Energy Star Laptop	Biz-Custom	Retail	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
1132	Office_PC	Energy Star Monitor	Biz-Custom	Retail	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
1133	Refrigeration	Strip Curtains	Biz-Custom	Retail	Retro	0	0%	0	0.00	4	\$0	100%	0%	1	6%	40%	per sq ft	n/a	0.0	n/a
1134	Refrigeration	Bare Suction Line	Biz-Custom	Retail	Retro	23	93%	21	0.00	15	\$4	100%	47%	2	0%	50%	per measure	3.1	6.6	4.9
1135	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Retail	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	4%	25%	per HP	0.3	4.7	0.6
1136	Refrigeration	Saturated Suction Controls	Biz-Custom	Retail	Retro	831	50%	416	0.00	15	\$559	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7
1137	Refrigeration	Compressor Retrofit	Biz-Custom	Retail	Retro	2,884	20%	163	0.00	15	\$477	100%	3%	5	13%	25%	per measure	0.4	12.0	0.3
1138	Refrigeration	Electronically Commutated (EC) Walk-in Evaporator Fan Motor	Biz-Standard	Retail	Retro	813	55%	1,586	0.00	15	\$305	100%	31%	6	4%	80%	per measure	3.1	9.9	4.8
1139	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Retail	Retro	2,236	32%	716	0.00	15	\$155	100%	42%	7	4%	25%	per measure	1.9	4.4	4.4
1140	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Retail	Retro	2,960	50%	1,480	0.00	15	\$1,170	100%	11%	8	5%	25%	per HP	0.5	4.7	1.2
1141	Refrigeration	Refrigeration Economizer	Biz-Custom	Retail	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	18%	10%	per kWh	1.7	3.4	1.1
1142	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Standard	Retail	Retro	579	59%	338	0.00	10	\$151	100%	37%	10	18%	75%	per door	1.0	2.7	1.7

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROI Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
1143	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Retail	Retro	1,584	35%	578	0.00	12	\$686	100%	8%	11	5%	25%	per door	0.5	6.2	0.7
1144	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Standard	Retail	Retro	2,884	55%	1,586	0.00	15	\$305	100%	8%	12	3%	80%	per measure	3.1	9.9	4.8
1145	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Biz-Custom	Retail	ROB	441	34%	149	0.00	10	\$90	100%	13%	13	3%	2%	per measure	0.8	5.1	1.2
1146	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Standard	Retail	ROB	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	17%	54%	per door	0.3	2.9	0.5
1147	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Standard	Retail	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	17%	54%	per door	0.1	1.3	0.3
1148	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Retail	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	6%	75%	per door	4.1	8.1	6.0
1149	Refrigeration	Display Case Door Retrofits, Low Temp	Biz-Custom	Retail	Retro	2,922	50%	1,453	0.00	12	\$686	100%	19%	16	6%	25%	per door	1.2	6.2	1.7
1150	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Standard	Retail	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	6%	54%	per door	0.4	5.5	0.6
1151	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Standard	Retail	ROB	4,522	7%	305	0.00	12	\$1,521	100%	7%	17	6%	54%	per door	0.1	1.3	0.2
1152	Refrigeration	Refrigeration - Custom	Biz-Custom	Retail	ROB	7	2%	0	0.00	5	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
1153	Refrigeration	Retro-commissioning, Refrigerator Optimization	Biz-Custom ROX	Retail	Retro	5	21%	1	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
1154	Refrigeration	Energy Star Ice Machine	Biz-Custom	Retail	ROB	12,461	13%	1,630	0.00	10	\$222	100%	66%	20	3%	44%	per measure	3.2	4.8	5.2
1155	Refrigeration	ESTAR Refrigerated Vending Machine	Biz-Custom	Retail	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	3%	30%	per measure	0.2	6.6	0.3
1156	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Retail	Retro	1,278	17%	213	0.00	5	\$245	100%	8%	22	3%	30%	per measure	0.1	1.7	0.4
1157	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/lf	Biz-Custom	Retail	Retro	115	74%	84	0.00	9	\$11	100%	50%	23	11%	35%	per linear ft	3.9	7.8	4.8
1158	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Retail	Retro	522	27%	141	0.00	10	\$56	100%	23%	24	11%	18%	per measure	1.4	6.2	1.8
1159	Ventilation	Demand Controlled Ventilation	Biz-Standard	Retail	Retro	2,798	20%	560	0.00	15	\$277	100%	63%	1	100%	18%	per measure	3.0	3.3	2.7
1160	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Standard	Retail	Retro	2,166	43%	940	0.00	15	\$168	100%	61%	2	100%	18%	per HP	6.1	10.0	5.4
1161	Ventilation	High Volume Low Speed Fan, 20	Biz-Standard	Retail	Retro	19,919	82%	16,287	0.00	15	\$4,130	100%	20%	3	10%	30%	per measure	3.2	15.6	3.6
1162	Ventilation	High Volume Low Speed Fan, 22	Biz-Standard	Retail	Retro	23,903	82%	19,579	0.00	15	\$4,224	100%	27%	4	10%	30%	per measure	3.5	13.1	4.0
1163	Ventilation	High Volume Low Speed Fan, 24	Biz-Standard	Retail	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	100%	20%	per kWh	2.8	8.3	2.5
1164	WholeBldg. HVAC	HVAC - Energy Management System	Biz-Custom	Retail	Retro	5	20%	1	0.00	25	\$1	100%	15%	2	26%	33%	per kWh	1.7	11.5	1.4
1165	WholeBldg. HVAC	Coil Roof	Biz-Custom	Retail	Retro	7	15%	1	0.00	5	\$0	100%	100%	3	100%	0%	per kWh	3.7	3.7	3.6
1166	WholeBldg. HVAC	Retro-commissioning, Bld Optimization	Biz-Custom ROX	Retail	Retro	7	15%	1	0.00	12	\$0	100%	38%	1	80%	0%	per kWh	1.5	3.9	2.2
1167	WholeBuilding	WholeBldg - Com RET	Biz-Custom	Retail	Retro	5	20%	1	0.00	12	\$0	100%	38%	2	80%	0%	per kWh	1.5	3.9	2.2
1168	WholeBuilding	WholeBldg - Custom (Other)	Biz-Custom	Retail	Retro	20	5%	1	0.00	2	\$0	100%	18%	3	100%	2%	per kWh	0.1	0.8	0.5
1169	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Retail	NC	4	25%	1	0.00	32	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
1170	WholeBldg. HVAC	WholeBldg. HVAC - Com NC	Biz-Custom	Retail	NC	4	25%	1	0.00	32	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
1171	Behavioral	COM Competitions	Biz-Custom	Retail	Retro	53	2%	1	0.00	2	\$0	100%	48%	1	100%	0%	per kWh	1.6	3.2	3.5
1172	Behavioral	Business Energy Reports	Biz-Custom	Retail	Retro	313	0%	1	0.00	2	\$0	100%	40%	1	100%	0%	per kWh	0.3	0.8	1.0
1173	Behavioral	Building Benchmarking	Biz-Custom	Retail	Retro	97	1%	1	0.00	2	\$0	100%	36%	1	100%	0%	per kWh	0.3	0.8	0.9
1174	Behavioral	Strategic Energy Management	Biz-Custom SEM	Retail	Retro	0	0%	0	0.00	5	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
1175	Behavioral	BEIMS	Biz-Custom	Retail	Retro	20	5%	1	0.00	2	\$0	100%	18%	1	100%	2%	per kWh	0.1	0.8	0.5
1176	Behavioral	Building Operator Certification	Biz-Custom	Retail	Retro	14	3%	0	0.00	3	\$0	100%	17%	1	100%	2%	per kWh	0.3	1.6	0.5
1177	CompressedAir	Retro-commissioning, Compressed Air - Optimization	Biz-Custom ROX	Office	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
1178	CompressedAir	Compressed Air - Leak Repair	Biz-Custom	Office	Retro	6	17%	1	0.00	5	\$0	100%	50%	1	100%	39%	per kWh	3.0	6.1	4.5
1179	CompressedAir	Efficient Air Compressors (VSD)	Biz-Standard	Office	ROB	4,748	21%	987	0.00	10	\$1,573	100%	5%	2	100%	20%	per HP	0.3	5.3	4.0
1180	CompressedAir	AODD Pump Controls	Biz-Custom	Office	Retro	103,919	35%	36,372	0.00	10	\$1,150	100%	50%	3	100%	50%	per measure	14.5	29.0	19.9
1181	CompressedAir	No Loss Condensate Drain	Biz-Standard	Office	Retro	103,919	2%	2,320	0.00	13	\$700	100%	29%	4	100%	5%	per measure	1.9	6.6	2.8
1182	CompressedAir	Efficient Air Nozzles	Biz-Standard	Office	Retro	2,260	50%	1,130	0.00	15	\$77	100%	97%	5	5%	20%	per measure	9.3	9.5	13.5
1183	CompressedAir	Compressed Air - Custom	Biz-Custom	Office	Retro	5	20%	1	0.00	10	\$0	100%	47%	6	100%	20%	per kWh	2.2	4.6	3.4
1184	Cooling	Commercial Combination Oven (Electric)	Biz-Custom	Office	ROB	23,958	38%	9,058	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
1185	Cooling	Commercial Electric Convection Oven	Biz-Custom	Office	ROB	9,839	11%	1,065	0.00	12	\$0	100%	40%	1	18%	53%	per measure	n/a	0.0	n/a
1186	Cooling	Commercial Electric Griddle	Biz-Custom	Office	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	2	14%	17%	per measure	n/a	0.0	n/a
1187	Cooling	Commercial Electric Steam Cooker	Biz-Standard	Office	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	21%	3	6%	45%	per measure	1.5	7.1	1.9
1188	Cooling	Dishwasher Low Temp Door (Energy Star)	Biz-Custom	Office	ROB	39,306	44%	17,369	0.00	15	\$662	100%	100%	4	26%	61%	per measure	14.0	14.0	23.4
1189	Cooling	Dishwasher High Temp Door (Energy Star)	Biz-Custom	Office	ROB	26,901	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.3
1190	Cooling	Energy efficient electric fryer	Biz-Custom	Office	ROB	17,451	5%	952	0.00	12	\$210	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
1191	Cooling	Insulated Holding Cabinets (Full Size)	Biz-Standard	Office	ROB	1,534	46%	709	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
1192	Cooling	Insulated Holding Cabinets (3/4 Size)	Biz-Standard	Office	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.0	3.9	1.4
1193	Cooling	Insulated Holding Cabinets (Half-Size)	Biz-Standard	Office	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.6	6.2	2.0
1194	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Standard/SBDI	Office	ROB	1,218	15%	179	0.00	15	\$191	100%	44%	1	26%	10%	per ton	1.8	4.0	1.2
1195	Cooling	Air Conditioner - 18 IEER (5-20 Tons)	Biz-Standard/SBDI	Office	ROB	1,218	15%	237	0.00	15	\$254	100%	46%	1	26%	10%	per ton	1.7	3.8	1.3
1196	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Standard/SBDI	Office	ROB	1,218	31%	377	0.00	15	\$445	100%	49%	1	26%	10%	per ton	1.6	3.3	1.2
1197	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Standard	Office	ROB	1,338	8%	103	0.00	15	\$59	100%	53%	2	26%	10%	per ton	3.3	6.2	2.0
1198	Cooling	Air Conditioner - 15 IEER (20+ Tons)	Biz-Standard	Office	ROB	1,338	12%	161	0.00	15	\$97	100%	53%	2	26%	10%	per ton	3.1	5.9	1.9
1199	Cooling	Air Conditioner - 17 IEER (20+ Tons)	Biz-Standard	Office	ROB	1,338	22%	299	0.00	15	\$204	100%	50%	2	26%	10%	per ton	2.7	5.2	1.8
1200	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Office	Retro	0	7%	103	0.00	3	\$5	100%	50%	3	51%	50%	per ton	8.9	17.9	4.2
1201	Cooling	Air Side Economizer	Biz-Custom	Office	Retro	1,218	20%	244	0.00	10	\$84	100%	50%	4	51%	25%	per ton	4.0	8.0	2.3
1202	Cooling	Advanced Rooftop Controls	Biz-Standard/SBDI	Office	Retro	6,782	56%	3,785	0.00	15	\$2,950	100%	4%	5	51%	20%	per measure	2.4	54.6	1.1
1203	Cooling	HVAC Occupancy Controls	Biz-Custom	Office	ROB	959	20%	192	0.00	15	\$537	100%	8%	6	51%	20%	per ton	0.7	8.5	0.4
1204	Cooling	Air Conditioner - 16 SEER (4.5 Tons)	Biz-Standard/SBDI	Office	ROB	1,261	13%	158	0.00	15	\$115	100%	53%	7	7%	10%	per ton	2.6	5.0	1.7
1205	Cooling	Air Conditioner - 17 SEER (4.5 Tons)	Biz-Standard/SBDI	Office	ROB	1,261	18%	223	0.00	15	\$514	100%	17%	7	7%	10%</				

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard Annual Electric)	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EU	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TFR Score	UCT Score	Participant Test Score
1210	Cooling	PTAC - 7,000 to 15,000 Btu/h - lodging	Biz-Custom	Office	ROB	1,627	7%	118	0.00	8	\$84	100%	31%	10	2%	20%	per ton	1.6	5.2	1.0
1211	Cooling	PTAC - >15,000 Btu/h - lodging	Biz-Custom	Office	ROB	1,859	10%	177	0.00	8	\$84	100%	46%	11	2%	20%	per ton	2.4	5.2	1.5
1212	Cooling	Air Cooled Chiller	Biz-Standard	Office	ROB	1,289	9%	116	0.00	20	\$106	100%	10%	12	32%	10%	per ton	2.5	15.2	1.3
1213	Cooling	Water Cooled Chiller	Biz-Standard	Office	ROB	647	23%	147	0.00	20	\$106	100%	21%	13	4%	10%	per ton	3.2	15.2	1.7
1214	Cooling	Chiller Tune-up	Biz-Custom	Office	Retro	0	7%	103	0.00	3	\$8	100%	50%	14	35%	50%	per ton	6.0	11.9	2.9
1215	Cooling	Window Film	Biz-Custom	Office	ROB	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	25%	per measure	1.3	6.2	1.4
1216	Cooling	Triple Pane Windows	Biz-Custom	Office	ROB	6,000	6%	360	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
1217	Cooling	Energy Recovery Ventilator	Biz-Custom	Office	Retro	1,256	71%	894	0.00	15	\$1,050	100%	19%	16	100%	2%	per ton	2.8	15.0	0.9
1218	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	Retro	655	66%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
1219	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	Retro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
1220	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Office	Retro	1,205	68%	823	0.00	15	\$234	100%	35%	3	14%	69%	per measure	1.4	4.0	3.4
1221	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Office	Retro	2,214	65%	1,436	0.00	15	\$234	100%	50%	4	14%	69%	per measure	3.7	7.3	5.7
1222	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Office	Retro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
1223	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Office	Retro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
1224	Exterior Lighting	Bi-level lighting Fixture - Garages	Biz-Custom	Office	Retro	260	69%	179	0.00	10	\$274	100%	7%	7	14%	35%	per measure	0.2	2.8	0.5
1225	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Standard	Office	ROB	2,325	4%	99	0.00	15	\$135	100%	17%	1	6%	10%	per ton	1.1	6.5	0.8
1226	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Standard	Office	ROB	2,325	9%	212	0.00	15	\$421	100%	11%	1	6%	10%	per ton	0.7	6.3	0.5
1227	Heating	Heat Pump - 18 SEER (<5 Tons)	Biz-Standard	Office	ROB	2,325	13%	303	0.00	15	\$446	100%	15%	1	6%	10%	per ton	0.9	6.0	0.7
1228	Heating	Heat Pump - 21 SEER (<5 Tons)	Biz-Standard	Office	ROB	2,325	20%	474	0.00	15	\$520	100%	26%	1	6%	10%	per ton	1.3	5.0	1.0
1229	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Office	ROB	2,325	20%	474	0.00	16	\$224	100%	32%	1	6%	10%	per ton	3.2	10.0	2.2
1230	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Standard	Office	ROB	2,576	6%	166	0.00	15	\$100	100%	31%	2	17%	10%	per ton	2.0	6.5	1.7
1231	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Standard	Office	ROB	2,576	12%	304	0.00	15	\$171	100%	35%	2	17%	10%	per ton	2.1	6.1	1.9
1232	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Standard	Office	ROB	2,673	7%	187	0.00	15	\$100	100%	34%	3	16%	10%	per ton	2.4	6.9	1.9
1233	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Standard	Office	ROB	2,823	12%	334	0.00	15	\$182	100%	34%	3	16%	10%	per ton	2.2	6.5	1.9
1234	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Standard	Office	ROB	2,823	7%	209	0.00	15	\$100	100%	34%	4	16%	10%	per ton	2.7	7.9	2.1
1235	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Standard	Office	ROB	2,823	13%	372	0.00	15	\$202	100%	31%	4	16%	10%	per ton	2.3	7.4	1.9
1236	Heating	Geothermal HP - 17 EER < 135kbtu	Biz-Custom	Office	ROB	1,912	4%	74	0.00	25	\$108	100%	10%	5	4%	20%	per ton	1.3	13.0	0.9
1237	Heating	Geothermal HP - 19 EER < 135kbtu	Biz-Custom	Office	ROB	1,912	10%	183	0.00	25	\$108	100%	25%	5	4%	20%	per ton	3.9	15.3	2.3
1238	Heating	PTHP - <7,000 Btu/h - lodging	Biz-Custom	Office	ROB	2,584	6%	160	0.00	8	\$84	100%	29%	6	3%	20%	per ton	1.7	6.0	1.2
1239	Heating	PTHP - 7,000 to 15,000 Btu/h - lodging	Biz-Custom	Office	ROB	2,825	11%	319	0.00	8	\$84	100%	57%	7	3%	20%	per ton	4.0	7.0	2.5
1240	Heating	PTHP - >15,000 Btu/h - lodging	Biz-Custom	Office	ROB	3,225	21%	675	0.00	8	\$84	100%	100%	8	3%	20%	per ton	7.9	7.9	5.0
1241	HotWater	Res-Sized Heat Pump Water Heater	Biz-Standard	Office	ROB	4,536	67%	3,038	0.00	15	\$1,115	100%	45%	1	50%	13%	per measure	1.8	4.0	2.8
1242	HotWater	Commercial-Sized HP WH	Biz-Standard	Office	ROB	116,224	77%	89,384	0.00	15	\$7,450	100%	88%	2	50%	13%	per measure	7.8	8.9	11.1
1243	HotWater	Hot Water Pipe Insulation	Biz-Custom	Office	Retro	4,536	2%	91	0.00	20	\$60	100%	17%	3	100%	80%	per measure	1.3	7.9	1.7
1244	HotWater	Faucet Aerator	Biz-Custom	Office	Retro	400	22%	87	0.00	9	\$8	100%	50%	4	20%	85%	per measure	5.1	10.3	6.6
1245	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Office	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	17.9	20.8
1246	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Office	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	1.0	4.6	1.5
1247	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Office	Retro	154	83%	127	0.00	10	\$16	100%	17%	1	1%	40%	per measure	4.3	24.8	5.2
1248	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen A 53-70 Watt Lamp	Biz-Standard/SBDI	Office	Retro	144	85%	122	0.00	10	\$20	100%	14%	1	1%	40%	per measure	3.3	23.8	4.0
1249	Interior Lighting	LED Specialty Lamp	Biz-Standard/SBDI	Office	Retro	114	87%	99	0.00	10	\$12	100%	23%	1	1%	40%	per measure	4.4	19.2	5.3
1250	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Office	Retro	177	84%	148	0.00	10	\$48	100%	14%	2	4%	40%	per measure	1.6	11.5	2.0
1251	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen MR 16 35-50 Watt Lamp	Biz-Standard/SBDI	Office	Retro	121	85%	103	0.00	10	\$37	100%	18%	2	4%	40%	per measure	1.5	8.0	1.9
1252	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Standard/SBDI	Office	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	4%	40%	per measure	1.4	15.1	1.7
1253	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Standard/SBDI	Office	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	10%	40%	per measure	2.5	12.6	3.2
1254	Interior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Office	Retro	1,390	60%	836	0.00	15	\$234	100%	30%	3	10%	40%	per measure	2.6	8.7	3.3
1255	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard	Office	Retro	1,427	75%	1,030	0.00	15	\$367	100%	27%	3	10%	40%	per measure	2.1	7.9	2.8
1256	Interior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Office	Retro	1,525	68%	1,070	0.00	15	\$362	100%	35%	4	7%	40%	per measure	2.1	5.9	2.8
1257	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Office	Retro	687	51%	350	0.00	10	\$30	100%	53%	5	12%	40%	per measure	6.2	11.8	7.8
1258	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Office	Retro	834	57%	477	0.00	11	\$43	100%	100%	5	12%	40%	per measure	8.0	8.0	10.4
1259	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Office	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	12%	40%	per measure	6.6	6.6	8.8
1260	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Office	Retro	275	65%	178	0.00	15	\$56	100%	32%	5	12%	40%	per measure	2.3	7.2	3.0
1261	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Office	Retro	382	54%	208	0.00	10	\$30	100%	33%	6	43%	40%	per measure	3.7	11.3	4.6
1262	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Office	Retro	349	60%	209	0.00	15	\$30	100%	74%	6	43%	40%	per measure	5.1	6.9	6.7
1263	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Office	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	43%	40%	per measure	5.0	10.0	6.4
1264	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Office	Retro	109	63%	69	0.00	15	\$36	100%	14%	6	43%	40%	per measure	0.9	6.4	1.2
1265	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Office	Retro	358	63%	224	0.00	10	\$30	100%	40%	7	23%	40%	per measure	4.0	10.0	5.0
1266	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Office	Retro	384	71%	274	0.00	15	\$36	100%	100%	7	23%	40%	per measure	5.5	5.5	7.5
1267	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Office	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	23%	40%	per measure	3.4	4.8	4.6

Appendix C: Business Measure Assumptions

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
1268	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Office	Retro	115	69%	80	0.00	15	\$56	100%	24%	7	23%	40%	per measure	1.0	4.3	1.5
1269	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Office	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	32%	per measure	1.4	6.6	1.8
1270	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Office	Retro	1,213	24%	291	0.00	10	\$105	100%	22%	9	32%	32%	per measure	1.5	6.6	1.9
1271	Interior Lighting	Lighting Power Density	Biz-Standard	Office	Retro	4	20%	1	0.00	15	\$0	100%	36%	11	80%	20%	per sq ft	2.4	6.5	3.1
1272	Interior Lighting	LED Lighting Redesign/Custom	Biz-Standard	Office	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
1273	Interior Lighting	LED or Electronically Commutated Replacing Interior Incandescent/OFL Exit Sign	Biz-Standard/SBDI	Office	Retro	255	91%	231	0.00	7	\$45	100%	40%	12	1%	80%	per measure	2.0	4.9	2.7
1274	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Office	Retro	1,278	12%	153	0.00	5	\$233	100%	6%	1	5%	30%	per measure	0.1	1.8	0.3
1275	Miscellaneous	Kitchen Exhaust Hood Demanded Ventilation Control System	Biz-Standard	Office	ROB	9,932	50%	4,966	0.00	20	\$1,180	100%	24%	2	12%	10%	per HP	3.2	13.6	4.6
1276	Miscellaneous	High Efficiency Hand Dryer	Biz-Custom	Office	Retro	262	83%	217	0.00	10	\$483	100%	4%	3	0%	10%	per measure	0.2	5.1	0.3
1277	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Office	ROB	2,984	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0
1278	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Office	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	0%	70%	per measure	1.0	7.8	1.4
1279	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Office	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	5%	20%	per measure	3.6	5.7	5.0
1280	Miscellaneous	Pool Pump Timer	Biz-Custom	Office	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	2%	20%	per measure	3.1	5.7	4.2
1281	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Office	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	0%	20%	per measure	24.6	31.1	
1282	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Office	ROB	7,758	80%	6,206	0.00	15	\$1,000	100%	56%	9	5%	20%	per measure	4.3	7.8	5.9
1283	Miscellaneous	High Efficiency Dryer	Biz-Custom	Office	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8
1284	Miscellaneous	Miscellaneous Custom	Biz-Custom	Office	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	15%	10%	per kWh	0.5	2.2	0.5
1285	Motors	Cogged V-Belt	Biz-Custom	Office	Retro	9,092	3%	282	0.00	15	\$384	100%	7%	1	50%	10%	per measure	0.7	10.9	0.7
1286	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Office	Retro	3,805	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per kWh	8.4	13.8	7.2
1287	Motors	Power Drive Systems	Biz-Custom	Office	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	7.5	15.0	7.0
1288	Motors	Switch Reluctance Motors	Biz-Custom	Office	Retro	17,620	31%	5,392	0.00	15	\$528	100%	50%	2	100%	11%	per measure	5.3	10.7	9.2
1289	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Office	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
1290	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Office	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	30%	90%	per measure	n/a	0.0	n/a
1291	Office_NonPC	Smart Power Strip - Commercial Use	Biz-Custom	Office	Retro	1,086	10%	169	0.00	7	\$50	100%	22%	2	60%	19%	per measure	0.7	3.8	1.2
1292	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Office	Retro	1,126	15%	169	0.00	8	\$70	100%	20%	2	60%	19%	per measure	0.9	4.3	1.4
1293	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Office	Retro	867,83	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5
1294	Office_PC	Energy Star Server	Biz-Custom	Office	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
1295	Office_PC	Server Virtualization	Biz-Custom	Office	Retro	2	45%	1	0.00	8	\$0	100%	23%	1	65%	25%	per kWh	0.6	2.8	1.5
1296	Office_PC	High Efficiency GRAC unit	Biz-Custom	Office	ROB	541	30%	162	0.00	15	\$63	100%	23%	2	65%	20%	per measure	1.6	6.9	2.4
1297	Office_PC	Computer Room Air Conditioner/Economizer	Biz-Custom	Office	Retro	764	47%	358	0.00	15	\$82	100%	39%	2	65%	20%	per measure	1.8	4.7	4.1
1298	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Office	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4
1299	Office_PC	Energy Star Laptop	Biz-Custom	Office	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
1300	Office_PC	Energy Star Monitor	Biz-Custom	Office	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
1301	Refrigeration	Strip Curtains	Biz-Custom	Office	Retro	0	0%	0	0.00	4	\$0	100%	0%	1	10%	30%	per sq ft	0.0	0.0	n/a
1302	Refrigeration	Bare Suction Line	Biz-Custom	Office	Retro	23	93%	21	0.00	15	\$4	100%	47%	2	0%	50%	per measure	3.1	6.6	4.0
1303	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Office	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	7%	25%	per HP	0.3	4.7	0.6
1304	Refrigeration	Saturated Suction Controls	Biz-Custom	Office	Retro	831	50%	416	0.00	15	\$559	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7
1305	Refrigeration	Compressor Retrofit	Biz-Custom	Office	Retro	813	20%	163	0.00	15	\$477	100%	3%	5	22%	25%	per measure	0.4	12.0	0.3
1306	Refrigeration	Electronically Commutated (EC) Walk-in Evaporator Fan Motor	Biz-Standard	Office	Retro	2,884	55%	1,586	0.00	15	\$905	100%	31%	6	6%	80%	per measure	3.1	9.9	4.8
1307	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Office	Retro	2,236	32%	716	0.00	15	\$155	100%	42%	7	6%	25%	per measure	1.9	4.7	4.4
1308	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Office	Retro	2,960	50%	1,480	0.00	15	\$1,170	100%	11%	8	8%	25%	per measure	0.5	4.7	1.2
1309	Refrigeration	Refrigeration Economizer	Biz-Custom	Office	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	31%	10%	per kWh	1.7	3.4	1.1
1310	Refrigeration	Anti-Sweat Heater Controls	Biz-Standard	Office	Retro	579	59%	338	0.00	10	\$151	100%	37%	10	20%	25%	per door	1.0	2.7	1.7
1311	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Office	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	6%	25%	per door	0.5	6.2	0.7
1312	Refrigeration	Electronically Commutated (EC) Reach-in Evaporator Fan Motor	Biz-Standard	Office	Retro	2,884	55%	1,586	0.00	15	\$905	100%	31%	12	3%	80%	per measure	3.1	9.9	4.8
1313	Refrigeration	Q-Sync Motor for Walk-in and Reach-in Evaporator Fan Motor	Biz-Custom	Office	Retro	441	34%	149	0.00	10	\$90	100%	15%	13	3%	2%	per measure	0.8	5.1	1.2
1314	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Biz-Standard	Office	ROB	1,240	29%	629	0.00	12	\$1,239	100%	9%	14	19%	54%	per door	0.3	2.9	0.5
1315	Refrigeration	Energy Star Reach-in Refrigerator, Solid Doors	Biz-Standard	Office	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	19%	54%	per door	0.1	1.3	0.3
1316	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Office	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	7%	25%	per door	4.1	8.1	6.0
1317	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Office	Retro	2,922	50%	1,463	0.00	12	\$686	100%	19%	16	7%	25%	per door	1.2	6.2	1.7
1318	Refrigeration	Energy Star Reach-in Freezer, Glass Doors	Biz-Standard	Office	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	6%	54%	per door	0.4	5.5	0.6
1319	Refrigeration	Energy Star Reach-in Freezer, Solid Doors	Biz-Standard	Office	ROB	4,522	7%	305	0.00	12	\$1,321	100%	7%	17	6%	54%	per door	0.1	1.3	0.2
1320	Refrigeration	Refrigeration - Custom	Biz-Custom	Office	ROB	7	2%	0	0.00	10	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
1321	Refrigeration	Retro-commissioning, Refrigerator Optimization	Biz-Custom R/C	Office	Retro	5	21%	1	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
1322	Refrigeration	Energy Star Ice Machine	Biz-Custom	Office	ROB	12,461	13%	1,630	0.00	10	\$222	100%	66%	20	9%	44%	per measure	3.2	4.8	5.2
1323	Refrigeration	ESTAR Refrigerated Vending Machine	Biz-Custom	Office	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	9%	30%	per measure	0.2	6.6	0.3
1324	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Office	Retro	1,278	17%	213	0.00	5	\$245	100%	8%	22	9%	30%	per measure	0.1	1.7	0.4
1325	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/lf	Biz-Custom	Office	Retro	115	74%	84	0.00	9	\$11	100%	50%	23	12%	35%	per linear ft	3.9	7.8	4.8
1326	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Office	Retro	522	27%	141	0.00	10	\$56	100%	63%	24	12%	18%	per measure	1.4	6.2	1.8
1327	Ventilation	Demand Controlled Ventilation	Biz-Standard	Office	Retro	2,644	20%	529	0.00	15	\$227	100%	29%	1	100%	50%	per measure	1.3	1.8	2.6
1328	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Standard	Office	Retro	2,166	43%	940	0.00	15	\$168	100%	61%	2	100%	50%	per HP	6.1	10.0	5.4
1329	Ventilation	High Volume Low Speed Fan, 20	Biz-Standard	Office	Retro	19,919	82%	16,287	0.00	15	\$4,130	100%	20%	3	5%	30%	per measure	3.2	15.6	3.6
1330	Ventilation	High Volume Low Speed Fan, 22	Biz-Standard	Office	Retro	21,909	83%	18,277	0.00	15	\$4,190	100%	27%	4	5%	30%	per measure	3.5	13.1	4.0
1331	Ventilation	High Volume Low Speed Fan, 24	Biz-Standard	Office	Retro	23,903	82%	19,579	0.00	15	\$4,223	100%	32%	5	5%	30%	per measure	3.7	11.7	4.3
1332	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom	Office	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	100%	20%	per kWh	2.8	8.3	2.5
1333	WholeBldg_HVAC	Coal Roof	Biz-Custom	Office	Retro	5	20%	1	0.00	25	\$0	100%	50%	2	16%	33%	per kWh	7.0	14.1	5.9

Appendix C: Business Measure Assumptions

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TRC Score	UCT Score	Participant Test Score
1334	Whole Bldg. HVAC	Retro-commissioning, Bid Optimization	Biz-Custom RCx	Office	Retro	7	15%	1	0.00	5	\$0	100%	100%	3	100%	0%	per kWh	3.7	3.7	3.6
1335	Whole Building	WholeBldg - Com RET	Biz-Custom	Office	Retro	7	15%	1	0.00	12	\$0	100%	38%	1	80%	0%	per kWh	1.5	3.9	2.2
1336	Whole Building	WholeBldg - custom (Other)	Biz-Custom	Office	Retro	5	20%	1	0.00	12	\$0	100%	38%	2	80%	0%	per kWh	1.5	3.9	2.2
1337	Whole Building	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Office	Retro	1,150	1%	6	0.00	30	\$8	100%	13%	3	100%	20%	per measure	1.0	8.1	1.2
1338	Whole Bldg. NC	WholeBldg - Com NC	Biz-Custom	Office	NC	4	25%	1	0.00	12	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
1339	Behavioral	COM Competitions	Biz-Custom	Office	Retro	53	2%	1	0.00	2	\$0	100%	48%	1	100%	0%	per kWh	1.6	3.2	3.5
1340	Behavioral	Business Energy Reports	Biz-Custom	Office	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
1341	Behavioral	Building Benchmarking	Biz-Custom SEM	Office	Retro	114	1%	1	0.00	2	\$0	100%	36%	1	100%	0%	per kWh	0.3	0.8	0.9
1342	Behavioral	Strategic Energy Management	Biz-Custom SEM	Office	Retro	33	3%	1	0.00	5	\$0	100%	30%	1	100%	0%	per kWh	0.6	2.0	1.5
1343	Behavioral	BEIMS	Biz-Custom	Office	Retro	29	4%	1	0.00	2	\$0	100%	18%	1	100%	2%	per kWh	0.1	0.8	0.5
1344	Behavioral	Building Operator Certification	Biz-Custom	Office	Retro	16	3%	0	0.00	3	\$0	100%	17%	1	100%	2%	per kWh	0.3	1.8	0.6
1345	Compressed Air	Retro-commissioning, Compressed Air Optimization	Biz-Custom RCx	Warehouse	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
1346	Compressed Air	Compressed Air Leak Repair	Biz-Custom	Warehouse	Retro	6	17%	1	0.00	5	\$0	100%	50%	1	100%	39%	per kWh	3.0	6.1	4.5
1347	Compressed Air	Efficient Air Compressors (VSD)	Biz-Custom	Warehouse	ROB	4,748	21%	987	0.00	10	\$1,573	100%	5%	2	100%	20%	per HP	0.3	5.3	0.4
1348	Compressed Air	AODD Pump Controls	Biz-Custom	Warehouse	Retro	103,919	3%	36,372	0.00	12	\$1,150	100%	50%	3	100%	50%	per measure	14.5	29.0	19.9
1349	Compressed Air	No Loss Condensate Drain	Biz-Custom	Warehouse	Retro	103,919	2%	2,320	0.00	13	\$700	100%	29%	4	100%	5%	per measure	1.9	6.6	2.8
1350	Compressed Air	Efficient Air Nozzles	Biz-Custom	Warehouse	Retro	2,260	50%	1,130	0.00	15	\$77	100%	97%	5	5%	20%	per measure	9.3	9.5	13.5
1351	Compressed Air	Compressed Air - Custom	Biz-Custom	Warehouse	Retro	5	20%	1	0.00	10	\$0	100%	47%	6	100%	20%	per kWh	2.2	4.6	3.4
1352	Cooling	Commercial Combination Oven (Electric)	Biz-Custom	Warehouse	ROB	23,958	38%	9,058	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
1353	Cooling	Commercial Electric Convection Oven	Biz-Custom	Warehouse	ROB	9,839	11%	1,065	0.00	12	\$0	100%	40%	1	18%	53%	per measure	n/a	0.0	n/a
1354	Cooling	Commercial Electric Griddle	Biz-Custom	Warehouse	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	2	14%	17%	per measure	n/a	0.0	n/a
1355	Cooling	Commercial Electric Steam Cooker	Biz-Custom	Warehouse	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	21%	3	6%	45%	per measure	1.5	7.1	1.9
1356	Cooling	Dishwasher - Low Temp Door (Energy Star)	Biz-Custom	Warehouse	ROB	39,306	44%	17,369	0.00	15	\$662	100%	100%	4	26%	61%	per measure	14.0	23.4	8.3
1357	Cooling	Dishwasher High Temp Door (Energy Star)	Biz-Custom	Warehouse	ROB	26,901	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.7
1358	Cooling	Energy efficient electric fryer	Biz-Custom	Warehouse	ROB	17,451	5%	952	0.00	12	\$210	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
1359	Cooling	Insulated Holding Cabinets (Full Size)	Biz-Custom	Warehouse	ROB	1,534	46%	709	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
1360	Cooling	Insulated Holding Cabinets (3/4 Size)	Biz-Custom	Warehouse	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.0	3.9	1.4
1361	Cooling	Insulated Holding Cabinets (Half-Size)	Biz-Custom	Warehouse	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.6	6.2	2.0
1362	Cooling	Air Conditioner -17 IEER (5-20 Tons)	Biz-Custom/SBDI	Warehouse	ROB	358	15%	53	0.00	15	\$191	100%	44%	1	31%	10%	per ton	0.5	1.2	0.7
1363	Cooling	Air Conditioner -18 IEER (5-20 Tons)	Biz-Custom/SBDI	Warehouse	ROB	358	19%	70	0.00	15	\$254	100%	46%	1	31%	10%	per ton	0.5	1.1	0.7
1364	Cooling	Air Conditioner -21 IEER (5-20 Tons)	Biz-Custom/SBDI	Warehouse	ROB	358	31%	111	0.00	15	\$445	100%	49%	1	31%	10%	per ton	0.5	1.0	0.7
1365	Cooling	Air Conditioner -14.3 IEER (20+ Tons)	Biz-Custom	Warehouse	ROB	394	8%	30	0.00	15	\$59	100%	53%	2	31%	10%	per ton	1.0	1.8	1.0
1366	Cooling	Air Conditioner -15 IEER (20+ Tons)	Biz-Custom	Warehouse	ROB	394	12%	47	0.00	15	\$97	100%	53%	2	31%	10%	per ton	0.9	1.7	0.9
1367	Cooling	Air Conditioner -17 IEER (20+ Tons)	Biz-Custom	Warehouse	ROB	394	22%	88	0.00	15	\$204	100%	53%	2	31%	10%	per ton	0.8	1.5	0.9
1368	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Warehouse	Retro	0	7%	30	0.00	3	\$5	100%	50%	3	62%	50%	per ton	2.6	5.3	1.6
1369	Cooling	Air-Side Economizer	Biz-Custom	Warehouse	Retro	358	20%	72	0.00	10	\$84	100%	19%	4	62%	25%	per ton	1.2	6.2	0.7
1370	Cooling	Advanced Rooftop Controls	Biz-Custom/SBDI	Warehouse	Retro	6,263	56%	3,495	0.00	15	\$2,350	100%	4%	5	62%	20%	per measure	2.2	50.4	1.1
1371	Cooling	HVAC Occupancy Controls	Biz-Custom	Warehouse	ROB	547	20%	109	0.00	15	\$537	100%	4%	6	62%	20%	per ton	0.1	2.2	0.2
1372	Cooling	Air Conditioner -16 SEER (<5 Tons)	Biz-Custom/SBDI	Warehouse	ROB	371	13%	46	0.00	15	\$115	100%	52%	7	38%	10%	per ton	0.8	1.5	0.9
1373	Cooling	Air Conditioner -17 SEER (<5 Tons)	Biz-Custom/SBDI	Warehouse	ROB	371	18%	65	0.00	15	\$514	100%	17%	7	38%	10%	per ton	0.2	1.4	0.3
1374	Cooling	Air Conditioner -18 SEER (<5 Tons)	Biz-Custom/SBDI	Warehouse	ROB	371	22%	82	0.00	15	\$514	100%	23%	7	38%	10%	per ton	0.3	1.3	0.4
1375	Cooling	Air Conditioner -21 SEER (<5 Tons)	Biz-Custom/SBDI	Warehouse	ROB	371	33%	124	0.00	15	\$631	100%	33%	7	38%	10%	per ton	0.4	1.1	0.5
1376	Cooling	Smart Thermostat	Biz-Custom/SBDI	Warehouse	ROB	1,485	14%	206	0.00	10	\$224	100%	79%	8	38%	63%	per measure	1.3	1.6	1.4
1377	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Custom	Warehouse	ROB	437	8%	37	0.00	8	\$84	100%	10%	9	0%	20%	per ton	0.5	5.2	0.3
1378	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Custom	Warehouse	ROB	479	7%	35	0.00	8	\$84	100%	9%	10	0%	20%	per ton	0.5	5.2	0.3
1379	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Custom	Warehouse	ROB	547	10%	52	0.00	8	\$84	100%	14%	11	0%	20%	per ton	0.7	5.2	0.4
1380	Cooling	Air Cooled Chiller	Biz-Custom	Warehouse	ROB	379	9%	34	0.00	20	\$106	100%	16%	12	0%	10%	per ton	0.7	4.5	0.5
1381	Cooling	Water Cooled Chiller	Biz-Custom	Warehouse	ROB	191	23%	43	0.00	20	\$106	100%	21%	13	0%	10%	per ton	0.9	4.5	0.6
1382	Cooling	Chiller Tune-up	Biz-Custom	Warehouse	Retro	0	7%	30	0.00	3	\$8	100%	50%	14	0%	50%	per ton	1.8	3.5	1.2
1383	Cooling	Window Film	Biz-Custom	Warehouse	Retro	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	25%	per measure	1.3	6.2	1.4
1384	Cooling	Triple Pane Windows	Biz-Custom	Warehouse	ROB	6,000	6%	360	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
1385	Cooling	Energy Recovery Ventilator	Biz-Custom	Warehouse	Retro	370	0%	0	0.00	15	\$0	100%	0%	16	100%	2%	per ton	n/a	0.0	n/a
1386	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	655	66%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
1387	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
1388	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	1,205	68%	823	0.00	15	\$234	100%	35%	3	14%	69%	per measure	1.4	4.0	3.4
1389	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	2,214	65%	1,436	0.00	15	\$234	100%	50%	4	14%	69%	per measure	3.7	7.3	5.7
1390	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
1391	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
1392	Exterior Lighting	Bi-level Lighting Fixture - Garages	Biz-Custom	Warehouse	Retro	248	69%	171	0.00	10	\$274	100%	6%	7	14%	35%	per measure	0.2	2.8	0.4
1393	Heating	Heat Pump -16 SEER (<5 Tons)	Biz-Custom	Warehouse	ROB	1,790	3%	54	0.00	15	\$135	100%	17%	1	19%	10%	per ton	0.4	2.4	0.5
1394	Heating	Heat Pump -17 SEER (<5 Tons)	Biz-Custom	Warehouse	ROB	1,790	7%	133	0.00	15	\$421	100%	11%	1	19%	10%	per ton	0.3	2.6	0.4
1395	Heating	Heat Pump -18 SEER (<5 Tons)	Biz-Custom	Warehouse	ROB	1,790	11%	192	0.00	15	\$446	100%	15%	1	19%	10%	per ton	0.4	2.4	0.5
1396	Heating	Heat Pump -21 SEER (<5 Tons)	Biz-Custom	Warehouse	ROB	1,790	15%	272	0.00	15	\$520	100%	25%	1	19%	10%	per ton	0.5	1.9	0.7

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard Annual Electric)	% Elec Savings Annual	Per Unit Elec Savings	Per Unit Summer kW	EE/EU	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TRC Score	UCT Score	Participant Test Score
1397	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Warehouse	ROB	1,790	15%	272	0.00	16	\$224	100%	18%	1	19%	10%	per ton	1.2	6.6	1.3
1398	Heating	Heat Pump -15.0 IER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Standard	Warehouse	ROB	2,016	6%	119	0.00	15	\$204	100%	31%	1	10%	10%	per ton	0.9	2.9	1.3
1399	Heating	Heat Pump -16.0 IER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Standard	Warehouse	ROB	2,016	11%	222	0.00	15	\$171	100%	35%	2	10%	10%	per ton	1.0	2.8	1.5
1400	Heating	Heat Pump -14.5 IER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Standard	Warehouse	ROB	2,083	6%	129	0.00	15	\$100	100%	34%	3	10%	10%	per ton	1.0	3.0	1.4
1401	Heating	Heat Pump -15.5 IER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Standard	Warehouse	ROB	2,083	11%	238	0.00	15	\$182	100%	34%	3	10%	10%	per ton	1.0	2.9	1.5
1402	Heating	Heat Pump -12 IER COP 3.4 (135,000-239,000 Btu/hr)	Biz-Standard	Warehouse	ROB	2,168	6%	140	0.00	15	\$202	100%	34%	4	10%	10%	per ton	1.1	3.3	1.5
1403	Heating	Heat Pump -13 IER COP 3.6 (135,000-239,000 Btu/hr)	Biz-Standard	Warehouse	ROB	2,168	12%	258	0.00	15	\$202	100%	31%	4	10%	10%	per ton	1.0	3.2	1.4
1404	Heating	Geothermal HP -17 IER < 135kBu	Biz-Custom	Warehouse	ROB	1,355	3%	43	0.00	25	\$108	100%	6%	5	0%	20%	per ton	0.5	8.6	0.5
1405	Heating	Geothermal HP -19 IER < 135kBu	Biz-Custom	Warehouse	ROB	1,355	6%	75	0.00	25	\$108	100%	10%	5	0%	20%	per ton	1.3	12.1	0.9
1406	Heating	PTHP -<7,000 Btu/h - lodging	Biz-Custom	Warehouse	ROB	2,057	4%	85	0.00	8	\$84	100%	15%	6	0%	20%	per ton	0.6	4.1	0.7
1407	Heating	PTHP -7,000 to 15,000 Btu/h - lodging	Biz-Custom	Warehouse	ROB	2,188	5%	113	0.00	8	\$84	100%	20%	7	0%	20%	per ton	1.2	6.1	0.9
1408	Heating	PTHP >15,000 Btu/h - lodging	Biz-Custom	Warehouse	ROB	2,424	12%	294	0.00	8	\$84	100%	52%	8	0%	20%	per ton	2.6	5.0	2.3
1409	HotWater	Res-Sized Heat Pump Water Heater	Biz-Standard	Warehouse	ROB	3,027	67%	2,027	0.00	15	\$1,115	100%	45%	1	80%	0%	per measure	1.2	2.7	2.0
1410	HotWater	Commercial-Sized HP WH	Biz-Standard	Warehouse	ROB	116,224	77%	89,384	0.00	15	\$7,450	100%	88%	2	20%	0%	per measure	7.8	8.9	11.1
1411	HotWater	Hot Water Pipe Insulation	Biz-Custom	Warehouse	Retro	3,027	2%	61	0.00	20	\$60	100%	11%	3	100%	80%	per measure	0.9	7.9	1.2
1412	HotWater	Faucet Aerator	Biz-Custom	Warehouse	Retro	400	22%	87	0.00	9	\$48	100%	50%	4	20%	85%	per measure	5.1	10.3	6.6
1413	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Warehouse	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	17.9	20.8
1414	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Warehouse	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	1.0	4.6	1.5
1415	InteriorLighting	LED <-11 Watt Lamp Replacing Interior Halogen A 28.53 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	154	83%	127	0.00	10	\$16	100%	17%	1	0%	40%	per measure	4.3	24.8	5.2
1416	InteriorLighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	144	85%	122	0.00	10	\$20	100%	14%	1	0%	40%	per measure	3.3	23.8	5.3
1417	InteriorLighting	LED Specialty Lamp	Biz-Standard/SBDI	Warehouse	Retro	114	87%	99	0.00	10	\$12	100%	23%	1	0%	40%	per measure	4.4	19.2	5.3
1418	InteriorLighting	LED <-14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	177	84%	148	0.00	10	\$48	100%	14%	2	4%	40%	per measure	1.6	11.5	2.0
1419	InteriorLighting	LED <-13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	121	85%	103	0.00	10	\$37	100%	18%	2	4%	40%	per measure	1.5	8.0	1.9
1420	InteriorLighting	LED <-20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	4%	40%	per measure	1.4	15.1	1.7
1421	InteriorLighting	LED <-80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	10%	40%	per measure	2.5	12.6	3.2
1422	InteriorLighting	LED 62 - 130 Watt Lamp or Fixture Replacing interior HID 176-300 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	1,427	75%	1,070	0.00	15	\$367	100%	27%	3	10%	40%	per measure	2.1	7.9	2.8
1423	InteriorLighting	LED Fixture with Network Controls Replacing Interior HID Lamp or Fixture	Biz-Standard	Warehouse	Retro	1,890	60%	836	0.00	15	\$234	100%	30%	3	10%	40%	per measure	2.6	8.7	3.3
1424	InteriorLighting	LED 85 - 235 Watt Lamp or Fixture Replacing interior HID 301-500 Watt Lamp or Fixture	Biz-Standard	Warehouse	Retro	1,525	68%	1,030	0.00	15	\$362	100%	35%	4	7%	40%	per measure	2.1	5.9	2.8
1425	InteriorLighting	LED Replacing interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Warehouse	Retro	687	51%	350	0.00	10	\$43	100%	53%	5	12%	40%	per measure	6.2	11.8	7.8
1426	InteriorLighting	LED Replacing interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Warehouse	Retro	834	57%	477	0.00	10	\$43	100%	100%	5	12%	40%	per measure	8.0	8.0	10.4
1427	InteriorLighting	LED Replacing interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Warehouse	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	12%	40%	per measure	6.6	6.6	8.8
1428	InteriorLighting	LED Fixture with Network Controls Replacing interior T5 Fluorescent	Biz-Standard	Warehouse	Retro	275	65%	178	0.00	15	\$56	100%	33%	5	12%	40%	per measure	2.3	7.2	3.0
1429	InteriorLighting	LED Fixture with Network Controls Replacing interior T5 Fluorescent	Biz-Standard/SBDI	Warehouse	Retro	382	54%	208	0.00	10	\$30	100%	32%	6	42%	40%	per measure	3.7	11.3	4.6
1430	InteriorLighting	LED Replacing interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Warehouse	Retro	349	60%	209	0.00	15	\$30	100%	74%	6	42%	40%	per measure	5.0	6.0	6.7
1431	InteriorLighting	LED Replacing interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Warehouse	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	42%	40%	per measure	5.1	10.0	6.4
1432	InteriorLighting	LED Fixture with Network Controls Replacing interior T8 Fluorescent	Biz-Standard	Warehouse	Retro	109	63%	69	0.00	15	\$56	100%	14%	6	42%	40%	per measure	0.9	6.4	1.2
1433	InteriorLighting	LED Replacing interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Warehouse	Retro	388	65%	224	0.00	10	\$30	100%	48%	7	23%	40%	per measure	4.0	10.0	5.0
1434	InteriorLighting	LED Replacing interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Warehouse	Retro	384	71%	274	0.00	15	\$36	100%	100%	7	23%	40%	per measure	5.5	5.5	7.5
1435	InteriorLighting	LED Replacing interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Warehouse	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	23%	40%	per measure	3.4	4.8	4.6
1436	InteriorLighting	LED Fixture with Network Controls Replacing interior T12 Fluorescent	Biz-Standard	Warehouse	Retro	115	69%	80	0.00	10	\$56	100%	24%	7	23%	40%	per measure	1.0	4.3	1.5
1437	InteriorLighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Warehouse	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	26%	per measure	1.4	6.6	1.8
1438	InteriorLighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Warehouse	Retro	1,213	24%	291	0.00	10	\$105	100%	22%	9	32%	26%	per measure	1.5	6.6	1.9
1439	InteriorLighting	Lighting Power Density	Biz-Custom	Warehouse	Retro	4	20%	1	0.00	15	\$0	100%	36%	10	80%	20%	per sq ft	2.4	6.5	3.1
1440	InteriorLighting	LED Lighting Redesign/Custom	Biz-Standard	Warehouse	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
1441	InteriorLighting	LED or Electroluminescent Replacing interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Warehouse	Retro	255	91%	231	0.00	7	\$45	100%	100%	12	1%	80%	per measure	2.0	4.9	2.7
1442	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Warehouse	Retro	1,278	12%	151	0.00	5	\$233	100%	6%	1	5%	30%	per measure	0.1	1.8	0.3
1443	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Warehouse	ROB	9,992	50%	4,966	0.00	20	\$1,180	100%	24%	2	2%	10%	per HP	3.2	13.6	4.6
1444	Miscellaneous	High Efficiency Hand Dryer	Biz-Custom	Warehouse	Retro	262	85%	217	0.00	10	\$483	100%	4%	3	0%	2%	per measure	0.2	5.1	0.3
1445	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Warehouse	Retro	2,984	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0
1446	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Warehouse	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	0%	70%	per measure	1.0	7.8	1.4
1447	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Warehouse	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	0%	20%	per measure	3.6	5.7	5.0
1448	Miscellaneous	Pool Pump Timer	Biz-Custom	Warehouse	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	2%	20%	per measure	3.1	5.7	4.2
1449	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Warehouse	ROB	44,091	80%	35,273	0.00	10	\$10,000	100%	100%	8	3%	20%	per measure	24.6	24.6	31.1
1450	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Warehouse	ROB	7,758	80%	6,206	0.00	15	\$10,000	100%	56%	9	5%	20%	per measure	4.3	7.8	5.9
1451	Miscellaneous	High Efficiency Dryer	Biz-Custom	Warehouse	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8
1452	Miscellaneous	Miscellaneous Custom	Biz-Custom	Warehouse	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	20%	10%	per kWh	0.5	2.2	0.5
1453	Motors	Cogged V-Belt	Biz-Custom	Warehouse	Retro	20,965	3%	650	0.00	15	\$384	100%	15%	1	50%	10%	per measure	1.1	7.4	1.6
1454	Motors	Pump and Fan Variable Frequency Drive Control (Pumps)	Biz-Standard	Warehouse	Retro	3,805	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per HP	8.4	13.8	7.2
1455	Motors	Power Drive Systems	Biz-Custom	Warehouse	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	5.1	10.2	7.0
1456	Motors	Switch Reluctance Motors	Biz-Custom	Warehouse	Retro	40,630	31%	12,433	0.00	15	\$528	100%	50%	2	100%	1%	per measure	12.3	24.6	20.6
1457	Motors	Escalator Motor Efficiency Controllers	Biz-Custom	Warehouse	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
1458	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Warehouse	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	5%	90%	per measure	n/a	0.0	n/a

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	Per Unit EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TRC Score	UCT Score	Participant Test Score
1459	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Warehouse	Retro	1,086	10%	109	0.00	7	\$50	100%	20%	2	60%	24%	per measure	0.7	3.8	1.2
1460	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Warehouse	Retro	1,126	15%	169	0.00	8	\$70	100%	22%	2	60%	24%	per measure	0.9	4.3	1.4
1461	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Warehouse	Retro	86,783	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5
1462	Office_PC	Energy Star Server	Biz-Custom	Warehouse	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
1463	Office_PC	Server Virtualization	Biz-Custom	Warehouse	Retro	2	45%	1	0.00	8	\$0	100%	23%	1	65%	25%	per kWh	0.6	2.8	1.5
1464	Office_PC	High Efficiency CRAC Unit	Biz-Custom	Warehouse	ROB	541	30%	162	0.00	15	\$63	100%	23%	2	65%	20%	per measure	1.6	6.9	2.4
1465	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Warehouse	Retro	764	47%	358	0.00	15	\$82	100%	39%	2	65%	20%	per measure	1.8	4.7	4.1
1466	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Warehouse	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4
1467	Office_PC	Energy Star Laptop	Biz-Custom	Warehouse	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
1468	Office_PC	Energy Star Monitor	Biz-Custom	Warehouse	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
1469	Refrigeration	Strip Curtains	Biz-Custom	Warehouse	Retro	207	50%	103	0.00	4	\$10	100%	50%	1	13%	30%	per sq ft	1.9	3.7	3.1
1470	Refrigeration	Bare Suction Line	Biz-Custom	Warehouse	Retro	23	93%	21	0.00	15	\$4	100%	47%	2	0%	50%	per measure	3.1	6.6	4.9
1471	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Warehouse	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	9%	25%	per HP	0.3	4.7	0.6
1472	Refrigeration	Saturated Suction Controls	Biz-Custom	Warehouse	Retro	831	50%	416	0.00	15	\$559	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7
1473	Refrigeration	Compressor Retrofit	Biz-Custom	Warehouse	Retro	813	20%	163	0.00	15	\$477	100%	3%	5	29%	25%	per measure	0.4	12.0	0.3
1474	Refrigeration	Electronically Commutated (EC) Walk-in Evaporator Fan Motor	Biz-Standard	Warehouse	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	6	8%	80%	per measure	3.1	9.9	4.8
1475	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Warehouse	Retro	2,236	32%	716	0.00	15	\$155	100%	42%	7	8%	25%	per measure	1.9	4.7	4.4
1476	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Warehouse	Retro	2,960	50%	1,480	0.00	15	\$1,170	100%	11%	8	11%	25%	per HP	0.5	4.7	1.2
1477	Refrigeration	Refrigeration Economizer	Biz-Custom	Warehouse	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	41%	10%	per kWh	1.7	3.4	1.1
1478	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Standard	Warehouse	Retro	579	59%	338	0.00	10	\$151	100%	37%	10	9%	25%	per door	1.0	2.7	1.7
1479	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Warehouse	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	3%	25%	per door	0.5	6.2	0.7
1480	Refrigeration	Electronically Commutated (EC) Reach-in Evaporator Fan Motor	Biz-Standard	Warehouse	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	12	1%	80%	per measure	3.1	9.9	4.8
1481	Refrigeration	Q-Sync Motor for Walk-in and Reach-in Evaporator Fan Motor	Biz-Custom	Warehouse	Retro	441	34%	149	0.00	10	\$90	100%	15%	13	1%	2%	per measure	0.8	5.1	1.2
1482	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Biz-Standard	Warehouse	ROB	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	9%	54%	per door	0.3	2.9	0.5
1483	Refrigeration	Energy Star Reach-in Refrigerator, Solid Doors	Biz-Standard	Warehouse	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	9%	54%	per door	0.1	1.3	0.3
1484	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Warehouse	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	3%	25%	per door	4.1	8.1	6.0
1485	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Warehouse	Retro	2,922	50%	1,453	0.00	12	\$686	100%	19%	16	3%	25%	per door	1.2	6.2	1.7
1486	Refrigeration	Energy Star Reach-in Freezer, Glass Doors	Biz-Standard	Warehouse	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	3%	54%	per door	0.4	5.5	0.6
1487	Refrigeration	Energy Star Reach-in Freezer, Solid Doors	Biz-Standard	Warehouse	ROB	4,522	7%	305	0.00	12	\$1,521	100%	7%	17	3%	54%	per door	0.1	1.3	0.2
1488	Refrigeration	Refrigeration - Custom	Biz-Custom	Warehouse	ROB	7	2%	0	0.00	10	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
1489	Refrigeration	Refrigeration - Custom	Biz-Custom RCX	Warehouse	Retro	5	21%	1	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
1490	Refrigeration	Refrigeration - Refrigerator Optimization	Biz-Custom	Warehouse	ROB	12,461	13%	1,630	0.00	10	\$222	100%	66%	20	0%	44%	per measure	3.2	4.8	5.2
1491	Refrigeration	ESTAR Refrigerated Vending Machine	Biz-Custom	Warehouse	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	9%	30%	per measure	0.2	6.6	0.3
1492	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Warehouse	Retro	117	17%	213	0.00	5	\$245	100%	8%	22	9%	30%	per measure	0.1	1.7	0.4
1493	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/1F	Biz-Custom	Warehouse	Retro	1,125	74%	84	0.00	9	\$11	100%	50%	23	6%	35%	per linear ft	3.9	7.8	4.8
1494	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Warehouse	Retro	522	27%	141	0.00	10	\$56	100%	23%	24	6%	18%	per measure	1.4	6.2	1.8
1495	Ventilation	Demand Controlled Ventilation	Biz-Standard	Warehouse	Retro	2,298	20%	460	0.00	15	\$227	100%	63%	1	100%	14%	per measure	2.3	2.1	2.4
1496	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Standard	Warehouse	Retro	2,166	43%	940	0.00	15	\$168	100%	61%	2	100%	14%	per HP	6.1	10.0	5.4
1497	Ventilation	High Volume Low Speed Fan, 20	Biz-Standard	Warehouse	Retro	1,919	82%	16,287	0.00	15	\$4,130	100%	20%	3	10%	30%	per measure	3.2	15.6	3.6
1498	Ventilation	High Volume Low Speed Fan, 22	Biz-Standard	Warehouse	Retro	21,909	83%	18,277	0.00	15	\$4,190	100%	27%	4	10%	30%	per measure	3.5	13.1	4.0
1499	Ventilation	High Volume Low Speed Fan, 24	Biz-Standard	Warehouse	Retro	23,903	82%	19,579	0.00	15	\$4,222	100%	32%	5	10%	30%	per measure	3.8	11.7	4.3
1500	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom	Warehouse	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	100%	20%	per kWh	2.8	8.3	2.5
1501	WholeBldg_HVAC	Cool Roof	Biz-Custom	Warehouse	Retro	5	20%	1	0.00	25	\$6	100%	2%	2	36%	33%	per kWh	0.3	11.5	0.2
1502	WholeBldg_HVAC	Retro-commissioning, Bid Optimization	Biz-Custom RCX	Warehouse	Retro	7	15%	1	0.00	5	\$0	100%	100%	3	100%	0%	per kWh	3.7	3.7	3.6
1503	WholeBuilding	WholeBldg - Com RET	Biz-Custom	Warehouse	Retro	7	15%	1	0.00	12	\$0	100%	38%	1	80%	0%	per kWh	1.5	3.9	2.2
1504	WholeBuilding	WholeBldg - custom (Other)	Biz-Custom	Warehouse	Retro	5	20%	1	0.00	12	\$0	100%	38%	2	80%	0%	per kWh	1.5	3.9	2.2
1505	WholeBldg_NC	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Warehouse	NC	1,150	1%	6	0.00	30	\$8	100%	13%	3	100%	20%	per measure	1.0	8.1	1.2
1506	Behavioral	COM Competitions	Biz-Custom	Warehouse	Retro	4	25%	1	0.00	2	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
1507	Behavioral	Business Energy Reports	Biz-Custom	Warehouse	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
1508	Behavioral	Building Benchmarking	Biz-Custom	Warehouse	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
1509	Behavioral	Strategic Energy Management	Biz-Custom SEM	Warehouse	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
1510	Behavioral	BEIMS	Biz-Custom	Warehouse	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	2%	per kWh	n/a	0.0	n/a
1511	Behavioral	Building Operator Certification	Biz-Custom	Warehouse	Retro	4	3%	0	0.00	3	\$0	100%	6%	1	100%	2%	per kWh	0.1	1.6	0.2
1512	CompressedAir	Retro-commissioning, Compressed Air Optimization	Biz-Custom RCX	Other	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
1513	CompressedAir	Compressed Air Leak Repair	Biz-Custom	Other	Retro	6	17%	1	0.00	5	\$0	100%	50%	1	100%	39%	per kWh	3.0	6.1	4.5
1514	CompressedAir	Efficient Air Compressors (VSD)	Biz-Standard	Other	ROB	4,748	21%	987	0.00	10	\$1,573	100%	5%	2	100%	20%	per HP	0.3	5.3	0.4
1515	CompressedAir	AODD Pump Controls	Biz-Custom	Other	Retro	103,919	35%	36,372	0.00	10	\$1,150	100%	50%	3	100%	50%	per measure	14.5	29.0	19.9
1516	CompressedAir	No Loss Condensate Drain	Biz-Standard	Other	Retro	103,919	2%	1,330	0.00	10	\$700	100%	29%	4	100%	5%	per measure	1.5	5.3	2.3
1517	CompressedAir	Efficient Air Nozzles	Biz-Standard	Other	Retro	2,260	50%	1,230	0.00	15	\$77	100%	97%	5	5%	20%	per measure	9.3	13.5	5.5
1518	CompressedAir	Compressed Air - Custom	Biz-Custom	Other	ROB	5	20%	1	0.00	10	\$0	100%	47%	6	100%	20%	per kWh	2.2	4.6	3.4
1519	Cooling	Commercial Combination Oven (Electric)	Biz-Custom	Other	ROB	23,958	38%	9,058	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
1520	Cooling	Commercial Electric Convection Oven	Biz-Custom	Other	ROB	9,839	11%	1,065	0.00	12	\$0	100%	40%	1	18%	53%	per measure	n/a	0.0	n/a
1521	Cooling	Commercial Electric Griddle	Biz-Custom	Other	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	2	14%	17%	per measure	n/a	0.0	n/a
1522	Cooling	Commercial Electric Steamer	Biz-Standard	Other	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	21%	3	6%	45%	per measure	1.5	7.1	1.9
1523	Cooling	Dishwasher Low Temp Door (Energy Star)	Biz-Custom	Other	ROB	39,306	44%	17,369	0.00	15	\$662	100%	100%	4	26%	61%	per measure	14.0	14.0	23.4
1524	Cooling	Dishwasher High Temp Door (Energy Star)	Biz-Custom	Other	ROB	26,901	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.3

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Descriptor	TIR Score	UCT Score	Participant Test Score
1526	Cooling	Energy efficient electric fryer	Biz-Custom	Other	ROB	17,451	5%	952	0.00	12	\$210	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
1527	Cooling	Insulated Holding Cabinets (Full Size)	Biz-Standard	Other	ROB	1,334	46%	709	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	0.2	1.0	0.5
1528	Cooling	Insulated Holding Cabinets (3/4 Size)	Biz-Standard	Other	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.0	3.9	1.4
1529	Cooling	Insulated Holding Cabinets (Half-Size)	Biz-Standard	Other	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	25%	6	3%	16%	per measure	1.6	6.2	2.0
1530	Cooling	Air Conditioner - 17 IER (5-20 Tons)	Biz-Standard/SBDI	Other	ROB	871	15%	128	0.00	15	\$191	100%	44%	1	29%	10%	per ton	1.3	2.9	1.0
1531	Cooling	Air Conditioner - 18 IER (5-20 Tons)	Biz-Standard/SBDI	Other	ROB	871	19%	169	0.00	15	\$254	100%	48%	1	29%	10%	per ton	1.3	2.7	1.0
1532	Cooling	Air Conditioner - 21 IER (5-20 Tons)	Biz-Standard/SBDI	Other	ROB	871	31%	270	0.00	15	\$445	100%	49%	1	29%	10%	per ton	1.1	2.3	1.0
1533	Cooling	Air Conditioner - 14.3 IER (20+ Tons)	Biz-Standard	Other	ROB	957	8%	74	0.00	15	\$59	100%	53%	2	29%	10%	per ton	2.3	4.4	1.6
1534	Cooling	Air Conditioner - 15 IER (20+ Tons)	Biz-Standard	Other	ROB	957	12%	115	0.00	15	\$97	100%	53%	2	29%	10%	per ton	2.2	4.2	1.5
1535	Cooling	Air Conditioner - 17 IER (20+ Tons)	Biz-Standard	Other	ROB	957	22%	214	0.00	15	\$204	100%	53%	2	29%	10%	per ton	2.0	3.7	1.4
1536	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Other	Retro	0	7%	74	0.00	3	\$5	100%	50%	3	57%	50%	per ton	6.4	12.8	3.1
1537	Cooling	Air Side Economizer	Biz-Custom	Other	Retro	871	20%	174	0.00	10	\$84	100%	46%	4	57%	25%	per ton	2.8	6.2	1.7
1538	Cooling	Advanced Rooftop Controls	Biz-Standard/SBDI	Other	Retro	6,173	56%	3,779	0.00	15	\$250	100%	4%	5	57%	20%	per measure	2.4	54.5	1.1
1539	Cooling	HVAC Occupancy Controls	Biz-Custom	Other	ROB	899	20%	180	0.00	15	\$537	100%	7%	6	57%	20%	per ton	0.6	8.5	0.4
1540	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Standard/SBDI	Other	ROB	903	13%	113	0.00	15	\$115	100%	52%	7	0%	10%	per ton	1.8	3.6	1.4
1541	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Standard/SBDI	Other	ROB	903	18%	159	0.00	15	\$514	100%	17%	7	0%	10%	per ton	0.6	3.4	0.4
1542	Cooling	Air Conditioner - 18 SEER (<5 Tons)	Biz-Standard/SBDI	Other	ROB	903	22%	201	0.00	15	\$514	100%	23%	7	0%	10%	per ton	0.7	3.2	0.6
1543	Cooling	Air Conditioner - 21 SEER (<5 Tons)	Biz-Standard/SBDI	Other	ROB	903	33%	301	0.00	15	\$631	100%	33%	7	0%	10%	per ton	0.9	2.7	0.7
1544	Cooling	Smart Thermostat	Biz-Standard/SBDI	Other	ROB	3,610	14%	502	0.00	10	\$224	100%	79%	8	0%	63%	per measure	3.1	3.9	2.2
1545	Cooling	PTAC - <7,000 Btu/h - loading	Biz-Custom	Other	ROB	1,062	8%	90	0.00	8	\$84	100%	24%	9	0%	20%	per ton	1.2	5.2	0.8
1546	Cooling	PTAC - 7,000 to 15,000 Btu/h - loading	Biz-Custom	Other	ROB	1,165	7%	85	0.00	8	\$84	100%	22%	10	0%	20%	per ton	1.1	5.2	0.7
1547	Cooling	PTAC - >15,000 Btu/h - loading	Biz-Custom	Other	ROB	1,330	10%	127	0.00	8	\$84	100%	33%	11	0%	20%	per ton	1.7	5.2	1.1
1548	Cooling	Air Cooled Chiller	Biz-Standard	Other	ROB	922	9%	83	0.00	20	\$106	100%	16%	12	38%	10%	per ton	1.8	10.9	1.0
1549	Cooling	Water Cooled Chiller	Biz-Standard	Other	ROB	463	23%	105	0.00	20	\$106	100%	21%	13	4%	10%	per ton	2.3	10.9	1.2
1550	Cooling	Chiller Tune-up	Biz-Custom	Other	Retro	0	7%	74	0.00	3	\$8	100%	50%	14	43%	50%	per ton	4.3	8.5	2.2
1551	Cooling	Window Films	Biz-Custom	Other	Retro	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	25%	per measure	1.3	6.2	1.4
1552	Cooling	Triple Pane Windows	Biz-Custom	Other	ROB	6,000	6%	300	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
1553	Cooling	Energy Recovery Ventilator	Biz-Custom	Other	Retro	899	0%	0	0.00	15	\$0	100%	0%	16	100%	2%	per ton	n/a	n/a	n/a
1554	ExteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Other	Retro	655	66%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
1555	ExteriorLighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Other	Retro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
1556	ExteriorLighting	LED 60 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 175-300 Watt Lamp or Fixture	Biz-Custom	Other	Retro	1,205	68%	823	0.00	15	\$234	100%	35%	3	14%	69%	per measure	1.4	4.0	3.4
1557	ExteriorLighting	LED 300-300 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 175-300 Watt Lamp or Fixture	Biz-Custom	Other	Retro	2,214	65%	1,436	0.00	15	\$234	100%	50%	4	14%	69%	per measure	3.7	7.3	5.7
1558	ExteriorLighting	LED 300-500 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 175-300 Watt Lamp or Fixture	Biz-Custom	Other	Retro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
1559	ExteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 300-500 Watt Lamp or Fixture	Biz-Custom	Other	Retro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
1560	ExteriorLighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 300-500 Watt Lamp or Fixture	Biz-Custom	Other	Retro	283	69%	195	0.00	10	\$274	100%	7%	7	14%	35%	per measure	0.2	2.8	0.5
1561	Heating	Heat Pump - 16 SEER (5 Tons)	Biz-Standard	Other	ROB	2,288	4%	85	0.00	15	\$135	100%	17%	1	0%	10%	per ton	0.8	4.9	0.7
1562	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Standard	Other	ROB	2,288	8%	191	0.00	15	\$421	100%	11%	1	0%	10%	per ton	0.5	4.9	0.5
1563	Heating	Heat Pump - 18 SEER (<5 Tons)	Biz-Standard	Other	ROB	2,288	12%	275	0.00	15	\$446	100%	15%	1	0%	10%	per ton	0.7	4.7	0.7
1564	Heating	Heat Pump - 21 SEER (<5 Tons)	Biz-Standard	Other	ROB	2,288	18%	414	0.00	15	\$520	100%	26%	1	0%	10%	per ton	1.0	3.8	0.9
1565	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Other	ROB	2,288	18%	414	0.00	16	\$224	100%	28%	1	0%	10%	per ton	2.4	8.7	1.9
1566	Heating	Heat Pump - 15.0 IER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Standard	Other	ROB	2,553	6%	158	0.00	15	\$100	100%	31%	2	17%	10%	per ton	1.6	5.2	1.7
1567	Heating	Heat Pump - 16.0 IER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Standard	Other	ROB	2,553	11%	292	0.00	15	\$171	100%	35%	2	17%	10%	per ton	1.7	4.9	1.8
1568	Heating	Heat Pump - 14.5 IER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Standard	Other	ROB	2,644	7%	175	0.00	15	\$100	100%	34%	3	17%	10%	per ton	1.9	5.5	1.8
1569	Heating	Heat Pump - 15.5 IER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Standard	Other	ROB	2,644	12%	318	0.00	15	\$182	100%	34%	3	17%	10%	per ton	1.8	5.2	1.8
1570	Heating	Heat Pump - 12 IER 3.4 COP (>239,000 Btu/hr)	Biz-Standard	Other	ROB	2,774	7%	194	0.00	15	\$100	100%	34%	4	17%	10%	per ton	2.1	6.2	2.0
1571	Heating	Heat Pump - 13 IER 3.6 COP (>239,000 Btu/hr)	Biz-Standard	Other	ROB	2,774	13%	350	0.00	15	\$202	100%	31%	4	17%	10%	per ton	1.8	5.9	1.8
1572	Heating	Geothermal HP - 17 EER < 135kbtu	Biz-Custom	Other	ROB	1,815	4%	65	0.00	25	\$108	100%	9%	5	0%	20%	per ton	1.0	11.3	0.8
1573	Heating	Geothermal HP - 19 EER < 135kbtu	Biz-Custom	Other	ROB	1,815	8%	143	0.00	25	\$108	100%	20%	5	0%	20%	per ton	2.9	14.4	1.8
1574	Heating	PTHP - <7,000 Btu/h - loading	Biz-Custom	Other	ROB	2,581	5%	136	0.00	8	\$84	100%	24%	6	0%	20%	per ton	1.3	5.3	1.1
1575	Heating	PTHP - 7,000 to 15,000 Btu/h - loading	Biz-Custom	Other	ROB	2,787	9%	240	0.00	8	\$84	100%	43%	7	0%	20%	per ton	2.9	6.8	1.9
1576	Heating	PTHP - >15,000 Btu/h - loading	Biz-Custom	Other	ROB	3,140	17%	537	0.00	8	\$84	100%	96%	8	0%	20%	per ton	5.8	6.1	4.2
1577	HotWater	Res-Seed Heat Pump Water Heater	Biz-Standard	Other	ROB	3,027	67%	2,027	0.00	15	\$1,115	100%	45%	1	80%	20%	per measure	1.2	2.7	2.0
1578	HotWater	Commercial-Size HP WH	Biz-Standard	Other	ROB	116,224	77%	89,384	0.00	15	\$7,450	100%	88%	2	20%	20%	per measure	7.8	8.9	11.1
1579	HotWater	Hot Water Pipe Insulation	Biz-Custom	Other	Retro	3,027	2%	61	0.00	20	\$60	100%	11%	3	100%	80%	per measure	0.9	7.9	1.2
1580	HotWater	Faucet Aerator	Biz-Custom	Other	Retro	4,000	22%	87	0.00	9	\$9	100%	50%	4	20%	85%	per measure	5.1	10.3	6.6
1581	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Other	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	20.8	17.9
1582	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Other	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	1.0	4.6	1.5
1583	InteriorLighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28.52 Watt Lamp	Biz-Standard/SBDI	Other	Retro	154	83%	127	0.00	10	\$16	100%	17%	1	0%	40%	per measure	4.3	24.8	5.2
1584	InteriorLighting	LED 7.20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Other	Retro	144	85%	122	0.00	10	\$20	100%	14%	1	0%	40%	per measure	3.3	23.8	4.0
1585	InteriorLighting	LED Specialty Lamp	Biz-Standard/SBDI	Other	Retro	114	87%	99	0.00	10	\$18	100%	23%	1	0%	40%	per measure	4.4	19.2	5.3
1586	InteriorLighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 4																		

Appendix C: Business Measure Assumptions

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Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUI	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
1588	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Standard/SBDI	Other	Retro	232	84%	194	0.00	10	\$75	100%	9%	2	2%	40%	per measure	1.4	15.1	1.7
1589	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Standard/SBDI	Other	Retro	821	82%	674	0.00	15	\$191	100%	20%	3	6%	40%	per measure	2.5	12.6	3.2
1590	Interior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 175-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Other	Retro	1,390	60%	836	0.00	15	\$234	100%	30%	3	6%	40%	per measure	2.6	8.7	3.3
1591	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Biz-Standard	Other	Retro	1,427	75%	1,070	0.00	15	\$367	100%	27%	3	6%	40%	per measure	2.1	7.9	2.8
1592	Interior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Other	Retro	1,525	68%	1,030	0.00	15	\$362	100%	35%	4	4%	40%	per measure	2.1	5.9	2.8
1593	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Other	Retro	687	51%	350	0.00	10	\$30	100%	53%	5	13%	40%	per measure	6.2	11.8	7.8
1594	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Other	Retro	834	57%	477	0.00	11	\$43	100%	100%	5	13%	40%	per measure	8.0	8.0	10.4
1595	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Other	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	13%	40%	per measure	6.6	6.6	8.8
1596	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Other	Retro	275	65%	178	0.00	10	\$30	100%	33%	6	13%	40%	per measure	2.3	7.2	3.0
1597	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Other	Retro	382	54%	208	0.00	10	\$30	100%	33%	6	47%	40%	per measure	3.7	11.3	4.6
1598	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Other	Retro	349	60%	209	0.00	11	\$30	100%	74%	6	47%	40%	per measure	5.1	6.9	6.7
1599	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Other	Retro	429	61%	263	0.00	11	\$30	100%	51%	6	47%	40%	per measure	5.0	10.0	6.4
1600	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Other	Retro	109	63%	69	0.00	15	\$36	100%	14%	6	47%	40%	per measure	0.9	6.4	1.2
1601	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Other	Retro	358	63%	224	0.00	10	\$30	100%	40%	7	26%	40%	per measure	4.0	10.0	5.0
1602	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Other	Retro	384	71%	274	0.00	10	\$30	100%	100%	7	26%	40%	per measure	5.5	5.5	7.5
1603	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Other	Retro	257	68%	175	0.00	11	\$30	100%	70%	7	26%	40%	per measure	3.4	4.8	4.6
1604	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Other	Retro	115	69%	80	0.00	15	\$56	100%	24%	7	26%	40%	per measure	1.0	4.3	1.5
1605	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Other	Retro	495	24%	119	0.00	10	\$45	100%	21%	8	59%	24%	per measure	1.4	6.6	1.8
1606	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Other	Retro	1,213	24%	291	0.00	10	\$105	100%	22%	9	32%	24%	per measure	1.5	6.6	1.9
1607	Interior Lighting	Lighting Power Density	Biz-Custom	Other	Retro	4	20%	1	0.00	15	\$0	100%	36%	10	80%	20%	per sq ft	2.4	6.5	3.1
1608	Interior Lighting	LED Lighting Redesign/Custom	Biz-Standard	Other	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5
1609	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Other	Retro	255	91%	231	0.00	7	\$45	100%	40%	12	1%	80%	per measure	2.0	4.9	2.7
1610	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Other	Retro	1,278	12%	153	0.00	5	\$233	100%	6%	1	5%	30%	per measure	0.1	1.8	0.3
1611	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Other	ROB	9,932	50%	4,966	0.00	20	\$1,180	100%	24%	2	2%	10%	per HP	3.2	13.6	4.6
1612	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Other	Retro	262	83%	217	0.00	10	\$483	100%	4%	3	0%	10%	per measure	0.1	3.4	0.3
1613	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Other	Retro	2,984	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0
1614	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Other	ROB	3,096	3%	85	0.00	15	\$59	100%	13%	5	3%	70%	per measure	1.0	7.8	1.4
1615	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Other	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	0%	20%	per measure	3.6	5.7	5.0
1616	Miscellaneous	Pool Pump Timer	Biz-Custom	Other	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	2%	20%	per measure	3.1	5.7	4.2
1617	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Other	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	3%	20%	per measure	24.6	24.6	31.1
1618	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Other	ROB	7,758	80%	6,206	0.00	15	\$1,000	100%	58%	9	0%	20%	per measure	4.3	7.8	5.9
1619	Miscellaneous	High Efficiency Dryer	Biz-Custom	Other	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8
1620	Miscellaneous	Miscellaneous Custom	Biz-Custom	Other	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	12%	10%	per kWh	0.5	2.2	0.5
1621	Motors	Cogged V-Belt	Biz-Custom	Other	Retro	17,237	3%	534	0.00	15	\$384	100%	13%	1	50%	10%	per measure	1.0	8.0	1.3
1622	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Other	Retro	3,805	34%	1,290	0.00	15	\$168	100%	61%	2	100%	10%	per HP	8.4	13.8	7.2
1623	Motors	Power Drive Systems	Biz-Custom	Other	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	5.5	11.0	7.0
1624	Motors	Switch Reluctance Motors	Biz-Custom	Other	Retro	33,406	31%	10,222	0.00	15	\$528	100%	50%	2	100%	1%	per measure	10.1	20.2	17.0
1625	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Other	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2
1626	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Other	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	30%	90%	per measure	n/a	0.0	n/a
1627	Office_NonPC	Smart Power Strip - Commercial Use	Biz-Custom	Other	Retro	1,086	10%	109	0.00	7	\$50	100%	20%	2	60%	15%	per measure	0.7	3.8	1.2
1628	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Other	Retro	1,126	15%	169	0.00	8	\$70	100%	22%	2	60%	15%	per measure	0.9	4.3	1.4
1629	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Other	Retro	867,83	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5
1630	Office_PC	Energy Star Sensor	Biz-Custom	Other	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8
1631	Office_PC	Server Virtualization	Biz-Custom	Other	Retro	2	45%	1	0.00	8	\$10	100%	16%	1	100%	30%	per measure	0.3	2.0	0.6
1632	Office_PC	High Efficiency CRAC unit	Biz-Custom	Other	ROB	541	30%	162	0.00	15	\$63	100%	23%	2	65%	20%	per kWh	1.6	6.9	2.4
1633	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Other	ROB	764	47%	358	0.00	15	\$82	100%	39%	2	65%	20%	per measure	1.8	4.7	4.1
1634	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Other	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4
1635	Office_PC	Energy Star Laptop	Biz-Custom	Other	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a
1636	Office_PC	Energy Star Monitor	Biz-Custom	Other	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a
1637	Refrigeration	Strip Curtains	Biz-Custom	Other	Retro	37	50%	18	0.00	4	\$10	100%	16%	1	100%	30%	per sq ft	0.3	2.0	0.6
1638	Refrigeration	Bare Section Line	Biz-Custom	Other	Retro	33	93%	21	0.00	15	\$40	100%	47%	2	0%	50%	per measure	3.1	6.6	4.9
1639	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Other	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	7%	25%	per HP	0.3	4.7	0.6
1640	Refrigeration	Saturated Suction Controls	Biz-Custom	Other	Retro	831	50%	416	0.00	15	\$579	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7
1641	Refrigeration	Compressor Retrofit	Biz-Custom	Other	Retro	813	20%	163	0.00	15	\$477	100%	3%	5	23%	25%	per measure	0.4	12.0	0.3
1642	Refrigeration	Electrically Commutated (EC) Walk-in Evaporator Fan Motor	Biz-Standard	Other	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	6	6%	80%	per measure	3.1	9.9	4.8
1643	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Other	Retro	2,236	32%	716	0.00	15	\$155	100%	42%	7	6%	25%	per measure	1.9	4.7	4.4
1644	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Other	Retro	2,960	50%	1,480	0.00	15	\$117.00	100%	11%	8	9%	25%	per HP	0.5	4.7	1.2
1645	Refrigeration	Refrigeration Economizer	Biz-Custom	Other	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	32%	10%	per kWh	1.7	3.4	1.1
1646	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Standard	Other	Retro	579	59%	338	0.00	10	\$151	100%	37%	10	11%	25%	per door	1.0	2.7	1.7
1647	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Standard	Other	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	3%	25%	per door	0.5	6.2	0.7
1648	Refrigeration	Electrically Commutated (EC) Reach-in Evaporator Fan Motor	Biz-Standard	Other	Retro	2,884	55%	1,586	0.00	15	\$305	100%	31%	12	2%	20%	per measure	3.1	9.9	4.8
1649	Refrigeration	Q-Sync Motor for Walk-in and Reach-in Evaporator Fan Motor	Biz-Custom	Other	Retro	441	34%	149	0.00	10	\$90	100%	15%	13	2%	2%	per measure	0.8	5.1	1.2
1650	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Biz-Standard	Other	ROB	2,140	29%	629	0.00	12	\$1,239	100%	9%	14	11%	54%	per door	0.3	2.9	0.5

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
1651	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Standard	Other	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	11%	54%	per door	0.1	1.3	0.3
1652	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Standard	Other	Retro	2,016	68%	1,361	0.00	10	\$151	100%	51%	15	4%	25%	per door	4.1	8.1	6.0
1653	Refrigeration	Energy Star Door Retrofits, Low Temp	Biz-Custom	Other	ROB	2,922	50%	1,453	0.00	12	\$686	100%	19%	16	4%	25%	per door	1.2	6.2	1.7
1654	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Standard	Other	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	7%	17	4%	54%	per door	0.4	5.5	0.6
1655	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Standard	Other	ROB	4,522	7%	305	0.00	12	\$1,521	100%	7%	17	4%	54%	per door	0.1	1.3	0.2
1656	Refrigeration	Refrigeration - Custom	Biz-Custom	Other	ROB	7	2%	0	0.00	10	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5
1657	Refrigeration	Retro-commissioning, Refrigerator Optimization	Biz-Custom	Other	ROB	5	21%	1	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9
1658	Refrigeration	Energy Star Ice Machine	Biz-Custom	Other	ROB	12,461	13%	1,630	0.00	10	\$222	100%	66%	20	8%	44%	per measure	3.2	4.8	5.2
1659	Refrigeration	ESTAR Refrigerated Vending Machine	Biz-Custom	Other	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	5%	30%	per measure	0.2	6.6	0.3
1660	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Custom	Other	Retro	1,278	7%	213	0.00	5	\$245	100%	8%	22	5%	30%	per measure	0.1	1.7	0.4
1661	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/lf	Biz-Custom	Other	Retro	115	74%	84	0.00	9	\$11	100%	50%	23	7%	35%	per linear ft	3.9	7.8	4.8
1662	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Custom	Other	Retro	522	27%	141	0.00	10	\$56	100%	23%	24	7%	18%	per measure	1.4	6.2	1.8
1663	Ventilation	Demand Controlled Ventilation	Biz-Standard	Other	Retro	2,627	20%	525	0.00	15	\$227	100%	63%	1	100%	17%	per measure	2.7	2.7	2.6
1664	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Standard	Other	Retro	2,166	43%	940	0.00	15	\$188	100%	61%	2	100%	17%	per HP	6.1	10.0	5.4
1665	Ventilation	High Volume Low Speed Fan, 20	Biz-Standard	Other	Retro	19,919	82%	16,287	0.00	15	\$4,130	100%	20%	3	10%	30%	per measure	3.2	15.6	3.6
1666	Ventilation	High Volume Low Speed Fan, 22	Biz-Standard	Other	Retro	21,909	83%	18,277	0.00	15	\$4,190	100%	27%	4	10%	30%	per measure	3.5	13.1	4.0
1667	Ventilation	High Volume Low Speed Fan, 24	Biz-Standard	Other	Retro	23,903	82%	19,579	0.00	15	\$4,221	100%	32%	5	10%	30%	per measure	3.8	11.7	4.3
1668	WholeBldg. HVAC	HVAC - Energy Management System	Biz-Standard	Other	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	100%	20%	per kWh	2.8	8.3	2.5
1669	WholeBldg. HVAC	Coal Roof	Biz-Custom	Other	Retro	5	20%	1	0.00	25	\$2	100%	6%	2	59%	33%	per kWh	0.7	11.5	0.6
1670	WholeBldg. HVAC	Retro-commissioning, Bld Optimization	Biz-Custom	Other	Retro	7	15%	1	0.00	5	\$0	100%	38%	3	100%	0%	per kWh	3.7	3.7	3.6
1671	WholeBuilding	WholeBldg - Com RET	Biz-Custom	Other	Retro	7	15%	1	0.00	12	\$0	100%	38%	1	80%	0%	per kWh	1.5	3.9	2.2
1672	WholeBuilding	WholeBldg - Custom (Other)	Biz-Custom	Other	Retro	5	20%	1	0.00	12	\$0	100%	38%	2	80%	0%	per kWh	1.5	3.9	2.2
1673	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Other	Retro	1,150	1%	6	0.00	30	\$8	100%	13%	3	100%	20%	per measure	1.0	8.1	1.2
1674	WholeBldg. NC	WholeBldg - Com NC	Biz-Custom	Other	NC	4	25%	1	0.00	12	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
1675	Behavioral	COM Competitions	Biz-Custom	Other	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
1676	Behavioral	Business Energy Reports	Biz-Custom	Other	Retro	313	0%	1	0.00	2	\$0	100%	40%	1	100%	0%	per kWh	0.3	0.8	1.0
1677	Behavioral	Building Benchmarking	Biz-Custom	Other	Retro	0	0%	0	0.00	2	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
1678	Behavioral	Strategic Energy Management	Biz-Custom	Other	Retro	0	0%	0	0.00	5	\$0	100%	0%	1	100%	0%	per kWh	n/a	0.0	n/a
1679	Behavioral	BEIMS	Biz-Custom	Other	Retro	50	2%	1	0.00	2	\$0	100%	18%	1	100%	2%	per kWh	0.1	0.8	0.5
1680	Behavioral	Building Operator Certification	Biz-Custom	Other	Retro	10	3%	0	0.00	3	\$0	100%	11%	1	100%	2%	per kWh	0.2	1.7	0.4
1681	CompressedAir	Retro-commissioning, Compressed Air Optimization	Biz-Custom	BSS	Retro	5	21%	1	0.00	5	\$0	100%	45%	1	100%	20%	per kWh	1.2	2.5	1.9
1682	CompressedAir	Compressed Air Leak Repair	Biz-Custom	BSS	Retro	6	17%	1	0.00	5	\$0	100%	50%	1	100%	39%	per kWh	3.0	6.1	4.5
1683	CompressedAir	Efficient Air Compressors (VSD)	Biz-BSS	BSS	ROB	4,748	21%	987	0.00	10	\$1,573	100%	8%	2	100%	20%	per HP	0.3	3.7	0.5
1684	CompressedAir	AODD Pump Controls	Biz-Custom	BSS	Retro	103,919	35%	36,372	0.00	10	\$1,150	100%	56%	3	100%	56%	per measure	14.5	29.0	19.9
1685	CompressedAir	No Loss Condensate Drain	Biz-BSS	BSS	Retro	2,260	50%	1,130	0.00	15	\$77	100%	97%	5	5%	20%	per measure	1.5	3.9	2.4
1686	CompressedAir	Efficient Air Nozzles	Biz-Custom	BSS	Retro	5	20%	1	0.00	15	\$0	100%	47%	6	100%	20%	per measure	9.3	9.5	13.5
1687	CompressedAir	Compressed Air - Custom	Biz-Custom	BSS	Retro	2,395.8	38%	9,058	0.00	12	\$4,300	100%	23%	1	18%	53%	per measure	1.3	5.7	1.7
1688	Cooling	Commercial Combination Oven (Electric)	Biz-Custom	BSS	ROB	9,839	11%	1,065	0.00	12	\$0	100%	40%	1	18%	53%	per measure	n/a	0.0	n/a
1689	Cooling	Commercial Electric Convection Oven	Biz-Custom	BSS	ROB	15,825	12%	1,910	0.00	12	\$0	100%	40%	2	14%	17%	per measure	n/a	0.0	n/a
1690	Cooling	Commercial Electric Giddle	Biz-Custom	BSS	ROB	17,846	55%	9,863	0.00	12	\$4,150	100%	25%	3	6%	45%	per measure	1.5	5.9	2.0
1691	Cooling	Commercial Electric Steam Cooler	Biz-BSS	BSS	ROB	39,106	44%	17,369	0.00	15	\$662	100%	100%	4	26%	61%	per measure	14.0	14.0	23.4
1692	Cooling	Dishwasher Low Temp Door (Energy Star)	Biz-Custom	BSS	ROB	26,901	32%	8,586	0.00	15	\$995	100%	95%	4	26%	61%	per measure	4.6	4.8	8.3
1693	Cooling	Dishwasher High Temp Door (Energy Star)	Biz-Custom	BSS	ROB	17,451	5%	952	0.00	12	\$210	100%	50%	5	27%	24%	per measure	2.8	5.7	3.7
1694	Cooling	Energy efficient electric Fryer	Biz-BSS	BSS	ROB	1,534	46%	709	0.00	12	\$1,783	100%	30%	6	3%	16%	per measure	0.2	0.8	0.6
1695	Cooling	Insulated Holding Cabinets (Full Size)	Biz-BSS	BSS	ROB	4,383	63%	2,772	0.00	12	\$1,783	100%	30%	6	3%	16%	per measure	1.0	3.3	1.4
1696	Cooling	Insulated Holding Cabinets (3/4 Size)	Biz-BSS	BSS	ROB	6,136	72%	4,438	0.00	12	\$1,783	100%	30%	6	3%	16%	per measure	1.6	5.2	2.1
1697	Cooling	Insulated Holding Cabinets (Half Size)	Biz-BSS	BSS	ROB	959	15%	141	0.00	15	\$191	100%	100%	1	22%	10%	per ton	1.4	1.4	1.9
1698	Cooling	Air Conditioner - 17 IER (5-20 Tons)	Biz-BSS	BSS	ROB	959	19%	187	0.00	15	\$254	100%	100%	1	22%	10%	per ton	1.4	1.4	1.9
1699	Cooling	Air Conditioner - 18 IER (5-20 Tons)	Biz-BSS	BSS	ROB	959	31%	297	0.00	15	\$445	100%	100%	1	22%	10%	per ton	1.3	1.3	2.0
1700	Cooling	Air Conditioner - 21 IER (5-20 Tons)	Biz-BSS	BSS	ROB	1,054	8%	81	0.00	15	\$59	100%	100%	2	22%	10%	per ton	2.6	2.6	2.9
1701	Cooling	Air Conditioner - 14.3 IER (20+ Tons)	Biz-BSS	BSS	ROB	1,054	12%	136	0.00	15	\$97	100%	100%	2	22%	10%	per ton	2.5	2.5	2.9
1702	Cooling	Air Conditioner - 15 IER (20+ Tons)	Biz-BSS	BSS	ROB	1,054	22%	236	0.00	15	\$204	100%	100%	2	22%	10%	per ton	2.2	2.2	2.7
1703	Cooling	Air Conditioner - 17 IER (20+ Tons)	Biz-BSS	BSS	ROB	0	7%	81	0.00	3	\$5	100%	50%	3	45%	50%	per ton	7.0	14.1	3.4
1704	Cooling	Comprehensive Rooftop Unit Quality (Maintenance (AC Tune-up))	Biz-Custom	BSS	Retro	959	20%	192	0.00	10	\$84	100%	47%	4	45%	25%	per ton	3.1	6.7	1.9
1705	Cooling	Air Side Economizer	Biz-Custom	BSS	Retro	6,779	56%	3,783	0.00	15	\$2,950	100%	7%	5	45%	20%	per measure	2.4	32.9	1.2
1706	Cooling	Advanced Rooftop Controls	Biz-BSS	BSS	ROB	914	20%	183	0.00	15	\$537	100%	7%	6	45%	20%	per ton	0.6	8.5	0.4
1707	Cooling	HVAC Occupancy Controls	Biz-Custom	BSS	ROB	994	13%	124	0.00	15	\$115	100%	100%	7	19%	10%	per ton	2.0	2.0	2.3
1708	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-BSS	BSS	ROB	994	18%	175	0.00	15	\$514	100%	47%	7	19%	10%	per ton	0.6	1.4	0.8
1709	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-BSS	BSS	ROB	994	22%	221	0.00	15	\$514	100%	63%	7	19%	10%	per ton	0.8	1.3	1.0
1710	Cooling	Air Conditioner - 18 SEER (<5 Tons)	Biz-BSS	BSS	ROB	994	33%	331	0.00	15	\$631	100%	90%	7	19%	10%	per ton	1.0	1.1	1.3
1711	Cooling	Air Conditioner - 21 SEER (<5 Tons)	Biz-BSS	BSS	ROB	3,975	14%	552	0.00	10	\$224	100%	100%	8	19%	63%	per measure	3.4	3.4	3.0
1712	Cooling	Smart Thermostat	Biz-BSS	BSS	ROB	1,169	8%	99	0.00	8	\$84	100%	26%	9	1%	20%	per ton	1.3	5.2	0.9
1713	Cooling	PTAC - <7,000 Btu/h - loading	Biz-Custom	BSS	ROB	1,462	7%	93	0.00	8	\$84	100%	24%	10	1%	20%	per ton	1.3	5.2	0.8

Appendix C: Business Measure Assumptions

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRE Score	UCT Score	Participant Test Score
1718	Cooling	Chiller Tune-up	BiZ-Custom	BSS	Retro	0	7%	81	0.00	3	\$8	100%	50%	14	35%	50%	per ton	4.7	9.4	2.4
1719	Cooling	Window Film	BiZ-Custom	BSS	Retro	6,000	4%	264	0.00	10	\$154	100%	38%	15	100%	25%	per measure	1.3	6.2	1.4
1720	Cooling	Triple Pane Windows	BiZ-Custom	BSS	ROB	6,000	6%	360	0.00	25	\$700	100%	11%	15	100%	2%	per measure	1.3	11.8	0.7
1721	Cooling	Energy Recovery Ventilator	BiZ-Custom	BSS	Retro	989	27%	267	0.00	15	\$1,050	100%	6%	16	100%	2%	per ton	1.3	23.9	0.3
1722	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	BiZ-Custom	BSS	Retro	655	66%	432	0.00	15	\$191	100%	23%	1	14%	69%	per measure	0.9	4.0	2.2
1723	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	BiZ-Custom	BSS	Retro	1,061	64%	679	0.00	15	\$191	100%	35%	2	14%	69%	per measure	2.1	6.0	3.4
1724	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	BiZ-Custom	BSS	Retro	1,205	68%	823	0.00	15	\$234	100%	35%	3	14%	69%	per measure	1.4	4.0	3.4
1725	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	BiZ-Custom	BSS	Retro	2,214	65%	1,436	0.00	15	\$234	100%	50%	4	14%	69%	per measure	3.7	7.3	5.7
1726	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 301-500 Watt Lamp or Fixture	BiZ-Custom	BSS	Retro	1,931	78%	1,507	0.00	15	\$362	100%	42%	5	14%	69%	per measure	1.6	4.0	4.0
1727	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	BiZ-Custom	BSS	Retro	3,712	69%	2,575	0.00	15	\$362	100%	50%	6	14%	69%	per measure	4.2	8.5	6.6
1728	Exterior Lighting	Bi-Level Lighting Fixture - Garages	BiZ-Custom	BSS	Retro	202	69%	140	0.00	10	\$274	100%	7%	7	14%	35%	per measure	0.1	2.0	0.4
1729	Heating	Heat Pump - 16 SEER (<5 Tons)	BiZ-BSS	BSS	ROB	2,306	4%	89	0.00	15	\$135	100%	60%	1	24%	10%	per ton	0.9	1.5	1.2
1730	Heating	Heat Pump - 17 SEER (<5 Tons)	BiZ-BSS	BSS	ROB	2,306	9%	197	0.00	15	\$421	100%	38%	1	24%	10%	per ton	0.6	1.5	0.8
1731	Heating	Heat Pump - 18 SEER (<5 Tons)	BiZ-BSS	BSS	ROB	2,306	12%	282	0.00	15	\$446	100%	55%	1	24%	10%	per ton	0.8	1.4	1.1
1732	Heating	Heat Pump - 21 SEER (<5 Tons)	BiZ-BSS	BSS	ROB	2,306	19%	430	0.00	15	\$520	100%	93%	1	24%	10%	per ton	1.1	1.1	1.6
1733	Heating	Variable Refrigerant Flow Heat Pump	BiZ-Custom	BSS	ROB	2,306	19%	430	0.00	16	\$224	100%	29%	1	24%	10%	per ton	2.6	9.0	2.0
1734	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	BiZ-BSS	BSS	ROB	2,568	6%	160	0.00	15	\$100	100%	100%	2	18%	10%	per ton	1.7	1.7	2.4
1735	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	BiZ-BSS	BSS	ROB	2,568	12%	296	0.00	15	\$171	100%	100%	2	18%	10%	per ton	1.8	1.8	2.6
1736	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	BiZ-BSS	BSS	ROB	2,661	7%	179	0.00	15	\$100	100%	100%	3	18%	10%	per ton	2.0	2.0	2.7
1737	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	BiZ-BSS	BSS	ROB	2,661	12%	323	0.00	15	\$182	100%	100%	3	18%	10%	per ton	1.9	1.9	2.7
1738	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	BiZ-BSS	BSS	ROB	2,797	7%	199	0.00	15	\$100	100%	100%	4	18%	10%	per ton	2.3	2.3	2.8
1739	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	BiZ-BSS	BSS	ROB	2,797	13%	357	0.00	15	\$202	100%	100%	4	18%	10%	per ton	2.0	2.0	2.5
1740	Heating	Geothermal HP - 17 IEER < 135kbtu	BiZ-Custom	BSS	ROB	1,846	4%	67	0.00	25	\$108	100%	9%	5	5%	20%	per ton	1.1	11.8	0.8
1741	Heating	Geothermal HP - 19 IEER < 135kbtu	BiZ-Custom	BSS	ROB	1,846	8%	153	0.00	25	\$108	100%	21%	5	5%	20%	per ton	3.1	14.6	1.9
1742	Heating	PTHP - <7,000 Btu/h - lodging	BiZ-Custom	BSS	ROB	2,591	6%	143	0.00	8	\$84	100%	25%	6	1%	20%	per ton	1.4	5.5	1.1
1743	Heating	PTHP - 7,000 to 15,000 Btu/h - lodging	BiZ-Custom	BSS	ROB	2,806	9%	260	0.00	8	\$84	100%	46%	7	1%	20%	per ton	3.2	6.9	2.0
1744	Heating	PTHP - >15,000 Btu/h - lodging	BiZ-Custom	BSS	ROB	3,173	18%	573	0.00	8	\$84	100%	97%	8	1%	20%	per ton	6.4	6.6	4.4
1745	Hot Water	Res-Steed Heat Pump Water Heater	BiZ-Custom	BSS	ROB	3,402	67%	2,279	0.00	15	\$1,115	100%	90%	1	73%	3%	per measure	1.3	1.5	2.6
1746	Hot Water	Commercial-Sized HP/WH	BiZ-BSS	BSS	ROB	116,224	77%	89,384	0.00	15	\$7,450	100%	100%	2	27%	3%	per measure	7.8	7.8	11.7
1747	Hot Water	Hot Water Pipe Insulation	BiZ-Custom	BSS	ROB	3,402	2%	68	0.00	20	\$8	100%	12%	3	100%	80%	per measure	1.0	7.9	1.3
1748	Hot Water	Faucet Aerator	BiZ-Custom	BSS	Retro	400	22%	87	0.00	9	\$8	100%	50%	4	20%	85%	per measure	5.1	10.3	6.6
1749	Hot Water	Low Flow Pre-Rinse Sprayers	BiZ-Custom	BSS	ROB	11,029	52%	5,787	0.00	5	\$93	100%	100%	5	20%	85%	per measure	17.9	17.9	20.8
1750	Hot Water	ENERGY STAR Commercial Washing Machines	BiZ-Custom	BSS	ROB	1,868	20%	380	0.00	11	\$200	100%	21%	6	25%	33%	per measure	1.0	4.6	1.5
1751	Interior Lighting	LED <=11 Watt Lamp Replacing Interior-Halogen A 28-52 Watt Lamp	BiZ-BSS	BSS	Retro	154	83%	127	0.00	10	\$16	100%	100%	1	1%	40%	per measure	4.3	4.3	8.1
1752	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior-Halogen 53-70 Watt Lamp	BiZ-BSS	BSS	Retro	144	85%	122	0.00	10	\$20	100%	100%	1	1%	40%	per measure	3.3	3.3	6.9
1753	Interior Lighting	LED Specialty Lamp	BiZ-BSS	BSS	Retro	114	87%	99	0.00	10	\$12	100%	100%	1	1%	40%	per measure	4.4	4.4	7.1
1754	Interior Lighting	LED <=14 Watt Lamp Replacing Interior-Halogen BR/R 45-65 Watt Lamp	BiZ-BSS	BSS	Retro	177	84%	148	0.00	10	\$48	100%	100%	2	6%	40%	per measure	1.6	1.6	3.1
1755	Interior Lighting	LED <=13 Watt Lamp Replacing Interior-Halogen MR-16 35-50 Watt Lamp	BiZ-BSS	BSS	Retro	121	85%	103	0.00	10	\$37	100%	100%	2	6%	40%	per measure	1.5	1.5	2.8
1756	Interior Lighting	LED <=20 Watt Lamp Replacing Interior-Halogen PAR 48-90 Watt Lamp	BiZ-BSS	BSS	Retro	232	84%	194	0.00	10	\$75	100%	91%	2	6%	40%	per measure	1.4	1.5	2.5
1757	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	BiZ-BSS	BSS	Retro	821	82%	676	0.00	15	\$191	100%	53%	3	16%	40%	per measure	2.5	4.8	3.5
1758	Interior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	BiZ-BSS	BSS	Retro	1,390	60%	836	0.00	15	\$234	100%	78%	3	16%	40%	per measure	2.6	3.3	3.8
1759	Interior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	BiZ-BSS	BSS	Retro	1,427	75%	1,070	0.00	15	\$367	100%	55%	3	16%	40%	per measure	2.1	3.8	3.0
1760	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID 301-500 Watt Lamp or Fixture	BiZ-BSS	BSS	Retro	1,525	68%	1,030	0.00	15	\$362	100%	92%	4	10%	40%	per measure	2.1	2.2	3.3
1761	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	BiZ-BSS	BSS	Retro	687	51%	350	0.00	10	\$30	100%	100%	5	10%	40%	per measure	6.2	6.2	9.6
1762	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	BiZ-BSS	BSS	Retro	834	57%	477	0.00	15	\$43	100%	100%	5	10%	40%	per measure	8.0	8.0	12.1
1763	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	BiZ-BSS	BSS	Retro	473	78%	370	0.00	11	\$32	100%	100%	5	10%	40%	per measure	6.6	6.6	10.9
1764	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	BiZ-BSS	BSS	Retro	275	65%	178	0.00	15	\$56	100%	62%	5	10%	40%	per measure	2.3	3.7	3.3
1765	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	BiZ-BSS	BSS	Retro	382	54%	208	0.00	10	\$30	100%	100%	6	36%	40%	per measure	3.7	3.7	6.0
1766	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	BiZ-BSS	BSS	Retro	349	60%	209	0.00	11	\$30	100%	100%	6	36%	40%	per measure	5.1	5.1	8.0
1767	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	BiZ-BSS	BSS	Retro	429	61%	263	0.00	11	\$30	100%	100%	6	36%	40%	per measure	5.0	5.0	7.8
1768	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	BiZ-BSS	BSS	Retro	109	63%	69	0.00	15	\$56	100%	27%	6	36%	40%	per measure	0.9	3.3	1.3
1769	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	BiZ-BSS	BSS	Retro	358	63%	224	0.00	10	\$30	100%	100%	7	20%	40%	per measure	4.0	4.0	6.7
1770	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	BiZ-BSS	BSS	Retro	384	71%	274	0.00	15	\$36	100%	100%	7	20%	40%	per measure	5.5	5.5	9.3
1771	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	BiZ-BSS	BSS	Retro	257	68%	175	0.00	11	\$30	100%	100%	7	20%	40%	per measure	3.4	3.4	6.4
1772	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	BiZ-BSS	BSS	Retro	115	69%	80	0.00	15	\$56	100%	46%	7	20%	40%	per measure	1.0	2.2	1.7
1773	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	BiZ-BSS	BSS	Retro	495	24%	119	0.00	10	\$45	100%	95%	8	59%	28%	per measure	1.4	1.5	2.6
1774	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	BiZ-BSS	BSS	Retro	1,213	24%	291	0.00	10	\$105	100%	100%	9	32%	28%	per measure	1.5	1.5	2.7
1775	Interior Lighting	Lighting Power Density	BiZ-Custom	BSS	Retro	4	20%	1	0.00	15	\$0	100%	36%	10	80%	20%	per sq ft	2.4	6.5	3.1

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EUI	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRE Score	UCT Score	Participant Test Score
1776	Interior Lighting	LED Lighting Redesign/Custom	Bi2-BSS	BSS	Retro	126,345	62%	77,703	0.00	15	\$10,000	100%	85%	11	80%	20%	per project	5.6	6.6	7.5	
1777	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Bi2-BSS	BSS	Retro	255	91%	231	0.00	7	\$45	100%	61%	12	1%	80%	per measure	2.0	3.2	2.9	
1778	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi2-BSS	BSS	Retro	1,278	12%	153	0.00	5	\$233	100%	6%	1	38%	30%	per measure	0.1	1.8	0.3	
1779	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi2-BSS	BSS	ROB	9,932	50%	4,966	0.00	20	\$1,180	100%	46%	3	2%	10%	per HP	3.2	7.1	4.8	
1780	Miscellaneous	High Efficiency Hand Dryers	Bi2-Custom	BSS	Retro	265	83%	220	0.00	10	\$483	100%	4%	2	0%	10%	per measure	0.2	5.1	0.3	
1781	Miscellaneous	Onsite Commercial Laundry	Bi2-Custom	BSS	Retro	2,984	25%	746	0.00	10	\$20,310	100%	0%	4	0%	2%	per measure	1.2	3.4	0.0	
1782	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Bi2-Custom	BSS	ROB	3,086	3%	85	0.00	15	\$59	100%	13%	5	3%	70%	per measure	1.0	7.8	1.4	
1783	Miscellaneous	Foal Pump w/ Variable Frequency Drive	Bi2-Custom	BSS	ROB	6,988	25%	1,747	0.00	10	\$246	100%	64%	6	0%	20%	per measure	3.6	5.7	5.0	
1784	Miscellaneous	Pool Pump Timer	Bi2-Custom	BSS	ROB	6,988	9%	601	0.00	10	\$100	100%	54%	7	2%	20%	per measure	3.1	5.7	4.2	
1785	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi2-Custom	BSS	ROB	44,091	80%	35,273	0.00	15	\$1,000	100%	100%	8	0%	20%	per measure	24.6	31.1	31.1	
1786	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi2-Custom	BSS	ROB	7,758	80%	6,206	0.00	10	\$1,000	100%	56%	9	0%	20%	per measure	4.3	7.8	5.9	
1787	Miscellaneous	High Efficiency Dryer	Bi2-Custom	BSS	ROB	9,447	4%	392	0.00	14	\$93	100%	38%	10	2%	20%	per measure	2.5	6.7	3.8	
1788	Miscellaneous	Miscellaneous Custom	Bi2-Custom	BSS	Retro	7	2%	0	0.00	10	\$0	100%	23%	11	7%	10%	per kWh	0.5	2.2	0.5	
1789	Motors	Cogged V-Belt	Bi2-Custom	BSS	Retro	17,237	3%	534	0.00	15	\$384	100%	13%	1	50%	10%	per measure	1.0	8.0	1.3	
1790	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi2-BSS	BSS	Retro	3,805	34%	1,290	0.00	15	\$168	100%	100%	2	100%	10%	per HP	8.4	8.4	8.2	
1791	Motors	Power Drive Systems	Bi2-Custom	BSS	Retro	4	23%	1	0.00	15	\$0	100%	50%	2	100%	10%	per kWh	5.5	11.0	7.0	
1792	Motors	Switch Reluctance Motors	Bi2-Custom	BSS	Retro	29,557	31%	9,044	0.00	15	\$528	100%	50%	2	100%	1%	per kWh	8.9	17.9	15.1	
1793	Motors	Escalators Motor Efficiency Controllers	Bi2-Custom	BSS	Retro	7,500	20%	1,500	0.00	10	\$5,000	100%	3%	3	0%	10%	per measure	0.2	6.5	0.2	
1794	Office, NonPC	Energy Star Printer/Copier/Fax	Bi2-Custom	BSS	ROB	551	40%	223	0.00	6	\$0	100%	40%	1	30%	90%	per measure	n/a	0.0	n/a	
1795	Office, NonPC	Smart Power Strip - Commercial Use	Bi2-Custom	BSS	Retro	1,086	10%	109	0.00	7	\$50	100%	20%	2	60%	15%	per measure	0.7	3.8	1.2	
1796	Office, NonPC	Plug Load Occupancy Sensor	Bi2-Custom	BSS	Retro	1,126	15%	169	0.00	8	\$70	100%	23%	2	60%	15%	per measure	0.9	4.3	1.4	
1797	Office_PC	Electrically Commutated Plug Fans in data centers	Bi2-Custom	BSS	Retro	86,783	18%	15,778	0.00	15	\$480	100%	50%	1	65%	20%	per measure	19.5	39.1	28.5	
1798	Office_PC	Energy Star Server	Bi2-Custom	BSS	ROB	1,621	23%	368	0.00	8	\$118	100%	28%	1	65%	25%	per measure	1.1	3.9	1.8	
1799	Office_PC	Server Virtualization	Bi2-Custom	BSS	Retro	2	45%	1	0.00	8	\$0	100%	23%	1	65%	25%	per kWh	0.6	2.8	1.5	
1800	Office_PC	High Efficiency GRAC unit	Bi2-Custom	BSS	ROB	541	30%	162	0.00	15	\$63	100%	30%	2	65%	20%	per measure	1.6	6.9	2.4	
1801	Office_PC	Computer Room Air Conditioner Economizer	Bi2-Custom	BSS	Retro	764	47%	358	0.00	15	\$82	100%	39%	2	65%	20%	per measure	1.8	4.7	4.1	
1802	Office_PC	Data Center Hot/Cold Aisle Configuration	Bi2-Custom	BSS	Retro	4	25%	1	0.00	15	\$0	100%	23%	3	3%	10%	per kWh	1.5	6.6	2.4	
1803	Office_PC	Energy Star Laptop	Bi2-Custom	BSS	ROB	126	33%	41	0.00	4	\$0	100%	40%	4	11%	85%	per measure	n/a	0.0	n/a	
1804	Office_PC	Energy Star Monitor	Bi2-Custom	BSS	ROB	72	21%	15	0.00	4	\$0	100%	40%	5	25%	85%	per measure	n/a	0.0	n/a	
1805	Refrigeration	Strip Curtains	Bi2-Custom	BSS	Retro	1	50%	0	0.00	4	\$10	100%	0%	1	0%	0%	per sq ft	0.0	2.0	0.0	
1806	Refrigeration	Bare Suction Line	Bi2-Custom	BSS	Retro	23	93%	21	0.00	15	\$4	100%	47%	2	0%	50%	per measure	3.1	6.6	4.9	
1807	Refrigeration	Floating Head Pressure Controls	Bi2-Custom	BSS	Retro	1,112	25%	278	0.00	15	\$431	100%	6%	3	7%	25%	per HP	0.3	4.7	0.6	
1808	Refrigeration	Saturated Suction Controls	Bi2-Custom	BSS	Retro	831	50%	416	0.00	15	\$559	100%	7%	4	2%	10%	per measure	0.8	11.9	0.7	
1809	Refrigeration	Compressor Retrofit	Bi2-Custom	BSS	Retro	813	20%	163	0.00	15	\$477	100%	3%	5	24%	25%	per measure	4.4	12.0	0.3	
1810	Refrigeration	Electrically Commutated (EC) Walk-in Evaporator Fan Motor	Bi2-BSS	BSS	Retro	2,884	55%	1,586	0.00	15	\$305	100%	44%	6	7%	20%	per measure	3.1	7.0	4.9	
1811	Refrigeration	Evaporator Fan Motor Controls	Bi2-Custom	BSS	Retro	2,236	32%	716	0.00	15	\$155	100%	42%	7	7%	25%	per measure	1.9	4.7	4.4	
1812	Refrigeration	Variable Speed Condenser Fan	Bi2-Custom	BSS	Retro	2,960	50%	1,480	0.00	15	\$1,170	100%	11%	8	9%	25%	per HP	0.5	4.7	1.2	
1813	Refrigeration	Refrigeration Economizer	Bi2-Custom	BSS	Retro	7	2%	0	0.00	10	\$0	100%	50%	9	33%	10%	per kWh	1.7	3.4	1.1	
1814	Refrigeration	Anti-Sweat Heater Controls MT	Bi2-BSS	BSS	Retro	579	59%	338	0.00	10	\$151	100%	89%	10	14%	25%	per door	1.0	1.1	2.3	
1815	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi2-Custom	BSS	Retro	1,584	36%	578	0.00	12	\$686	100%	8%	11	4%	25%	per door	0.5	6.2	0.7	
1816	Refrigeration	Electrically Commutated (EC) Reach-in Evaporator Fan Motor	Bi2-BSS	BSS	Retro	2,884	55%	1,586	0.00	15	\$305	100%	44%	12	2%	80%	per measure	3.1	7.0	4.9	
1817	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi2-Custom	BSS	Retro	441	34%	149	0.00	10	\$90	100%	15%	13	2%	2%	per measure	0.8	5.1	1.2	
1818	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Bi2-BSS	BSS	ROB	2,140	29%	629	0.00	12	\$1,239	100%	20%	14	13%	54%	per door	0.3	1.4	0.6	
1819	Refrigeration	Energy Star Reach-in Refrigerator, Solid Doors	Bi2-BSS	BSS	ROB	1,410	20%	281	0.00	12	\$1,211	100%	9%	14	13%	54%	per door	0.1	1.3	0.3	
1820	Refrigeration	Anti-Sweat Heater Controls LT	Bi2-BSS	BSS	Retro	2,016	68%	1,361	0.00	10	\$151	100%	100%	15	5%	25%	per door	4.1	4.1	6.7	
1821	Refrigeration	Display Case Door Retrofit, Low Temp	Bi2-Custom	BSS	Retro	2,922	50%	1,453	0.00	12	\$686	100%	19%	16	5%	25%	per door	1.2	6.2	1.7	
1822	Refrigeration	Energy Star Reach-in Freezer, Glass Doors	Bi2-BSS	BSS	ROB	6,374	20%	1,275	0.00	12	\$1,651	100%	70%	17	4%	54%	per door	0.4	0.5	1.3	
1823	Refrigeration	Energy Star Reach-in Freezer, Solid Doors	Bi2-BSS	BSS	ROB	4,522	7%	305	0.00	10	\$1,521	100%	40%	17	4%	54%	per door	0.1	0.2	0.5	
1824	Refrigeration	Refrigeration - Custom	Bi2-Custom	BSS	ROB	7	2%	0	0.00	12	\$0	100%	23%	18	90%	25%	per kWh	0.4	1.8	0.5	
1825	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi2-Custom RxC	BSS	Retro	5	21%	1	0.00	5	\$0	100%	48%	19	90%	25%	per kWh	1.1	2.3	1.9	
1826	Refrigeration	Energy Star Ice Machine	Bi2-Custom	BSS	ROB	12,461	13%	1,630	0.00	10	\$222	100%	66%	20	7%	44%	per measure	3.2	4.8	5.2	
1827	Refrigeration	ESTAR Refrigerated Vending Machine	Bi2-Custom	BSS	ROB	1,278	12%	153	0.00	14	\$500	100%	3%	21	4%	30%	per measure	0.2	6.6	0.3	
1828	Refrigeration	Vending Machine Controller - Refrigerated	Bi2-Custom	BSS	Retro	1,278	17%	213	0.00	5	\$245	100%	8%	22	4%	30%	per measure	0.1	1.7	0.4	
1829	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/1F	Bi2-Custom	BSS	Retro	115	74%	84	0.00	9	\$11	100%	50%	23	8%	35%	per linear ft	3.9	7.8	4.8	
1830	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi2-Custom	BSS	Retro	522	27%	141	0.00	10	\$56	100%	20%	24	8%	18%	per measure	1.4	6.2	1.8	
1831	Ventilation	Demand Controlled Ventilation	Bi2-BSS	BSS	Retro	1,943	20%	389	0.00	15	\$227	100%	100%	1	100%	22%	per measure	1.1	1.1	2.5	
1832	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi2-BSS	BSS	Retro	2,166	43%	940	0.00	15	\$168	100%	100%	2	100%	22%	per HP	6.1	6.1	6.1	
1833	Ventilation	High Volume Low Speed Fan, 20	Bi2-BSS	BSS	Retro	19,919	82%	16,287	0.00	15	\$4,130	100%	33%	3	5%	30%	per measure	3.2	9.8	3.7	
1834	Ventilation	High Volume Low Speed Fan, 22	Bi2-BSS	BSS	Retro	21,909	83%	18,277	0.00	15	\$4,190	100%	39%	4	5%	30%	per measure	3.5	9.1	4.1	
1835	Ventilation	High Volume Low Speed Fan, 24	Bi2-BSS	BSS	Retro	23,903	82%	19,579	0.00	15	\$4,221	100%	45%	5	5%	30%	per measure	3.8	8.4	4.4	
1836	Whole Bldg. HVAC	HVAC - Energy Management System	Bi2-Custom	BSS	Retro	13	8%	1	0.00	15	\$0	100%	34%	1	100%	20%	per kWh	2.8	8.3	2.5	
1837	Whole Bldg. HVAC	Cool Roof	Bi2-Custom	BSS	Retro	5	20%	1	0.00	25	\$2	100%	6%	2	59%	33%	per kWh	0.7	11.5	0.6	
1838	Whole Bldg. HVAC	Retro-commissioning_Bld Optimization	Bi2-Custom RxC	BSS	Retro	7	15%	1	0.00	5	\$0	100%	100%	3	100%	0%</					

Appendix C: Business Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE/EU	Measure Cost	MAP Incentive (%)	ROP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	Unit Description	TRC Score	UCT Score	Participant Test Score
1842	Whole-Bldg - NC	Whole-Bldg - Com NC	Biz-Custom	BSS	NC	4	25%	1	0.00	12	\$0	100%	100%	1	100%	60%	per kWh	7.6	7.6	9.9
1843	Behavioral	COM Competitions	Biz-Custom	BSS	Retro	53	2%	1	0.00	2	\$0	100%	0%	1	98%	0%	per kWh	1.6	0.0	3.0
1844	Behavioral	Business Energy Reports	Biz-Custom	BSS	Retro	313	0%	1	0.00	2	\$0	100%	40%	1	1%	0%	per kWh	0.3	0.8	1.0
1845	Behavioral	Building Benchmarking	Biz-Custom	BSS	Retro	28	1%	0	0.00	2	\$0	100%	0%	1	25%	0%	per kWh	0.1	0.0	0.1
1846	Behavioral	Strategic Energy Management	Biz-Custom SEM	BSS	Retro	33	3%	1	0.00	5	\$0	100%	0%	1	25%	0%	per kWh	0.6	0.0	1.2
1847	Behavioral	BEIMS	Biz-Custom	BSS	Retro	45	2%	1	0.00	2	\$0	100%	18%	1	100%	2%	per kWh	0.1	0.8	0.5
1848	Behavioral	Building Operator Certification	Biz-Custom	BSS	Retro	11	3%	0	0.00	3	\$0	100%	11%	1	100%	2%	per kWh	0.2	2.0	0.4
1849	Water/Waste/Water	Water Supply & Wastewater treatment pumps and process efficiency	Biz-Custom	Industrial	Retro	5	20%	1	0.00	11	\$0	100%	33%	1	100%	25%	per kWh	1.1	3.2	1.8
1850	Compressed Air	Efficient Air Compressor Equipment	Biz-Custom	Industrial	ROB	9	11%	1	0.00	13	\$0	100%	24%	1	100%	25%	per kWh	1.4	5.6	2.1
1851	Compressed Air	Efficient Air Compressor Controls	Biz-Custom	Industrial	Retro	15	7%	1	0.00	3	\$0	100%	83%	2	100%	25%	per kWh	1.2	1.5	2.4
1852	HVAC	Efficient HVAC Equipment	Biz-Custom	Industrial	ROB	8	13%	1	0.00	15	\$0	100%	100%	1	100%	25%	per kWh	5.7	5.7	5.5
1853	HVAC	Efficient HVAC O&M	Biz-Custom	Industrial	Retro	33	3%	1	0.00	3	\$0	100%	50%	2	100%	25%	per kWh	2.6	5.2	2.4
1854	Lighting	Efficient Lighting Equipment	Biz-Standard	Industrial	Retro	2	50%	1	0.00	15	\$0	100%	50%	1	100%	25%	per kWh	4.2	8.3	5.5
1855	Lighting	Efficient Lighting O&M	Biz-Custom	Industrial	Retro	33	3%	1	0.00	3	\$0	100%	50%	2	100%	25%	per kWh	2.4	4.8	3.2
1856	Machine Drive	Efficient Motor O&M	Biz-Custom	Industrial	ROB	5	20%	1	0.00	15	\$0	100%	53%	1	100%	25%	per kWh	3.7	6.9	5.5
1857	Machine Drive	Efficient Motor O&M	Biz-Custom	Industrial	Retro	33	3%	1	0.00	3	\$0	100%	50%	2	100%	25%	per kWh	1.5	2.9	2.4
1858	Process Heat	Efficient Proc-Heat Equipment	Biz-Custom	Industrial	ROB	10	10%	1	0.00	15	\$0	100%	53%	1	100%	25%	per kWh	3.7	6.9	5.5
1859	Process Heat	Efficient Proc-Heat O&M	Biz-Custom	Industrial	Retro	33	3%	1	0.00	3	\$0	100%	50%	2	100%	25%	per kWh	1.8	3.6	2.9
1860	Process Refrig	Efficient Proc-Refrig Equipment	Biz-Custom	Industrial	ROB	6	17%	1	0.00	15	\$0	100%	50%	1	100%	25%	per kWh	3.4	6.9	5.2
1861	Process Refrig	Efficient Proc-Refrig O&M	Biz-Custom	Industrial	Retro	33	3%	1	0.00	3	\$0	100%	50%	2	100%	25%	per kWh	1.3	2.6	2.2
1862	Other Process	Efficient Other Facility Process Equipment	Biz-Custom	Industrial	ROB	4	25%	1	0.00	11	\$0	100%	26%	1	100%	25%	per kWh	1.4	5.4	2.2
1863	Other Process	Efficient Other Facility Process O&M	Biz-Custom	Industrial	Retro	14	7%	1	0.00	11	\$0	100%	30%	2	100%	25%	per kWh	1.6	5.4	2.5
1864	Whole Building	Power Distribution (Transformers)	Biz-Custom	Industrial	Retro	179	1%	1	0.00	30	\$1	100%	13%	1	100%	25%	per kWh	0.8	6.3	1.2
1865	Whole Building	Strategic Energy Management	Biz-Custom SEM	Industrial	Retro	33	3%	1	0.00	3	\$0	100%	50%	2	100%	25%	per kWh	1.6	3.2	2.6
1866	Motors	Efficient Motor Pmp Equipment - Q1 Cost	Biz-Agriculture	Agriculture	ROB	8	13%	1	0.00	15	\$0	100%	100%	1	100%	20%	per kWh	41.5	41.5	86.3
1867	Motors	Efficient Motor Pmp Equipment - Q2 Cost	Biz-Agriculture	Agriculture	ROB	8	13%	1	0.00	15	\$0	100%	100%	1	100%	20%	per kWh	20.8	20.8	43.6
1868	Motors	Efficient Motor Pmp Equipment - Q3 Cost	Biz-Agriculture	Agriculture	ROB	8	13%	1	0.00	15	\$0	100%	100%	1	100%	20%	per kWh	8.3	8.3	18.1
1869	Motors	Efficient Motor Pmp O&M	Biz-Agriculture	Agriculture	Retro	33	3%	1	0.00	3	\$0	100%	50%	2	100%	20%	per kWh	0.9	1.8	2.4
1870	Refrigeration	Efficient Refrigeration Equipment	Biz-Agriculture	Agriculture	ROB	6	16%	1	0.00	15	\$0	100%	44%	1	100%	20%	per kWh	2.3	5.2	5.2
1871	Lighting	Grow Lighting	Biz-Agriculture	Agriculture	Retro	2	42%	1	0.00	15	\$0	100%	47%	1	100%	20%	per kWh	2.5	5.3	5.5
1872	Lighting	Grow Lighting	Biz-Agriculture	Agriculture	Retro	3	39%	1	0.00	15	\$0	100%	30%	2	100%	40%	per kWh	1.9	6.4	3.5
1873	Ventilation	Efficient Ventilation	Biz-Agriculture	Agriculture	Retro	2	53%	1	0.00	10	\$0	100%	44%	1	100%	20%	per kWh	0.9	2.1	2.4
1874	HVAC	HVAC	Biz-Agriculture	Agriculture	ROB	8	13%	1	0.00	15	\$0	100%	74%	1	100%	20%	per kWh	2.3	3.1	5.2

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (MWh)

Ameren Missouri | 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1	Compressor	Retro-commissioning, Compressed Air Optimization	Biz-Custom R/CX	Assembly	Retro	77	73	65	56	46	83	71	59	47	71	62	53	44	44	53	47	40	33	26		
2	Compressor	Compressed Air Leak Repair	Biz-Custom R/CX	Assembly	Retro	137	123	106	87	70	157	134	110	89	52	118	100	83	66	66	39	88	75	62	50	29
3	Compressor	Efficient Air Compressors (VSD)	Biz-Standard	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Compressor	AODD Pump Controls	Biz-Custom	Assembly	Retro	98	80	63	49	37	28	20	0	0	0	70	58	46	36	27	20	15	0	0	0	0
5	Compressor	No Loss Condensate Drain	Biz-Standard	Assembly	Retro	4	5	6	7	8	10	11	13	13	13	13	13	11	12	12	11	9	9	9	9	9
6	Compressor	Efficient Air Nozzles	Biz-Standard	Assembly	Retro	7	8	10	11	12	13	13	12	11	9	8	6	5	4	3	7	6	7	8	7	8
7	Compressor	Compressed Air - Custom	Biz-Custom	Assembly	Retro	126	138	144	142	133	119	101	83	66	51	127	126	124	102	102	97	87	75	62	49	38
8	Cooking	Commercial Combination Oven (Electric)	Biz-Custom	Assembly	ROB	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1
9	Cooking	Commercial Electric Convection Oven	Biz-Custom	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cooking	Commercial Electric Griddle	Biz-Custom	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cooking	Commercial Electric Steam Cooker	Biz-Custom	Assembly	ROB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	Cooking	Dishwasher - Low Temp Door (Energy Star)	Biz-Custom	Assembly	ROB	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	Cooking	Dishwasher - High Temp Door (Energy Star)	Biz-Custom	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Cooking	Energy efficient electric kettles	Biz-Custom	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Standard	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cooking	Insulated Holding Cabinets (3/4 Size)	Biz-Standard	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Cooking	Insulated Holding Cabinets (Half Size)	Biz-Standard	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Cooking	Insulated Holding Cabinets (Mini-Size)	Biz-Standard	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Cooking	Air Conditioner - 17 IER (5-20 Tons)	Biz-Standard/SBDI	Assembly	ROB	9	11	13	15	17	18	20	21	22	23	23	23	24	24	23	32	30	30	29	28	28
20	Cooking	Air Conditioner - 18 IER (5-20 Tons)	Biz-Standard/SBDI	Assembly	ROB	13	16	20	24	28	31	35	38	40	42	43	44	45	46	46	46	43	42	41	40	39
21	Cooking	Air Conditioner - 21 IER (5-20 Tons)	Biz-Standard/SBDI	Assembly	ROB	1	2	3	4	5	6	7	9	10	12	14	15	17	18	18	19	19	19	19	19	
22	Cooking	Air Conditioner - 24 IER (20+ Tons)	Biz-Standard	Assembly	ROB	2	3	4	5	6	8	10	13	15	18	20	22	24	26	27	27	27	28	28	28	
23	Cooking	Air Conditioner - 17 IER (20+ Tons)	Biz-Standard	Assembly	ROB	2	4	6	8	10	13	16	20	24	28	31	35	38	40	42	43	44	44	44	44	
24	Cooking	Air Conditioner - 18 IER (20+ Tons)	Biz-Standard	Assembly	ROB	194	174	150	128	108	229	189	159	135	113	194	161	129	145	120	97	108	89	72		
25	Cooking	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Assembly	Retro	242	269	283	282	267	240	206	170	135	105	259	258	253	208	197	177	152	125	100	78	
26	Cooking	Advanced Rooftop Controls	Biz-Custom	Assembly	Retro	747	744	701	628	537	442	352	273	207	155	115	0	0	0	0	0	0	0	0	0	0
27	Cooking	HVAC Occupancy Controls	Biz-Custom	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Cooking	Air Conditioner - 16 SEER (<5 Tons)	Biz-Standard/SBDI	Assembly	ROB	12	16	20	24	29	34	38	43	46	49	51	53	54	56	56	53	52	51	50	49	49
29	Cooking	Air Conditioner - 17 SEER (<5 Tons)	Biz-Standard/SBDI	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Cooking	Air Conditioner - 18 SEER (<5 Tons)	Biz-Standard/SBDI	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Cooking	Air Conditioner - 21 SEER (<5 Tons)	Biz-Standard/SBDI	Assembly	ROB	21	26	31	36	40	45	48	51	54	56	57	58	59	59	59	54	53	51	50	49	49
32	Cooking	Smart Thermostat	Biz-Standard/SBDI	Assembly	ROB	101	105	107	109	111	111	111	110	110	110	110	85	84	83	82	82	82	82	82	82	82
33	Cooking	PTAC - <7,000 Btu/h - lodging	Biz-Custom	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Cooking	PTAC - 7,000 to 15,000 Btu/h - lodging	Biz-Custom	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Cooking	PTAC - >15,000 Btu/h - lodging	Biz-Custom	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Cooking	Air Cooled Chiller	Biz-Standard	Assembly	ROB	5	7	9	12	15	18	22	25	29	32	34	37	38	40	41	42	42	42	42	42	42
37	Cooking	Water Cooled Chiller	Biz-Standard	Assembly	ROB	1	2	2	3	4	5	6	7	8	9	10	11	12	13	13	14	14	14	14	14	14
38	Cooking	Chiller Tune-up	Biz-Custom	Assembly	Retro	196	176	152	127	105	263	219	176	137	107	86	64	48	32	148	123	99	111	92	74	83
39	Cooking	Window Film	Biz-Custom	Assembly	Retro	149	155	152	142	126	107	88	70	54	41	130	128	105	99	89	76	63	50	39	29	60
40	Cooking	Triple Pane Windows	Biz-Custom	Assembly	ROB	1	2	2	3	4	5	6	7	8	9	10	10	10	10	11	12	12	12	12	13	13
41	Cooking	Energy Recovery Ventilator	Biz-Custom	Assembly	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 127/ 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 127/ 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	19	15	11	8	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 127/ 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	20	16	12	9	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 127/ 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	19	15	11	9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Exterior Lighting	LED 300 Watt Lamp or Fixture Replacing Garage or Exterior 247/ 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	23	18	14	10	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 247/ 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	20	16	12	9	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 247/ 100-175 Watt Lamp or Fixture	Biz-Custom	Assembly	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Standard	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Standard	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Heating	Heat Pump - 18 SEER (<5 Tons)	Biz-Standard	Assembly	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Heating	Heat Pump - 21 SEER (<5 Tons)	Biz-Standard	Assembly	ROB	3	4	5	7	9	11	13	15	17	19	20	22	23	23	24	24	24	24	23	23	23
53	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Assembly	ROB	14	18	23	28	34	39	44	49	53	57	59	61	63	64	65	65	62	61	59	58	58
54	Heating	Heat Pump - 15.0 IER COP 3.6 (65,000-134,000 Btu/yr)	Biz-Standard	Assembly	ROB	1	1	2	2	3	4	5	6	7	8	9	9	10	10	10	10	10	10	10	10	10
55	Heating	Heat Pump																								

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
214	Exterior Lighting	LED 85- <225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID	Biz-Custom	Education	Retro	62	48	37	28	21	0	0	0	0	0	0	0	0	0	0	0	16	12	9	7	5
215	Exterior Lighting	LED 85- <225 Watt Lamp or Fixture	Biz-Custom	Education	Retro	55	43	33	25	18	0	0	0	0	0	0	0	0	0	0	0	14	11	8	6	5
216	Exterior Lighting	LED 85- <225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID	Biz-Custom	Education	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
217	Heating	Heat Pump - 16 SEER (CS Tons)	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
218	Heating	Heat Pump - 17 SEER (CS Tons)	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
219	Heating	Heat Pump - 18 SEER (CS Tons)	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
220	Heating	Heat Pump - 21 SEER (CS Tons)	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
221	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
222	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Custom	Education	ROB	2	3	4	5	7	9	11	13	15	17	18	20	21	22	23	23	23	23	23	23	23
223	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Custom	Education	ROB	2	4	5	6	8	11	14	18	22	26	30	34	38	41	43	46	47	47	48	48	47
224	Heating	Heat Pump - 14.5 IEER COP 3.1 (135,000-239,000 Btu/hr)	Biz-Custom	Education	ROB	2	4	5	6	8	11	14	17	20	22	25	27	29	30	31	31	31	31	31	31	31
225	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Custom	Education	ROB	3	4	5	7	9	12	14	17	20	23	25	27	29	30	31	31	31	31	31	31	31
226	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Custom	Education	ROB	4	6	8	10	13	17	21	25	29	33	36	39	42	44	45	45	46	46	46	45	44
227	Heating	Heat Pump - 17 IEER < 135kbtu	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
228	Heating	Geothermal HP - 19 IEER < 135kbtu	Biz-Custom	Education	ROB	3	4	5	5	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7
229	Heating	Geothermal HP - 19 IEER < 135kbtu	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230	Heating	PTHP - 7,000 to 15,000 Btu/h - loading	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
231	Heating	PTHP - 7,000 to 15,000 Btu/h - loading	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
232	HotWater	PTHP - >15,000 Btu/h - loading	Biz-Custom	Education	ROB	60	78	98	120	144	168	190	210	228	242	254	263	269	274	278	263	259	254	248	242	242
233	HotWater	Res-Size Heat Pump Water Heater	Biz-Custom	Education	ROB	58	77	99	124	153	183	213	241	267	289	307	321	333	341	348	338	333	328	321	314	314
234	HotWater	Commercial-Size HPWH	Biz-Custom	Education	ROB	108	82	61	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	HotWater	Hot Water Pipe Insulation	Biz-Custom	Education	Retro	241	183	137	101	0	0	0	0	0	167	125	92	67	0	0	0	0	0	0	109	82
236	HotWater	Faucet Aerator	Biz-Custom	Education	ROB	304	311	315	317	315	238	284	230	226	223	168	164	160	156	154	116	113	111	109	108	108
237	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Education	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
238	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Education	ROB	16	14	11	9	7	5	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0
239	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-53 Watt Lamp	Biz-Standard/SBDI	Education	Retro	12	10	9	7	5	4	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0
240	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen 32-70 Watt Lamp	Biz-Standard/SBDI	Education	Retro	12	10	9	7	5	4	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0
241	Interior Lighting	LED Specialty Lamp	Biz-Standard/SBDI	Education	Retro	17	15	12	10	8	6	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0
242	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Education	Retro	82	70	58	46	36	28	21	15	0	0	0	0	0	0	0	0	0	0	0	0	0
243	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-36 35-50 Watt Lamp	Biz-Standard/SBDI	Education	Retro	83	68	55	42	32	24	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
244	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 49-90 Watt Lamp	Biz-Standard/SBDI	Education	Retro	68	56	45	35	27	20	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
245	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Biz-Standard/SBDI	Education	Retro	233	200	166	132	103	78	59	44	0	0	0	0	0	0	0	0	0	0	0	0	0
246	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 175-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Education	Retro	178	153	126	101	79	60	48	33	0	0	0	0	0	0	0	0	0	0	0	0	0
247	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Biz-Standard/SBDI	Education	Retro	94	99	99	94	85	73	60	48	37	28	21	16	0	0	0	0	0	0	0	0	0
248	Interior Lighting	LED 85- <225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Education	Retro	363	312	258	206	160	122	92	68	0	0	0	0	0	0	0	0	0	0	0	0	0
249	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Education	Retro	202	182	156	129	103	80	61	46	34	0	0	0	0	0	0	0	0	0	0	0	0
250	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Education	Retro	298	268	231	190	152	118	90	68	50	0	0	0	0	0	0	0	0	0	0	0	0
251	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Education	Retro	337	303	261	215	172	134	102	77	57	0	0	0	0	0	0	0	0	0	0	0	0
252	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Education	Retro	52	55	55	52	47	40	33	26	21	16	12	9	0	0	0	0	0	0	0	0	0
253	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Education	Retro	861	740	611	488	380	289	217	161	0	0	0	0	0	0	0	0	0	0	0	0	0
254	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Education	Retro	1,194	1,075	923	763	609	474	361	271	201	0	0	0	0	0	0	0	0	0	0	0	0
255	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Education	Retro	1,202	1,082	930	768	614	478	364	273	202	0	0	0	0	0	0	0	0	0	0	0	0
256	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Education	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Education	Retro	588	505	417	333	259	198	148	110	0	0	0	0	0	0	0	0	0	0	0	0	0
258	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Education	Retro	889	764	656	542	433	337	257	193	143	0	0	0	0	0	0	0	0	0	0	0	0
259	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Education	Retro	485	437	375	310	248	193	147	110	82	0	0	0	0	0	0	0	0	0	0	0	0
260	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Education	Retro	87	83	74	64	53	42	33	25	19	14	0	0	0	0	0	0	0	0	0	0	0
261	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Education	Retro	666	600	517	428	342	267	203	153	114	84	64	43	32	25	12	9	8	6	5	4	4
262	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Education	Retro	367	331	285	236	189	147	112	84	63	46	33	26	20	16	12	9	8	6	5	4	4
263	Interior Lighting	Lighting Power Density	Biz-Standard	Education	Retro	499	523	524	504	457	399	335	272	215	167	127	96	71	0	0	0	0	0	0	0	0
264	Interior Lighting	LED Lighting Redesign/Custom	Biz-Standard	Education	Retro	326	363	438	484	515	525	510	473	420	360	297	238	185	141	106	138	75	90	105	117	
265	Interior Lighting	LED or Electrochromic Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Education	Retro	123	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
266	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Education	Retro																					

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
358	Cooling	Air Conditioner - 15 IER (20+ Tons)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
359	Cooling	Air Conditioner - 17 IER (20+ Tons)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
360	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Bi-Custom	Food Sales	Retro	12	11	9	17	14	12	16	13	11	12	10	8	9	7	6	7	6	4	5	4
361	Cooling	Air Side Economizer	Bi-Custom	Food Sales	Retro	16	17	17	16	14	12	10	8	6	5	15	15	12	12	11	9	7	6	5	4
362	Cooling	Advanced Rooftop Controls	Bi-Standard/SBDI	Food Sales	Retro	47	47	44	40	34	28	22	17	13	10	7	0	0	0	0	0	0	0	0	0
363	Cooling	HVAC Occupancy Controls	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
364	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Bi-Standard/SBDI	Food Sales	ROB	1	2	2	2	3	3	3	4	4	4	4	4	5	5	5	4	4	4	4	4
365	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Bi-Standard/SBDI	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
366	Cooling	Air Conditioner - 18 SEER (<5 Tons)	Bi-Standard/SBDI	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
367	Cooling	Air Conditioner - 21 SEER (<5 Tons)	Bi-Standard/SBDI	Food Sales	ROB	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	5	5	5	5
368	Cooling	Smart Thermostat	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
369	Cooling	PTAC - <7,000 Btuh - Iodging	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
370	Cooling	PTAC - 7,000 to 15,000 Btuh - Iodging	Bi-Custom	Food Sales	ROB	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2
371	Cooling	PTAC - >15,000 Btuh - Iodging	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
372	Cooling	Air Cooled Chiller	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
373	Cooling	Water Cooled Chiller	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
374	Cooling	Chiller Tune-up	Bi-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
375	Cooling	Window Film	Bi-Custom	Food Sales	Retro	10	10	10	9	8	7	6	5	4	3	9	9	7	7	6	5	4	3	3	2
376	Cooling	Triple Pane Windows	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
377	Cooling	Energy Recovery Ventilator	Bi-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
378	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Food Sales	Retro	5	4	3	2	2	2	0	0	0	0	0	0	0	0	0	0	1	1	1	1
380	Exterior Lighting	LED 62-130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Food Sales	Retro	6	4	3	3	2	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
381	Exterior Lighting	LED 62-130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Food Sales	Retro	5	4	3	2	2	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
382	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Food Sales	Retro	7	5	4	3	2	0	0	0	0	0	0	0	0	0	0	0	2	1	1	1
383	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Food Sales	Retro	6	5	3	3	2	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
384	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Bi-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
385	Heating	Heat Pump - 16 SEER (<5 Tons)	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
386	Heating	Heat Pump - 17 SEER (<5 Tons)	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
387	Heating	Heat Pump - 18 SEER (<5 Tons)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
388	Heating	Heat Pump - 21 SEER (<5 Tons)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
389	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	Food Sales	ROB	1	1	2	2	3	3	4	4	4	4	5	5	5	5	5	5	5	5	5	5
390	Heating	Heat Pump - 15.0 IER COP 3.6 (65,000-134,000 Btu/h)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
391	Heating	Heat Pump - 16.0 IER COP 3.8 (65,000-134,000 Btu/h)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
392	Heating	Heat Pump - 14.5 IER COP 3.5 (135,000-295,000 Btu/h)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
393	Heating	Heat Pump - 15.5 IER COP 3.7 (135,000-295,000 Btu/h)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
394	Heating	Heat Pump - 12 IER 3.4 COP (239,000 Btu/h)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
395	Heating	Heat Pump - 13 IER 3.6 COP (239,000 Btu/h)	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
396	Heating	Geothermal HP - 17 IER < 135kbtu	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
397	Heating	PTHP - <7,000 Btuh - Iodging	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
398	Heating	PTHP - 7,000 to 15,000 Btuh - Iodging	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
399	Heating	PTHP - >15,000 Btuh - Iodging	Bi-Custom	Food Sales	ROB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
400	HotWater	Res-Sized Heat Pump Water Heater	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
401	HotWater	Commercial-Sized HPWH	Bi-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
402	HotWater	Hot Water Pipe Insulation	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
403	HotWater	Faucet Aerator	Bi-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
404	HotWater	Low Flow Pre-Rinse Sprayers	Bi-Custom	Food Sales	Retro	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
405	HotWater	ENERGY STAR Commercial Washing Machines	Bi-Custom	Food Sales	ROB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
406	HotWater	LED <11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Bi-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
407	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 153-70 Watt Lamp	Bi-Standard/SBDI	Food Sales	Retro	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
408	Interior Lighting	LED Specialty Lamp	Bi-Standard/SBDI	Food Sales	Retro	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
409	Interior Lighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45 Watt Lamp	Bi-Standard/SBDI	Food Sales	Retro	9	8	6	5	4	3	2	2	0	0	0	2	2	2	1	1	1	1	0	0
410	Interior Lighting	LED <13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Bi-Standard/SBDI	Food Sales	Retro	9	8	6	5	4	3	2	2	0	0	0	2	2	2	1	1	1	0	0	0
411	Interior Lighting	LED <20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Bi-Standard/SBDI	Food Sales	Retro	8	6	5	4	3	2	2	0	0	0	0	2	2	1	1	1	1	0	0	0
412	Interior Lighting	LED <80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Bi-Standard/SBDI	Food Sales	Retro	24	21	17	14	11	8	6	5	0	0	0	0	2	1	1	1	1	0	0	0
413	Interior Lighting	LED 62-130 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Bi-Standard/SBDI	Food Sales	Retro	19	16	13	11	8	6	5	3	0	0	0	0	0	0	0	0	0	0	0	0
414	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Bi-Standard/SBDI	Food Sales	Retro	10	10	10	10	9															

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
425	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Sales	Retro	62	53	44	35	27	21	16	12	0	0	16	13	11	9	7	5	4	3	0	0	
426	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kts, and Fixtures)	Biz-Standard/SBDI	Food Sales	Retro	90	81	70	57	46	36	27	20	15	0	0	0	0	0	0	0	22	20	17	14	11
427	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Food Sales	Retro	51	46	40	33	26	20	16	12	9	0	0	13	12	10	8	7	5	4	3	2	
428	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Food Sales	Retro	9	9	8	7	6	4	3	3	2	1	0	0	0	0	0	0	2	2	2	1	
429	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Food Sales	Retro	55	55	52	48	42	35	28	22	17	13	21	19	11	11	10	8	7	6	4	3	
430	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Food Sales	Retro	30	30	29	26	23	19	16	12	9	7	11	10	6	6	5	5	5	4	3	2	
431	Interior Lighting	Lighting Power Density	Biz-Custom	Food Sales	Retro	53	55	56	53	48	42	35	29	23	18	13	10	7	0	0	10	11	12	12	11	
432	Interior Lighting	LED Lighting Redesign/Custom	Biz-Standard	Food Sales	Retro	34	41	46	51	55	54	50	44	38	31	25	19	15	11	15	8	10	11	12	11	
433	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Food Sales	Retro	13	10	0	0	0	0	0	0	0	2	0	0	0	0	1	1	0	0	0	0	
434	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
435	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Food Sales	ROB	1	2	3	4	5	7	9	11	13	15	17	19	21	23	24	24	25	25	25	25	
436	Miscellaneous	High Efficiency Food Dryers	Biz-Custom	Food Sales	Retro	19	23	28	33	37	39	37	33	28	37	38	36	36	36	36	35	29	27	25	21	
437	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
438	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
439	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Food Sales	ROB	9	12	14	16	18	20	22	23	24	25	23	23	23	22	22	21	21	21	21	21	
440	Miscellaneous	Pool Pump Timer	Biz-Custom	Food Sales	ROB	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
441	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
442	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Food Sales	ROB	10	12	15	17	19	21	23	24	26	27	27	28	28	28	28	26	25	24	24	23	23
443	Miscellaneous	High Efficiency Dryer	Biz-Custom	Food Sales	ROB	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
444	Miscellaneous	Miscellaneous Custom	Biz-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
445	Motors	Cogged V-Belt	Biz-Custom	Food Sales	Retro	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	
446	Motors	Power Drive Systems	Biz-Standard	Food Sales	Retro	6	6	7	7	9	11	13	15	15	15	15	13	11	9	7	10	9	8	8	7	
447	Motors	Switch Reluctance Motors	Biz-Custom	Food Sales	Retro	3	4	5	6	7	7	7	7	7	7	4	3	3	2	1	4	3	4	4	5	
448	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Food Sales	Retro	10	15	16	17	19	24	29	34	37	39	39	37	34	29	24	26	26	23	21	21	
449	Office, Non-PC	Energy Star Printer/Copier/Fax	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
450	Office, Non-PC	Smart Power Strip - Commercial Use	Biz-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
451	Office, Non-PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
452	Office, Non-PC	Plug Load Occupancy Sensor	Biz-Custom	Food Sales	Retro	1	2	2	2	2	3	3	4	4	4	4	4	4	4	3	3	3	3	3	2	
453	Office, PC	Energy Star Server	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
454	Office, PC	Server Virtualization	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
455	Office, PC	High Efficiency ChAC Unit	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
456	Office, PC	Computer Room Air Conditioner Economizer	Biz-Custom	Food Sales	ROB	1	2	2	2	2	3	4	4	5	5	5	5	5	4	4	3	3	3	3	3	
457	Office, PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
458	Office, PC	Energy Star Laptop	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
459	Office, PC	Energy Star Monitor	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
460	Office, PC	Strip Curtains	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
461	Refrigeration	Refrigeration	Biz-Custom	Food Sales	Retro	55	83	92	99	151	199	235	267	327	375	402	414	438	447	438	419	413	400	377	351	
462	Refrigeration	Refrigeration	Biz-Custom	Food Sales	Retro	4	6	6	7	7	9	11	13	14	15	14	13	11	9	10	10	9	10	9	8	
463	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
464	Refrigeration	Saturated Suction Controls	Biz-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
465	Refrigeration	Compressor Retrofit	Biz-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
466	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Standard	Food Sales	Retro	47	70	83	92	115	139	161	179	188	188	188	188	160	137	113	125	122	111	101	97	
467	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Food Sales	Retro	23	34	38	41	45	56	67	78	86	91	91	85	77	66	54	60	58	53	48	46	
468	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Food Sales	Retro	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
469	Refrigeration	Refrigeration Economizer	Biz-Custom	Food Sales	Retro	1	1	2	2	2	2	3	3	3	4	4	4	4	4	4	3	3	3	3	3	
470	Refrigeration	Anti-Swear Heater Controls, MT	Biz-Standard	Food Sales	Retro	21	31	34	37	40	51	61	71	79	84	99	102	97	89	81	78	78	78	78	76	
471	Refrigeration	Display Case Door Controls, Medium Temp	Biz-Custom	Food Sales	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
472	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Standard	Food Sales	Retro	3	4	4	5	6	7	9	10	11	12	12	11	10	9	7	8	8	7	7	6	
473	Refrigeration	OS-PC Motor for Walk-In and Reach-In Evaporator Fan Motor	Biz-Custom	Food Sales	Retro	2	4	4	4	5	6	7	8	9	10	12	12	11	10	9	9	9	9	9	9	
474	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
475	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
476	Refrigeration	Anti-Swear Heater Controls, LT	Biz-Custom	Food Sales	Retro	8	12	13	14	16	19	24	27	31	32	38	39	37	34	31	30	30	30	30	30	
477	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Food Sales	Retro	3	7	8	8	9	11	14	16	18	19	19	18	15	14	14	14	14	14	14	13	
478	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
479	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Standard	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
480	Refrigeration	Refrigeration - Custom	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
481	Refrigeration	Refrigeration - Custom	Biz-Custom	Food Sales	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
482	Refrigeration	Refrigeration - Custom	Biz-Custom	Food Sales	ROB	6																				

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
570	HotWater	Commercial-Sized HPWH	Biz-Standard	Food Service	ROB	29	36	43	50	56	62	68	72	75	78	80	81	83	83	83	75	74	72	70	68	
571	HotWater	HotWater Pipe Insulation	Biz-Custom	Food Service	Retro	75	57	42	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
572	HotWater	Faucet Aerator	Biz-Custom	Food Service	Retro	167	127	94	69	0	0	0	0	0	115	87	64	47	0	0	0	0	0	0	0	0
573	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Food Service	ROB	210	215	217	219	217	164	161	158	156	154	116	114	111	109	108	82	80	79	78	78	
574	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
575	InteriorLighting	LED <11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	4	4	3	2	2	1	1	1	1	0	0	1	1	1	0	0	0	0	0	0	
576	InteriorLighting	LED 7-20 Watt Lamp Replacing Interior Halogen 15-70 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	3	3	3	2	2	1	1	1	1	0	0	1	1	1	0	0	0	0	0	0	
577	InteriorLighting	LED Specialty Lamp	Biz-Standard/SBDI	Food Service	Retro	5	4	3	2	2	1	1	1	1	0	0	1	1	1	1	1	0	0	0	0	
578	InteriorLighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	37	32	27	21	17	13	9	7	0	0	0	9	8	7	5	4	3	2	2	0	0
579	InteriorLighting	LED <13 Watt Lamp Replacing Interior Halogen MR 16 35-50 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	38	31	25	19	15	11	8	0	0	0	0	9	8	6	5	4	3	2	0	0	0
580	InteriorLighting	LED <20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	31	26	21	16	12	9	7	0	0	0	0	8	6	5	4	3	2	2	0	0	0
581	InteriorLighting	LED <80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Biz-Standard/SBDI	Food Service	Retro	101	86	71	57	44	34	25	19	0	0	0	0	0	0	0	0	25	22	18	14	11
582	InteriorLighting	LED 62-130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Service	Retro	77	66	54	44	34	26	19	14	0	0	0	0	0	0	0	0	19	16	11	11	8
583	InteriorLighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Food Service	Retro	41	43	43	41	37	31	26	21	16	12	9	7	0	0	0	0	10	11	11	10	9
584	InteriorLighting	LED 85-225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Service	Retro	157	135	111	89	69	53	40	29	0	0	0	0	0	0	0	0	39	34	28	22	17
585	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Service	Retro	19	17	15	12	10	8	6	4	3	0	0	5	4	4	3	2	2	1	1	1	0
586	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type B, K1s, and Fixtures)	Biz-Standard/SBDI	Food Service	Retro	28	25	22	18	14	11	8	6	5	0	0	0	0	0	0	0	7	6	5	4	4
587	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Food Service	Retro	32	28	24	20	16	13	10	7	5	0	0	0	0	0	0	0	4	3	2	2	1
588	InteriorLighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Food Service	Retro	5	5	5	5	4	4	3	2	2	1	1	1	1	0	0	0	0	0	0	0	0
589	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Service	Retro	81	69	57	46	36	27	20	15	0	0	0	0	0	0	0	0	7	5	4	0	0
590	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type B, K1s, and Fixtures)	Biz-Standard/SBDI	Food Service	Retro	112	101	87	72	57	45	34	25	19	0	0	0	0	0	0	0	28	25	22	18	14
591	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Food Service	Retro	113	102	87	72	58	45	34	26	19	0	0	0	0	0	0	0	0	0	0	0	0
592	InteriorLighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
593	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Service	Retro	55	47	39	31	24	19	14	10	0	0	0	0	0	0	0	0	6	5	3	0	0
594	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type B, K1s, and Fixtures)	Biz-Standard/SBDI	Food Service	Retro	80	72	62	51	41	32	24	18	13	0	0	0	0	0	0	0	20	18	15	13	10
595	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Food Service	Retro	46	41	35	29	23	18	14	10	8	0	0	0	0	0	0	0	7	6	5	3	2
596	InteriorLighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Food Service	Retro	8	8	7	6	5	4	3	2	2	2	1	0	0	0	0	0	2	2	2	1	1
597	InteriorLighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Food Service	Retro	74	75	72	65	57	48	39	31	24	18	12	8	28	26	16	15	13	12	10	8	6
598	InteriorLighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Food Service	Retro	41	41	39	36	31	26	21	17	13	10	16	14	9	8	7	6	5	4	3	2	2
599	InteriorLighting	Lighting Power Density	Biz-Custom	Food Service	Retro	72	75	76	73	66	58	49	40	31	24	19	14	10	0	0	0	14	15	16	16	15
600	InteriorLighting	LED Lighting Redesign/Custom	Biz-Standard	Food Service	Retro	47	55	63	70	75	76	74	69	61	52	43	34	27	20	15	20	15	20	11	13	15
601	InteriorLighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Food Service	Retro	18	13	0	0	0	0	0	0	4	3	0	0	0	0	0	0	1	1	0	0	0
602	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Food Service	ROB	4	7	10	14	18	23	29	36	43	50	57	63	68	72	76	78	80	82	83	83	83
604	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Food Service	Retro	36	45	55	64	71	75	75	71	64	55	73	70	70	70	70	68	56	53	48	41	41
605	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
606	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
607	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Food Service	ROB	20	24	29	34	38	42	46	49	51	53	49	49	49	49	47	46	45	44	44	43	43
608	Miscellaneous	Pool Pump Timer	Biz-Custom	Food Service	ROB	3	3	4	5	5	6	6	7	7	7	7	7	7	7	7	6	6	6	6	6	6
609	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Food Service	ROB	21	26	31	37	42	46	50	53	55	57	59	60	60	60	60	55	54	53	51	50	
610	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Food Service	ROB	42	51	61	71	81	89	96	102	107	111	114	114	116	117	117	107	105	102	100	97	
611	Miscellaneous	High Efficiency Dryer	Biz-Custom	Food Service	ROB	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	
612	Miscellaneous	Miscellaneous Custom	Biz-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
613	Miscellaneous	Cages V-Belt	Biz-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
614	Miscellaneous	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Food Service	Retro	38	43	46	50	63	76	89	99	104	104	104	99	89	76	63	50	68	62	57	54	
615	Miscellaneous	Power Drive Systems	Biz-Custom	Food Service	Retro	24	30	36	42	46	49	49	46	42	36	30	24	18	14	11	26	22	22	27	31	
616	Miscellaneous	Switch Reluctance Motor's	Biz-Custom	Food Service	Retro	58	87	96	103	114	142	172	201	223	235	235	235	223	201	172	142	157	154	140	128	
617	Miscellaneous	Escalators Motor Efficiency Controllers	Biz-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
618	Miscellaneous	Energy Star Printer/Copier/Fax	Biz-Custom	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
619	Miscellaneous	Smart Power Strip/Copier/Fax	Biz-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
620	Miscellaneous	Plug Load Occupancy Sensor	Biz-Custom	Food Service	Retro	4	6	7	7	8	10	12	14	15	16	16	16	15	14	12	10	11	11	10	9	
621	Miscellaneous	Electrically Commutated Plug Fans in data centers	Biz-Custom	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	
622	Miscellaneous	Energy Star Server	Biz-Custom	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
623	Miscellaneous	Server Virtualization	Biz-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
624	Miscellaneous	High Efficiency ChAC unit	Biz-Custom	Food Service	ROB	0	1	1	1	2	2	3	3	3												

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
640	Refrigeration	Electronically Commutated (EC) Reach-in Evaporator Fan Motor	Bi-Standard	Food Service	Retro	10	15	16	17	19	24	29	34	38	40	40	38	34	37	34	24	27	26	24	22	21
641	Refrigeration	Q-Sync Motor for Walk-in and Reach-in Evaporator Fan Motor	Bi-Custom	Food Service	Retro	8	12	13	14	15	19	23	27	30	32	38	39	34	31	30	29	30	29	30	29	29
642	Refrigeration	Energy Star Reach-in Refrigerator, Glass Doors	Bi-Standard	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
643	Refrigeration	Energy Star Reach-in Refrigerator, Solid Doors	Bi-Standard	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
644	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Food Service	Retro	26	39	43	46	51	64	77	90	100	105	125	129	122	112	102	99	98	98	98	96	96
645	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Food Service	Retro	15	23	25	27	30	37	45	52	58	61	61	61	63	62	56	50	45	45	47	49	49
646	Refrigeration	Energy Star Reach-in Freezer, Glass Doors	Bi-Standard	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
647	Refrigeration	Energy Star Reach-in Freezer, Solid Doors	Bi-Standard	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
648	Refrigeration	Refrigeration - Custom	Bi-Custom	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
649	Refrigeration	Refrigeration - Custom	Bi-Custom	Food Service	Retro	92	137	152	163	179	292	372	427	468	497	579	617	622	608	584	601	592	564	530	493	493
650	Refrigeration	Energy Star Ice Machine	Bi-Custom	Food Service	ROB	1	2	3	4	6	7	10	12	15	18	21	23	25	27	29	29	30	30	30	30	30
651	Refrigeration	ES/AR Refrigerated Vending Machine	Bi-Custom	Food Service	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
652	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Food Service	Retro	93	139	155	166	183	229	277	322	358	446	482	474	447	414	400	390	384	377	377	417	422
653	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	Food Service	Retro	37	55	61	66	72	91	110	128	142	150	177	183	174	159	145	140	139	139	139	139	136
654	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Food Service	Retro	75	112	124	133	147	183	222	258	287	303	363	383	282	258	222	202	208	180	165	158	158
655	Ventilation	Demand Controlled Ventilation	Bi-Standard	Food Service	Retro	170	255	283	303	334	413	508	589	654	691	691	691	654	589	506	418	461	451	410	376	361
656	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Food Service	Retro	16	17	18	20	25	30	35	38	39	39	39	36	32	27	22	18	24	21	19	19	16
657	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Food Service	Retro	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1
658	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Food Service	Retro	11	12	13	14	17	21	24	26	27	27	27	25	22	19	15	12	16	15	13	13	11
659	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Food Service	Retro	49	52	57	71	85	97	107	112	111	103	92	78	64	51	39	62	56	54	47	56	47
660	WholeBldg. HVAC	HVAC - Energy Management System	Bi-Custom	Food Service	Retro	165	198	228	251	263	260	244	217	184	150	119	92	69	51	38	0	0	0	0	0	0
661	WholeBldg. HVAC	Cool Roof	Bi-Custom	Food Service	Retro	88	131	144	153	166	269	340	387	421	444	513	543	544	529	506	519	509	484	454	421	421
662	WholeBldg. HVAC	Retroscreening, BID Optimization	Bi-Custom	Food Service	Retro	124	184	202	215	234	290	348	401	440	460	460	455	426	462	446	400	355	321	314	330	344
663	WholeBldg. HVAC	WholeBldg. - Com RET	Bi-Custom	Food Service	Retro	82	122	135	143	156	194	232	267	293	306	303	284	308	297	267	236	214	214	220	229	230
664	WholeBldg. HVAC	WholeBldg. - Custom (Other)	Bi-Custom	Food Service	Retro	106	105	98	88	75	61	48	37	28	21	15	0	0	0	0	0	0	0	0	0	0
665	WholeBldg. HVAC	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Food Service	NC	374	86	347	384	571	215	285	391	730	322	555	676	1,249	325	484	505	708	441	639	739	739
666	WholeBldg. HVAC	WholeBldg. - Com NC	Bi-Custom	Food Service	Retro	2	4	6	8	11	13	17	21	26	29	34	37	41	43	45	46	48	48	50	49	49
667	Behavioral	Business Energy Reports	Bi-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
668	Behavioral	Business Energy Reports	Bi-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
669	Behavioral	Building Benchmarking	Bi-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
670	Behavioral	Strategic Energy Management	Bi-Custom SEM	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
671	Behavioral	BEIMS	Bi-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
672	Behavioral	Building Operator Certification	Bi-Custom	Food Service	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673	Compressor&	Compressor - Custom	Bi-Custom	Health	Retro	18	17	15	13	11	22	20	17	14	11	7	15	13	10	8	13	11	9	8	6	6
674	Compressor&	Compressor - Custom	Bi-Custom	Health	Retro	32	29	25	20	16	37	31	26	21	12	17	23	19	16	9	21	18	15	12	7	7
675	Compressor&	Efficient Air Compressors (ASD)	Bi-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
676	Compressor&	ROD Pump Controls	Bi-Custom	Health	Retro	23	19	15	11	9	6	5	0	0	0	0	16	13	11	8	6	5	4	0	0	0
677	Compressor&	Efficient Air Nozzles	Bi-Standard	Health	Retro	1	2	1	1	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2
678	Compressor&	Efficient Air Nozzles	Bi-Standard	Health	Retro	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2
679	Compressor&	Compressed Air - Custom	Bi-Custom	Health	Retro	30	32	34	33	31	28	24	19	15	12	30	30	29	24	23	20	17	14	12	9	9
680	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Health	ROB	6	6	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6
681	Cooking	Commercial Electric Connection Oven	Bi-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
682	Cooking	Commercial Electric Griddle	Bi-Custom	Health	ROB	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
683	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Health	ROB	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
684	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Health	ROB	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
685	Cooking	Dishwasher - High Temp Door (Energy Star)	Bi-Custom	Health	ROB	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
686	Cooking	Energy efficient electric fryer	Bi-Custom	Health	ROB	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
687	Cooking	Insulated holding cabinets (Full Size)	Bi-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
688	Cooking	Insulated holding cabinets (Half Size)	Bi-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
689	Cooking	Insulated holding cabinets (3/4 Size)	Bi-Standard	Health	ROB	0	0	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
690	Cooking	Air Conditioner - 17 IEER (5-20 Tons)	Bi-Standard/SBDI	Health	ROB	10	13	17	21	25	29	33	36	39	42	44	45	46	47	48	45	44	43	42	42	42
691	Cooking	Air Conditioner - 18 IEER (5-20 Tons)	Bi-Standard/SBDI	Health	ROB	10	14	18	22	27	33	38	43	48	52	55	58	60	61	62	61	60	59	58	56	56
692	Cooking	Air Conditioner - 21 IEER (5-20 Tons)	Bi-Standard/SBDI	Health	ROB	20	25	32	39	47	55	62	69	74	79	83	85	88	89	91	86	84	83	81	79	79
693	Cooking	Air Conditioner - M-3 IEER (20+ Tons)	Bi-Standard	Health	ROB	1	1	2	4	5	6	8	10	12	15	17	19	21	23	25	26	26				

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
715	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	BiZ-Custom	Health	Retro	38	29	22	17	12	0	0	0	0	0	0	0	0	0	0	0	9	7	6	4	3
716	Exterior Lighting	LED 62. - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	BiZ-Custom	Health	Retro	40	31	24	18	13	0	0	0	0	0	0	0	0	0	0	0	10	8	6	4	3
717	Exterior Lighting	LED 62. - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	BiZ-Custom	Health	Retro	38	30	23	17	13	0	0	0	0	0	0	0	0	0	0	0	10	7	6	4	3
718	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	BiZ-Custom	Health	Retro	46	36	27	20	15	0	0	0	0	0	0	0	0	0	0	0	12	9	7	5	4
719	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	BiZ-Custom	Health	Retro	41	32	24	18	14	0	0	0	0	0	0	0	0	0	0	0	10	8	6	5	3
720	Exterior Lighting	Bi-Level Lighting Fixture - Garages	BiZ-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
721	Heating	Heat Pump - 16 SEER (<5 Tons)	BiZ-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
722	Heating	Heat Pump - 17 SEER (<5 Tons)	BiZ-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
723	Heating	Heat Pump - 18 SEER (<5 Tons)	BiZ-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
724	Heating	Heat Pump - 21 SEER (<5 Tons)	BiZ-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
725	Heating	Variable Refrigerant Flow Heat Pump	BiZ-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
726	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	BiZ-Standard	Health	ROB	0	1	1	1	2	2	3	4	5	5	6	7	7	8	8	8	8	8	8	8	8
727	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	BiZ-Standard	Health	ROB	1	2	2	3	4	5	6	8	9	11	12	13	14	15	16	16	17	17	17	17	17
728	Heating	Heat Pump - 14.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	BiZ-Standard	Health	ROB	1	1	2	3	4	5	6	7	8	9	9	9	9	9	9	9	9	9	9	9	9
729	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	BiZ-Standard	Health	ROB	1	1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	16	16	16	16	16
730	Heating	Heat Pump - 12 IEER 3.4 COP (>339,000 Btu/hr)	BiZ-Standard	Health	ROB	1	1	2	3	4	5	6	7	8	9	10	10	10	10	10	10	10	10	10	10	10
731	Heating	Heat Pump - 13 IEER 3.6 COP (>339,000 Btu/hr)	BiZ-Standard	Health	ROB	1	1	2	3	4	5	6	7	8	9	10	12	13	14	15	15	16	16	16	16	16
732	Heating	Geothermal HP - 17 IEER < 135kbtu	BiZ-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
733	Heating	Geothermal HP - 19 IEER < 135kbtu	BiZ-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
734	Heating	PTHP - <7,000 Btu/h - loading	BiZ-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
735	Heating	PTHP - 7,000 to 15,000 Btu/h - loading	BiZ-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
736	Heating	PTHP - >15,000 Btu/h - loading	BiZ-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
737	HotWater	Res-Shield Heat Pump Water Heater	BiZ-Standard	Health	ROB	11	14	17	21	24	27	30	33	35	36	38	39	39	40	40	37	36	36	35	34	34
738	HotWater	Commercial-Size HPWH	BiZ-Standard	Health	ROB	14	17	21	25	30	34	37	40	43	45	46	48	48	49	49	49	46	45	44	43	42
739	HotWater	Hot Water Pipe Insulation	BiZ-Custom	Health	Retro	15	12	9	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
740	HotWater	Fluor Aerator	BiZ-Custom	Health	ROB	37	28	21	15	0	0	0	0	0	25	19	14	10	0	0	0	0	0	0	0	0
741	HotWater	Low Flow Pre-Rinse Sprayers	BiZ-Custom	Health	ROB	46	47	48	48	48	36	35	35	34	33	25	24	24	24	23	17	17	17	17	17	
742	HotWater	ENERGY STAR Commercial Washing Machines	BiZ-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743	Interior Lighting	LED <11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	BiZ-Standard/SBDI	Health	Retro	14	12	10	8	6	5	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0
744	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	BiZ-Standard/SBDI	Health	Retro	11	9	8	6	5	4	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0
745	Interior Lighting	LED Specialty Lamp	BiZ-Standard/SBDI	Health	Retro	15	13	11	9	7	5	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0
746	Interior Lighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	BiZ-Standard/SBDI	Health	Retro	80	69	57	45	35	27	20	15	0	0	0	0	0	0	0	0	0	0	0	0	0
747	Interior Lighting	LED <13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	BiZ-Standard/SBDI	Health	Retro	81	67	55	44	34	26	24	18	0	0	0	0	0	0	0	0	0	0	0	0	0
748	Interior Lighting	LED <10 Watt Lamp Replacing Interior Halogen PAR 49-50 Watt Lamp	BiZ-Standard/SBDI	Health	Retro	67	55	44	34	26	20	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
749	Interior Lighting	LED <80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	BiZ-Standard/SBDI	Health	Retro	225	193	160	127	99	76	57	42	0	0	0	0	0	0	0	0	0	56	48	40	32
750	Interior Lighting	LED 62. - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	BiZ-Standard/SBDI	Health	Retro	172	147	122	97	76	58	43	32	0	0	0	0	0	0	0	0	0	43	37	30	24
751	Interior Lighting	LED 62. - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	BiZ-Standard/SBDI	Health	Retro	91	96	96	91	82	70	58	46	36	27	21	15	0	0	0	0	0	23	24	24	20
752	Interior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	BiZ-Standard/SBDI	Health	Retro	350	301	249	199	155	118	88	66	0	0	0	0	0	0	0	0	0	88	75	62	50
753	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	BiZ-Standard/SBDI	Health	Retro	142	127	110	90	72	56	43	32	24	0	0	0	0	0	0	0	0	14	11	8	6
754	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	BiZ-Standard/SBDI	Health	Retro	209	188	161	133	107	83	63	47	35	0	0	0	0	0	0	0	0	52	47	40	33
755	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	BiZ-Standard/SBDI	Health	Retro	236	212	183	151	120	94	71	54	40	0	0	0	0	0	0	0	0	59	53	46	38
756	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	BiZ-Standard	Health	Retro	36	38	38	36	33	28	23	18	14	11	8	6	0	0	0	0	0	9	10	10	9
757	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	BiZ-Standard/SBDI	Health	Retro	603	518	438	342	266	203	152	113	0	0	0	0	0	0	0	0	151	129	107	85	
758	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	BiZ-Standard/SBDI	Health	Retro	816	752	647	514	427	332	253	190	141	0	0	0	0	0	0	0	0	209	188	162	134
759	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	BiZ-Standard/SBDI	Health	Retro	842	758	651	538	450	334	255	191	142	0	0	0	0	0	0	0	0	200	189	163	134
760	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	BiZ-Standard	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
761	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	BiZ-Standard/SBDI	Health	Retro	412	354	292	233	182	138	104	77	0	0	0	0	0	0	0	0	0	103	88	73	58
762	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	BiZ-Standard/SBDI	Health	Retro	594	535	460	380	303	236	180	135	100	0	0	0	0	0	0	0	0	149	134	115	95
763	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	BiZ-Standard/SBDI	Health	Retro	340	306	263	217	173	135	103	77	57	0	0	0	0	0	0	0	0	85	76	66	54
764	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	BiZ-Standard	Health	Retro	61	58	52	45	37	29	23	17	13	10	0	0	0	0	0	0	0	15	14	13	11
765	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	BiZ-Standard/SBDI	Health	Retro	692	444	382	316	253	197	151	113	84	62	49	33	26	30	33	36	40	41	42	43	43
766	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	BiZ-Standard/SBDI	Health	Retro	271	245	211	174	140	109	82	62	46	34	24	15	0	0	0	0	0	33	26	20	15</

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
782	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Standard	Health	Retro	11	12	13	14	17	21	24	27	28	28	27	24	21	17	14	19	17	16	15	13	
783	Motors	Power Drive Systems	Bi-Custom	Health	Retro	6	8	10	11	13	13	13	13	13	11	8	6	5	4	3	7	6	7	9	10	
784	Motors	Switch Reluctance Motors	Bi-Custom	Health	Retro	16	24	26	28	31	39	47	55	61	64	64	61	55	47	39	43	42	38	35	34	
785	Motors	Escalators Motor Efficiency Controllers	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
786	Office, NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
787	Office, NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
788	Office, NonPC	Plug Load Occupancy Sensor	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
789	Office, PC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Health	Retro	13	19	21	22	25	31	37	43	48	51	51	48	43	37	31	34	33	30	28	27	
790	Office, PC	Energy Star Server	Bi-Custom	Health	ROB	0	0	0	0	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	3	
791	Office, PC	Server Virtualization	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
792	Office, PC	High Efficiency ChAC unit	Bi-Custom	Health	ROB	1	2	3	4	5	7	9	11	13	16	18	20	23	24	26	27	27	28	28	28	
793	Office, PC	Computer Room Air Conditioner Economizer	Bi-Custom	Health	Retro	15	22	25	26	29	36	43	50	56	59	58	55	49	42	35	38	37	34	31	30	
794	Office, PC	Data Center Hot/Cold Aisle Configuration	Bi-Custom	Health	Retro	1	1	1	1	1	2	2	2	2	3	3	3	2	2	2	2	2	2	1	1	
795	Office, PC	Energy Star Laptop	Bi-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
796	Office, PC	Energy Star Monitor	Bi-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
797	Refrigeration	Strip Curtains	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
798	Refrigeration	Bare Suction Line	Bi-Custom	Health	Retro	0	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	
799	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
800	Refrigeration	Saturated Suction Controls	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
801	Refrigeration	Compressor Retrofit	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
802	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Health	Retro	6	9	10	11	12	15	19	22	24	25	24	22	19	15	17	17	15	14	13	13	
803	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Health	Retro	3	5	5	5	6	7	9	11	12	12	12	12	10	9	7	8	8	7	7	6	
804	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
805	Refrigeration	Refrigeration Economizer	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
806	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Standard	Health	Retro	17	26	28	30	33	42	51	59	66	69	69	82	85	80	74	67	65	64	64	63	
807	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
808	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Health	Retro	3	4	4	5	5	7	8	9	10	11	11	10	9	8	7	7	7	6	6	6	
809	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
810	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
811	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
812	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Health	Retro	8	12	13	14	15	19	23	27	30	32	37	39	37	34	31	30	29	29	29	29	
813	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Health	Retro	4	6	7	7	8	10	12	14	16	17	17	16	17	15	13	12	12	12	13	13	
814	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
815	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
816	Refrigeration	Refrigeration - Custom	Bi-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
817	Refrigeration	Refrigeration - Custom	Bi-Custom	Health	ROB	26	38	43	46	50	82	104	120	131	140	162	173	175	171	164	169	166	159	149	139	
818	Refrigeration	Energy Star Ice Machine	Bi-Custom	Health	ROB	0	1	1	1	2	2	3	4	5	6	6	6	7	8	8	9	9	9	9	9	
819	Refrigeration	ES/AR Refrigerated Vending Machine	Bi-Custom	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
820	Refrigeration	Vending Machine Control - Refrigerated	Bi-Custom	Health	Retro	25	38	42	45	50	62	75	87	97	107	121	128	121	112	108	106	104	102	113	114	
821	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	Health	Retro	10	15	17	18	20	25	30	35	38	41	48	50	47	43	39	38	38	38	38	37	
822	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Health	Retro	224	280	340	395	439	463	463	439	395	340	280	224	174	133	100	242	210	255	296	329	
823	Ventilation	Demand Controlled Ventilation	Bi-Standard	Health	Retro	453	499	624	756	879	977	1,031	1,031	977	756	624	499	388	296	561	588	488	507	659	659	
824	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Health	Retro	32	35	37	41	50	60	69	76	80	79	74	66	57	47	37	50	46	42	40	35	
825	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Health	Retro	1	1	1	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	2	1	
826	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Health	Retro	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
827	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Health	Retro	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
828	WholeBldg, HVAC	HVAC - Energy Management System	Bi-Custom	Health	Retro	108	115	125	155	185	213	234	244	241	227	202	173	142	113	87	137	125	120	104	126	
829	WholeBldg, HVAC	Cool Roof	Bi-Custom	Health	Retro	378	453	522	573	598	591	533	493	419	343	271	210	159	119	88	0	0	0	0	0	
830	WholeBldg, HVAC	Retroscreening, Bld Optimization	Bi-Custom	Health	Retro	194	287	316	334	364	364	364	364	364	364	364	364	364	364	364	364	364	364	364	364	
831	WholeBldg, HVAC	WholeBldg - Custom	Bi-Custom	Health	Retro	143	210	230	242	262	323	385	442	485	506	501	471	511	494	444	394	357	357	368	384	
832	WholeBldg, HVAC	WholeBldg - Custom (Other)	Bi-Custom	Health	Retro	95	140	153	161	175	215	257	295	323	338	334	341	329	296	263	238	238	245	256	256	
833	WholeBldg, HVAC	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Health	Retro	122	120	112	99	83	68	53	41	31	23	17	0	0	0	0	0	0	0	0	0	0
834	WholeBldg, HVAC	WholeBldg - Com NC	Bi-Custom	Health	NC	437	101	405	449	667	252	333	457	853	376	649	790	1,459	380	565	590	897	516	747	863	
835	Behavioral	COM Competitions	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
836	Behavioral	Business Energy Reports	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
837	Behavioral	Building Benchmarking	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
838	Behavioral	Strategic Energy Management	Bi-Custom SEM	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
839	Behavioral	BEAMS	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
840	Behavioral	Building Operator Certification	Bi-Custom	Health	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841	Compress&R	Retroscreening, Compressed Air Optimization	Bi-Custom	Health	Retro	11	11	9	8	7	14	12	10	8	7	10	9	8	6	5	8	7	6	5	4	4
842	Compress&R	Compressor Air Leak Repair	Bi-Custom	Health	Retro	20	18	15	13	10	23	19	16	13	8	17	14	12	10	6	13	11	9	7	4	4
843	Compress&R	Efficient Air Compressors (3SD)	Bi-Standard	Health	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
844	Compress&R	AODD Pump Controls	Bi-Standard	Health	ROB	14	11	9	7	5	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
845	Compress&R	No Loss Condensate Drain	Bi-Standard	Health	Retro	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1
846	Compress&R	Efficient Air Nonleak	Bi-Standard	Health	Retro	18	20	21	20	19	17	15	12	10	7	18	18	18	15	14	13	11	9	7	6	6
847	Compress&R																									

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
857	Cooking	Insulated Holding Cabinets (Half-Size)	Bi-Standard	Lodging	ROB	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	
858	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Bi-Standard/SBDI	Lodging	ROB	2	3	4	4	5	6	7	8	9	9	10	10	10	10	10	10	10	10	9	9	
859	Cooling	Air Conditioner - 18 IEER (5-20 Tons)	Bi-Standard/SBDI	Lodging	ROB	3	4	5	6	7	8	10	11	12	13	13	13	13	13	14	14	13	13	12	12	
860	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Bi-Standard/SBDI	Lodging	ROB	4	5	7	8	10	12	13	15	16	17	18	19	19	20	19	20	19	18	17	17	
861	Cooling	Air Conditioner - M3.3 IEER (20+ Tons)	Bi-Standard	Lodging	ROB	0	0	1	1	1	1	2	2	3	4	4	5	5	6	6	6	6	6	6	6	
862	Cooling	Air Conditioner - 15 IEER (20+ Tons)	Bi-Standard	Lodging	ROB	0	1	1	1	2	2	3	4	5	6	7	8	8	8	8	9	9	9	10	10	
863	Cooling	Air Conditioner - 17 IEER (20+ Tons)	Bi-Standard	Lodging	ROB	0	1	1	2	3	4	5	6	7	8	10	11	12	13	14	15	15	15	16	16	
864	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Bi-Custom	Lodging	Retro	55	49	42	76	65	53	73	64	49	55	45	37	41	34	27	31	25	20	23	19	
865	Cooling	Air-Side Economizer	Bi-Custom	Lodging	Retro	75	84	88	88	83	75	64	53	42	33	81	81	79	65	62	55	48	39	31	24	
866	Cooling	Advanced Rooftop Controls	Bi-Custom	Lodging	Retro	254	253	239	181	151	121	94	71	53	39	0	0	0	0	0	0	184	184	174	157	134
867	Cooling	HVAC Occupancy Controls	Bi-Custom	Lodging	ROB	12	14	16	18	19	20	21	22	22	22	22	23	23	23	23	23	22	20	19	19	18
868	Cooling	Air Conditioner - 16 SEER (5 Tons)	Bi-Standard/SBDI	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
869	Cooling	Air Conditioner - 15 SEER (5 Tons)	Bi-Standard/SBDI	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
870	Cooling	Air Conditioner - 18 SEER (5 Tons)	Bi-Standard/SBDI	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
871	Cooling	Air Conditioner - 21 SEER (5 Tons)	Bi-Standard/SBDI	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
872	Cooling	Smart Thermostat	Bi-Standard/SBDI	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
873	Cooling	PTAC - <7,000 Btu/h - lodging	Bi-Custom	Lodging	ROB	3	4	5	6	7	8	9	10	10	10	10	10	10	10	10	10	10	10	9	8	
874	Cooling	PTAC - 7,000 to 15,000 Btu/h - lodging	Bi-Custom	Lodging	ROB	3	4	5	6	7	8	9	10	11	12	12	12	12	12	12	12	12	11	11	10	
875	Cooling	PTAC - >15,000 Btu/h - lodging	Bi-Custom	Lodging	ROB	4	5	7	8	9	10	11	12	12	12	12	13	13	13	13	12	12	11	11	10	
876	Cooling	Water Cooled Chiller	Bi-Standard	Lodging	ROB	2	4	5	7	9	11	14	17	21	24	27	30	33	35	37	38	39	40	40	40	
877	Cooling	Water Cooled Chiller	Bi-Standard	Lodging	ROB	1	1	2	3	4	4	5	7	8	9	10	10	11	12	12	12	12	12	13	13	
878	Cooling	Chiller Tune-up	Bi-Custom	Lodging	Retro	121	109	94	168	143	118	162	135	109	122	101	81	91	75	61	68	56	46	51	42	
879	Cooling	Window Film	Bi-Custom	Lodging	Retro	67	69	69	64	57	49	40	32	25	19	60	59	48	45	41	35	29	23	18	14	
880	Cooling	Triple Pane Windows	Bi-Custom	Lodging	ROB	0	1	1	1	1	2	2	3	3	4	4	4	5	5	5	5	5	6	6	6	
881	Cooling	Energy Recovery Ventilator	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
882	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
883	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Lodging	Retro	17	14	10	8	6	6	0	0	0	0	0	0	0	0	0	0	0	4	3	2	
884	Exterior Lighting	LED <130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 174-300 Watt Lamp or Fixture	Bi-Custom	Lodging	Retro	19	14	11	8	6	0	0	0	0	0	0	0	0	0	0	0	5	4	3	2	
885	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 174-300 Watt Lamp or Fixture	Bi-Custom	Lodging	Retro	21	16	13	9	7	0	0	0	0	0	0	0	0	0	0	0	4	3	2	1	
886	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Lodging	Retro	18	15	11	8	6	0	0	0	0	0	0	0	0	0	0	0	5	4	3	2	
887	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Lodging	Retro	19	15	11	8	6	0	0	0	0	0	0	0	0	0	0	0	5	4	3	2	
888	Exterior Lighting	Heat Pump - 16 SEER (5 Tons)	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
889	Heating	Heat Pump - 16 SEER (5 Tons)	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
890	Heating	Heat Pump - 17 SEER (5 Tons)	Bi-Standard	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
891	Heating	Heat Pump - 18 SEER (5 Tons)	Bi-Standard	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
892	Heating	Heat Pump - 21 SEER (5 Tons)	Bi-Standard	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
893	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
894	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Bi-Standard	Lodging	ROB	0	0	0	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	
895	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Bi-Standard	Lodging	ROB	0	0	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	
896	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Bi-Standard	Lodging	ROB	0	0	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	
897	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Bi-Standard	Lodging	ROB	0	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	
898	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Bi-Standard	Lodging	ROB	0	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	
899	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Bi-Standard	Lodging	ROB	0	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	
900	Heating	Geothermal HP - 17 IEER < 135kbtu	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
901	Heating	Geothermal HP - 19 IEER < 135kbtu	Bi-Custom	Lodging	ROB	2	3	4	4	5	5	6	6	6	6	7	7	7	7	7	7	7	7	7	7	
902	Heating	PTHP - <7,000 Btu/h - lodging	Bi-Custom	Lodging	ROB	2	3	3	4	4	5	5	6	6	6	7	7	7	7	7	7	7	7	7	7	
903	Heating	PTHP - 7,000 to 15,000 Btu/h - lodging	Bi-Custom	Lodging	ROB	4	5	7	8	9	10	10	11	11	11	11	11	11	10	10	10	10	9	8	8	
904	Heating	PTHP - >15,000 Btu/h - lodging	Bi-Custom	Lodging	ROB	8	10	12	14	16	17	19	20	19	19	19	19	19	19	18	18	16	16	15	15	
905	HotWater	Res-Size Heat Pump Water Heater	Bi-Standard	Lodging	ROB	54	70	88	108	129	150	170	188	204	217	227	235	241	246	249	236	232	227	222	217	
906	HotWater	Commercial-Size HPWH	Bi-Standard	Lodging	ROB	157	202	254	312	373	435	493	545	590	627	657	680	698	711	721	681	670	657	643	627	
907	HotWater	Hot Water Pipe Insulation	Bi-Custom	Lodging	Retro	165	125	93	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
908	HotWater	Faucet Aerator	Bi-Custom	Lodging	Retro	368	279	208	153	0	0	0	0	0	0	0	253	190	140	102	0	0	0	0	165	
909	HotWater	Low Flow Pre-Rinse Sprayers	Bi-Custom	Lodging	ROB	464	473	480	483	479	362	355	349	343	337	254	248	242	237	232	175	171	168	165	164	
910	HotWater	ENERGY STAR Commercial Washing Machines	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
911	Interior Lighting	LED <11 Watt Lamp Replacing Interior Halogen A 28-53 Watt Lamp	Bi-Standard/SBDI	Lodging	Retro	23	20	17	13	10	8	6	4	3	0	6	5	4	3							

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
924	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Bi-Standard	Lodging	Retro	8	9	8	6	5	4	3	4	3	3	2	1	0	0	0	2	2	2	2	2
925	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Lodging	Retro	139	120	99	79	61	47	35	26	0	0	35	30	25	20	15	12	9	7	0	0
926	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, K1s, and K1ures)	Bi-Standard/SBDI	Lodging	Retro	193	174	149	123	99	77	58	44	33	0	0	0	0	0	0	48	43	37	31	25
927	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Bi-Standard/SBDI	Lodging	Retro	194	175	150	124	99	77	59	44	33	0	0	0	0	0	0	31	25	19	15	11
928	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Standard	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
929	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Lodging	Retro	95	82	67	54	42	32	24	18	0	0	24	20	17	13	10	8	6	4	0	0
930	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, K1s, and K1ures)	Bi-Standard/SBDI	Lodging	Retro	137	124	106	88	70	55	42	31	23	0	0	0	0	0	0	34	31	27	22	18
931	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Bi-Standard/SBDI	Lodging	Retro	79	71	61	50	40	31	24	18	13	0	0	20	18	15	13	10	8	6	4	3
932	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Standard	Lodging	Retro	14	13	10	9	7	5	4	3	2	0	0	0	0	0	0	4	3	3	3	3
933	Interior Lighting	Fixture Mounted Occupancy Sensor, Controlling > 60 Watts	Bi-Standard/SBDI	Lodging	Retro	209	200	182	158	132	107	84	64	49	37	20	42	40	36	31	26	21	16	12	9
934	Interior Lighting	Remote Mounted Occupancy Sensor, Controlling > 150 Watts	Bi-Standard/SBDI	Lodging	Retro	115	110	100	87	73	59	46	35	27	20	38	23	22	20	17	14	11	9	7	5
935	Interior Lighting	Lighting Power Density	Bi-Standard	Lodging	Retro	170	180	181	173	159	139	117	95	75	58	44	33	25	0	0	33	37	39	39	37
936	Interior Lighting	LED Lighting Redesign/Custom	Bi-Standard	Lodging	Retro	111	132	151	168	179	183	178	165	147	126	104	83	64	49	37	48	26	32	37	41
937	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Bi-Standard/SBDI	Lodging	Retro	42	31	0	0	0	0	0	0	10	8	0	0	0	0	0	3	2	0	0	0
938	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Lodging	ROB	4	6	9	12	15	20	25	30	36	42	48	53	57	61	64	66	68	69	70	70
940	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
941	Miscellaneous	Ozone Commercial Laundry	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
942	Miscellaneous	ENERGY STAR Uninterruptible Power Supply	Bi-Custom	Lodging	ROB	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
943	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
944	Miscellaneous	Pool Pump, Timer	Bi-Custom	Lodging	ROB	2	2	2	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
945	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	Lodging	ROB	13	16	19	22	25	28	30	32	33	35	35	36	37	37	37	37	33	33	32	31
946	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Lodging	ROB	4	5	6	7	8	9	10	10	10	10	10	11	11	11	10	10	10	10	10	9
947	Miscellaneous	High Efficiency Dryer	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
948	Miscellaneous	Miscellaneous Custom	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
949	Miscellaneous	Cogeneration	Bi-Custom	Lodging	Retro	11	13	15	17	18	18	17	15	13	11	9	7	5	4	3	8	10	11	13	13
950	Miscellaneous	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Standard	Lodging	Retro	28	31	35	36	45	64	71	75	75	71	64	55	46	45	46	36	49	45	41	39
951	Miscellaneous	Power Drive Systems	Bi-Custom	Lodging	Retro	14	18	21	26	29	29	28	25	21	18	15	13	8	6	15	13	8	6	15	19
952	Miscellaneous	Switch Reluctance Motors	Bi-Custom	Lodging	Retro	71	106	118	127	140	175	211	246	273	289	289	273	246	211	175	193	188	171	157	151
953	Miscellaneous	Escalators Motor Efficiency Controllers	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
954	Office, NonFC	Energy Star Printer/Copier/Fax	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
955	Office, NonFC	Smart Power Strip - Commercial Use	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
956	Office, NonFC	Plug Load - Occupancy Sensor	Bi-Custom	Lodging	Retro	4	6	7	8	8	10	13	15	16	17	17	16	15	13	10	11	11	10	9	9
957	Office, FC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
958	Office, FC	Energy Star Server	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
959	Office, FC	Server Virtualization	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
960	Office, FC	High Efficiency CRAC unit	Bi-Custom	Lodging	ROB	0	1	1	1	2	2	3	4	4	5	6	7	8	8	8	9	9	9	9	9
961	Office, FC	Computer Room Air Conditioner Economizer	Bi-Custom	Lodging	Retro	5	7	8	9	10	12	15	17	19	20	20	18	17	14	12	13	13	11	10	10
962	Office, FC	Data Center Hot/Cold Aisle Configuration	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
963	Office, FC	Energy Star Laptop	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
964	Office, FC	Energy Star Monitor	Bi-Custom	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
965	Refrigeration	Strip Curtains	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
966	Refrigeration	Bare Suction Line	Bi-Custom	Lodging	Retro	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2
967	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
968	Refrigeration	Saturated Suction Controls	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
969	Refrigeration	Compressor Retrofit	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
970	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Lodging	Retro	11	16	18	19	21	27	32	38	42	44	44	42	38	32	27	30	29	26	24	23
971	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Lodging	Retro	5	8	9	9	10	13	16	18	20	21	21	20	18	16	15	14	14	13	12	11
972	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
973	Refrigeration	Refrigeration Economizer	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
974	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Standard	Lodging	Retro	10	15	17	18	20	24	30	34	38	40	48	49	47	43	39	38	37	37	37	37
975	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
976	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Lodging	Retro	2	2	3	3	3	4	5	5	6	6	6	6	6	6	5	4	4	4	4	3
977	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Standard	Lodging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
978	Refrigeration	EC Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Standard	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
979	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Lodging	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
980	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Lodging	Retro	5	7	8	8	9	11	14	16	17	18	22	23	21	20	18	17	17	17</		

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
998	WholeBldg HVAC	Retro-commissioning, BU Optimization	Bi-Custom R/CX	Loging	Retro	106	158	174	186	203	329	418	476	519	550	637	676	679	662	633	650	639	608	570	529	
999	WholeBuilding	WholeBldg - Com RET	Bi-Custom	Loging	Retro	107	159	174	184	200	248	287	341	374	391	386	362	392	379	340	301	272	271	279	291	
1000	WholeBuilding	WholeBldg - Custom (Other)	Bi-Custom	Loging	Retro	72	106	116	123	133	165	198	227	250	261	258	241	261	252	226	201	181	181	186	194	
1001	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Loging	Retro	92	91	85	75	64	51	32	24	18	13	0	0	0	0	0	0	0	0	0	0	
1002	WholeBldg, NC	WholeBldg - Com NC	Bi-Custom	Loging	NC	327	75	303	336	499	188	249	342	638	281	485	590	1,091	284	423	441	671	386	558	645	
1003	Behavioral	COM Competitions	Bi-Custom	Loging	Retro	4	6	11	13	18	23	30	35	44	50	58	63	69	73	77	79	81	82	84	84	
1004	Behavioral	Business Energy Reports	Bi-Custom	Loging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1005	Behavioral	Building Benchmarking	Bi-Custom SEM	Loging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1006	Behavioral	Strategic Energy Management	Bi-Custom	Loging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1007	Behavioral	BEAMS	Bi-Custom	Loging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1008	Behavioral	Building Operator Certification	Bi-Custom	Loging	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1009	Compressor&dr	Retro-commissioning, Compressed Air Optimization	Bi-Custom R/CX	Loging	Retro	546	138	135	107	88	180	169	135	112	112	90	935	119	102	84	67	101	89	76	65	
1010	Compressor&dr	Compressed Air Leak Repair	Bi-Custom	Retail	Retro	259	233	200	165	132	297	263	209	168	168	99	223	190	157	126	74	167	142	118	94	
1011	Compressor&dr	AODD Pump Controls	Bi-Custom	Retail	Retro	185	151	120	92	70	52	38	0	0	0	0	0	0	0	0	0	0	0	0	0	
1012	Compressor&dr	No Loss Condensate Drain	Bi-Custom	Retail	Retro	7	10	11	11	12	15	19	22	24	25	24	21	23	25	22	20	18	16	17	18	
1013	Compressor&dr	Efficient Air Nozzles	Bi-Custom	Retail	Retro	13	16	19	21	23	25	24	23	21	18	15	12	9	7	5	13	11	13	15	17	
1014	Compressor&dr	Efficient Air Compressors (VSD)	Bi-Custom	Retail	Retro	239	261	272	268	252	224	192	158	125	97	239	239	239	235	193	183	165	142	117	93	73
1015	Compressor&dr	Compressed Air - Custom	Bi-Custom	Retail	Retro	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1016	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1017	Cooking	Commercial Electric Convection Oven	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1018	Cooking	Commercial Electric Griddle	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1019	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1020	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Retail	Retro	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1021	Cooking	Dishwasher - High Temp Door (Energy Star)	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1022	Cooking	Energy efficient electric fryer	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1023	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1024	Cooking	Insulated Holding Cabinets (3/4 Size)	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1025	Cooking	Insulated Holding Cabinets (Half-Size)	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1026	Cooking	Air Conditioner - 17 THER (5-20 Tons)	Bi-Custom	Retail	Retro	3	4	5	6	7	8	9	10	10	10	11	11	11	11	11	11	11	10	10	10	
1027	Cooking	Air Conditioner - 18 THER (5-20 Tons)	Bi-Custom	Retail	Retro	4	5	7	8	9	10	12	12	13	14	14	15	15	15	15	15	15	14	14	13	13
1028	Cooking	Air Conditioner - 21 THER (5-20 Tons)	Bi-Custom	Retail	Retro	6	8	9	11	13	15	16	18	19	20	21	21	22	22	22	20	20	20	19	19	18
1029	Cooking	Air Conditioner - 14.3 THER (20+ Tons)	Bi-Custom	Retail	Retro	0	1	2	2	3	4	5	6	7	8	8	8	8	8	8	8	8	8	8	8	
1030	Cooking	Air Conditioner - 15 THER (20+ Tons)	Bi-Custom	Retail	Retro	1	2	2	3	4	5	6	7	8	9	9	10	11	12	13	13	13	13	13	13	
1031	Cooking	Air Conditioner - 17 THER (20+ Tons)	Bi-Custom	Retail	Retro	1	2	3	4	5	6	8	9	11	13	15	17	18	19	20	20	20	21	21	21	
1032	Cooking	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Bi-Custom	Retail	Retro	95	85	73	131	112	92	127	105	85	95	79	63	71	59	47	53	44	35	40	33	
1033	Cooking	Air-Side Economizer	Bi-Custom	Retail	Retro	113	125	132	132	125	112	96	79	63	49	121	121	119	98	92	83	71	59	47	37	
1034	Cooking	Advanced Rooftop Controls	Bi-Custom	Retail	Retro	361	360	340	305	261	215	172	133	101	76	56	0	0	0	0	0	0	263	262	248	
1035	Cooking	HVAC Occupancy Controls	Bi-Custom	Retail	Retro	10	13	16	20	24	28	32	35	38	41	43	44	45	46	47	44	45	43	42	41	
1036	Cooking	Air Conditioner - 45 SEER (5 Tons)	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1037	Cooking	Air Conditioner - 17 SEER (5 Tons)	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1038	Cooking	Air Conditioner - 18 SEER (5 Tons)	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1039	Cooking	Air Conditioner - 21 SEER (5 Tons)	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1040	Cooking	Smart Thermostat	Bi-Custom	Retail	Retro	54	56	58	59	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
1041	Cooking	PTAC - <7,000 Btu/h - loading	Bi-Custom	Retail	Retro	6	7	8	9	10	11	12	10	10	10	10	10	10	10	10	10	9	9	8	7	
1042	Cooking	PTAC - 7,000 to 15,000 Btu/h - loading	Bi-Custom	Retail	Retro	7	8	10	11	13	14	16	17	16	16	16	16	16	16	16	15	15	15	13	13	
1043	Cooking	PTAC - >15,000 Btu/h - loading	Bi-Custom	Retail	Retro	4	5	6	8	10	12	15	17	20	22	23	25	26	27	28	28	29	29	29	29	
1044	Cooking	Water Cooled Chiller	Bi-Custom	Retail	Retro	1	2	2	2	3	3	4	5	6	6	6	7	8	8	8	9	9	9	9	9	
1045	Cooking	Chiller Tune-up	Bi-Custom	Retail	Retro	140	126	108	156	166	137	188	156	126	141	117	95	106	88	71	79	66	53	59	49	
1046	Cooking	Window Film	Bi-Custom	Retail	Retro	105	110	108	102	91	77	63	50	39	29	95	93	76	72	65	56	46	37	28	22	
1047	Cooking	Triple Pane Windows	Bi-Custom	Retail	Retro	1	1	1	2	2	3	3	4	5	6	6	7	8	8	8	8	8	9	9	9	
1048	Cooking	Energy Recovery Ventilator	Bi-Custom	Retail	Retro	97	107	113	123	152	182	210	232	243	242	228	204	175	144	115	155	141	129	123	107	
1049	ExteriorLighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1050	ExteriorLighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	104	81	62	46	34	0	0	0	0	0	0	0	0	0	0	0	0	26	20	15	
1051	ExteriorLighting	LED 80-120 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID	Bi-Custom	Retail	Retro	111	87	66	50	37	0	0	0	0	0	0	0	0	0	0	0	0	28	22	16	
1052	ExteriorLighting	LED 62-130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID	Bi-Custom	Retail	Retro	306	82	63	47	35	0	0	0	0	0	0	0	0	0	0	0	0	26	21	16	
1053	ExteriorLighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID	Bi-Custom	Retail	Retro	127	9																			

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1139	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Retail	Retro	7	11	12	13	14	17	21	25	27	29	29	27	25	21	17	19	19	17	16	15	
1140	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1141	Refrigeration	Refrigeration Economizer	Bi-Custom	Retail	Retro	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1142	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Standard	Retail	Retro	43	64	71	77	84	105	128	149	165	174	206	213	202	185	169	163	161	161	158		
1143	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1144	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Retail	Retro	6	9	10	11	12	15	19	22	24	25	25	24	22	19	15	17	16	15	14	13	
1145	Refrigeration	0.5-HP Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Retail	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1146	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Retail	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1147	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Retail	Retro	16	25	27	29	32	41	49	57	63	67	79	82	78	71	65	63	62	62	62	61	
1148	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Retail	ROB	10	14	16	17	19	23	28	33	37	39	39	37	40	39	35	32	29	29	29	30	31
1149	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Retail	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1150	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Retail	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1151	Refrigeration	Refrigeration - Custom	Bi-Custom	Retail	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1152	Refrigeration	Refrigeration - Custom	Bi-Custom	Retail	Retro	59	88	98	105	115	187	239	274	300	319	372	396	399	391	375	386	381	363	340	317	
1153	Refrigeration	Refrigeration - Custom	Bi-Custom	Retail	ROB	0	1	1	2	2	3	4	5	6	7	8	9	10	11	11	12	12	12	12	12	
1154	Refrigeration	Energy Star Ice Machine	Bi-Custom	Retail	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1155	Refrigeration	ESTAR Refrigerated Vending Machine	Bi-Custom	Retail	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1156	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1157	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	Retail	Retro	59	89	98	105	116	145	176	205	227	284	307	301	284	263	254	248	244	239	265	268	
1158	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Retail	Retro	23	35	39	42	46	58	70	81	90	95	113	116	110	101	92	89	88	88	88	86	
1159	Ventilation	Demand Controlled Ventilation	Bi-Standard	Retail	Retro	221	331	368	394	434	543	657	765	850	897	897	850	765	657	543	599	586	533	488	468	
1160	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Retail	Retro	502	752	836	896	986	1,284	1,495	1,739	1,932	2,039	1,932	1,739	1,495	1,284	1,362	1,331	1,212	1,110	1,055		
1161	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Retail	Retro	96	106	113	124	154	185	213	233	243	240	224	199	168	138	109	146	132	120	115	100	
1162	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Retail	Retro	4	4	4	5	6	7	8	9	10	9	8	7	5	4	3	5	6	5	5	4	4
1163	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Retail	Retro	66	73	78	85	106	127	147	161	168	165	154	137	116	95	75	101	91	83	79	69	69
1164	Whole/Bldg, HVAC	Whole/Bldg, HVAC Cool Refrig	Bi-Custom	Retail	Retro	166	177	194	242	291	336	370	387	384	360	321	273	224	178	137	216	197	188	163	197	
1165	Whole/Bldg, HVAC	Whole/Bldg, HVAC Cool Refrig	Bi-Custom	Retail	Retro	459	531	586	615	612	575	514	437	358	283	218	165	123	90	0	0	0	0	0	0	0
1166	Whole/Bldg, HVAC	Retro-Commissioning, BI Optimization	Bi-Custom R/CX	Retail	Retro	298	444	491	523	572	597	1,176	1,340	1,460	1,543	1,786	1,894	1,850	1,769	1,815	1,783	1,695	1,588	1,475		
1167	Whole/Bldg, HVAC	Whole/Bldg, HVAC (Other)	Bi-Custom	Retail	Retro	334	493	530	568	617	762	911	1,048	1,150	1,202	1,191	1,118	1,213	1,173	1,055	936	847	847	809	872	
1168	Whole/Bldg, HVAC	Whole/Bldg, HVAC (Other)	Bi-Custom	Retail	Retro	223	328	359	379	411	508	608	698	767	801	794	745	809	782	703	624	565	565	581	606	606
1169	Whole/Bldg, HVAC	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Retail	Retro	286	281	262	232	197	160	126	97	73	54	40	0	0	0	0	0	0	0	0	0	0
1170	Behavioral	Whole/Bldg, Com NC	Bi-Custom	Retail	NC	1,021	235	946	1,318	1,557	588	778	1,067	1,154	1,843	3,407	887	1,320	1,377	2,095	1,204	1,743	2,015	2,015		
1171	Behavioral	COM Competitions	Bi-Custom	Retail	Retro	10	14	25	43	0	43	0	0	0	0	100	115	134	146	160	179	183	190	192	196	
1172	Behavioral	Business Energy Reports	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1173	Behavioral	Building Benchmarking	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1174	Behavioral	Strategic Energy Management	Bi-Custom SEM	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1175	Behavioral	BEIMS	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1176	Behavioral	Building Operator Certification	Bi-Custom	Retail	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1177	Compressor&dr	Retro-Commissioning, Compressed Air Optimization	Bi-Custom R/CX	Office	Retro	360	152	136	117	97	197	174	146	122	98	248	180	111	92	74	111	89	83	69	55	
1178	Compressor&dr	Compressed Air Leak Repair	Bi-Custom	Office	Retro	283	255	219	181	145	325	277	229	183	108	244	208	172	138	81	183	156	129	103	61	
1179	Compressor&dr	Efficient Air Compressors (VSD)	Bi-Standard	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1180	Compressor&dr	AODD Pump Controls	Bi-Custom	Office	Retro	202	165	131	101	76	57	42	0	0	0	0	0	0	0	0	0	0	0	0	0	
1181	Compressor&dr	No Loss Condensate Drain	Bi-Standard	Office	Retro	7	11	12	12	14	17	20	24	26	28	28	26	24	25	24	22	19	18	18	20	
1182	Compressor&dr	Efficient Air Nozzles	Bi-Standard	Office	Retro	14	17	20	23	26	27	27	25	23	19	16	13	10	8	6	14	12	15	17	19	
1183	Compressor&dr	Compressed Air - Custom	Bi-Custom	Office	Retro	262	286	297	294	275	246	210	172	137	107	262	257	212	200	180	155	128	102	79	79	
1184	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Office	ROB	5	5	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	
1185	Cooking	Commercial Electric Connection Oven	Bi-Custom	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1186	Cooking	Commercial Electric Griddle	Bi-Custom	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1187	Cooking	Dishwasher - 4x 3 LEER Steam Cooker	Bi-Standard	Office	ROB	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	
1188	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Office	ROB	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	
1189	Cooking	Dishwasher - High Temp Door (Energy Star)	Bi-Custom	Office	ROB	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	
1190	Cooking	Energy efficient electric fryer	Bi-Standard	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1191	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1192	Cooking	Insulated Holding Cabinets (3/4 Size)	Bi-Standard	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1193	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1194	Cooling	Air Conditioner - 17 LEER (5-20 Tons)	Bi-Standard/SBDI	Office	ROB	28	35	43	52	60	68	76	82	87	91	94	97	98	100	100	93	91	89	87	85	
1195	Cooling	Air Conditioner - 18 LEER (5-20 Tons)	Bi-Standard/SBDI	Office	ROB	37	47	58	69	80	91	101	109	116	121	126	129	131	133	133	124	121	119	116	113	
1196	Cooling	Air Conditioner - 14.3 LEER (5-20 Tons)	Bi-Standard/SBDI	Office	ROB	4	6	9	12	16	21	26	32	38	45	51	56	61	64	68	69	70	71	71	70	
1197	Cooling	Air Conditioner - 15 LEER (20+ Tons)	Bi-Standard	Office	ROB	6	9	14	18	24	30	38	47	56	66	74	82	89	95	99	101	103	104	104	103	
1198	Cooling	Air Conditioner - 17 LEER (20+ Tons)	Bi-Standard	Office	ROB	9	15	21	28	37	48	60	74	89	103	117	130	140	149	155	160	162	164	164	162	
1199	Cooling	Air Conditioner - 17 LEER (20+ Tons)	Bi-Standard	Office	Retro	635	571	491	830	751	618	899	703	567	633	524	422	471	390	314	351	291	234	262	217	
1200	Cooling	Comprehensive rooftop unit Quality Maintenance (AC Tune-up)	Bi-Custom	Office	Retro	844	935	985	982	923	834	715	599	470	365	866	893	876	720	680	611	524	432	345	268	
1201																										

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1214	Cooling	Chiller Tune-up	Biz-Custom	Office	Retro	542	488	419	752	642	529	728	604	488	545	453	365	408	339	273	306	254	205	229	190	
1215	Cooling	Window Film	Biz-Custom	Office	Retro	398	413	406	379	336	285	233	184	142	108	845	338	277	262	235	201	166	132	102	78	
1216	Cooling	Triple Pane Windows	Biz-Custom	Office	ROB	2	3	5	6	8	10	12	15	18	21	23	26	32	31	32	32	33	33	33	33	
1217	Cooling	Energy Recovery Ventilator	Biz-Custom	Office	Retro	1,060	1,156	1,216	1,316	1,621	1,936	2,225	2,445	2,557	2,337	2,140	1,831	1,506	1,199	1,199	1,465	1,339	1,280	1,110	1,110	
1218	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1219	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 247 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	Retro	128	99	76	57	42	0	0	0	0	0	0	0	0	0	0	0	32	25	19	14	11
1220	Exterior Lighting	LED 62-120 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	Retro	136	106	81	61	45	0	0	0	0	0	0	0	0	0	0	0	34	27	20	15	11
1221	Exterior Lighting	LED 62-130 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	Retro	130	101	77	56	43	0	0	0	0	0	0	0	0	0	0	0	32	25	19	14	11
1222	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	Retro	156	121	92	69	51	0	0	0	0	0	0	0	0	0	0	0	39	30	23	17	13
1223	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 247 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	Retro	139	108	82	62	46	0	0	0	0	0	0	0	0	0	0	0	35	27	21	15	11
1224	Exterior Lighting	Bi-Level Lighting Fixture – Garages	Biz-Custom	Office	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1225	Heating	Heat Pump - 16 SEER (5 Tons)	Biz-Custom	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1226	Heating	Heat Pump - 17 SEER (5 Tons)	Biz-Custom	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1227	Heating	Heat Pump - 18 SEER (5 Tons)	Biz-Custom	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1228	Heating	Heat Pump - 21 SEER (5 Tons)	Biz-Custom	Office	ROB	1	1	1	1	2	2	3	3	3	3	4	4	5	5	5	5	5	5	5	5	
1229	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Office	ROB	4	5	6	8	9	11	12	14	15	16	16	17	17	18	18	18	18	17	17	16	16
1230	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Custom	Office	ROB	1	2	2	3	4	6	7	8	9	10	10	11	12	12	12	12	12	12	12	12	12
1231	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Custom	Office	ROB	2	3	4	6	7	9	11	14	16	18	20	21	23	24	25	25	25	25	25	24	24
1232	Heating	Heat Pump - 14.5 IEER COP 3.1 (135,000-239,000 Btu/hr)	Biz-Custom	Office	ROB	1	2	3	4	5	7	8	9	10	10	12	12	13	14	14	14	15	15	15	14	14
1233	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Custom	Office	ROB	2	3	4	6	7	9	11	13	16	18	20	21	22	24	24	24	24	25	25	24	24
1234	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Custom	Office	ROB	2	3	4	5	7	9	11	13	15	17	19	21	22	23	24	24	24	24	24	24	23
1235	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Custom	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1236	Heating	Geothermal HP - 17 IEER < 135kWh	Biz-Custom	Office	ROB	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	
1237	Heating	Geothermal HP - 19 IEER < 135kWh	Biz-Custom	Office	ROB	3	4	5	5	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
1238	Heating	PTHP - <7,000 Btu/h - lodging	Biz-Custom	Office	ROB	7	8	10	11	13	15	16	15	16	15	16	16	16	16	15	15	15	13	13	12	12
1239	Heating	PTHP - >15,000 Btu/h - lodging	Biz-Custom	Office	ROB	13	16	19	22	25	28	30	32	30	30	30	30	30	30	30	29	28	26	25	24	23
1240	Heating	PTHP - >15,000 Btu/h - lodging	Biz-Custom	Office	ROB	21	30	40	53	68	86	105	126	146	166	184	199	211	229	230	232	233	230	226	226	
1241	HotWater	Heat Pump Water Heater	Biz-Custom	Office	ROB	27	38	51	67	86	108	133	159	185	210	232	251	267	280	290	290	293	294	290	285	
1242	HotWater	Commercial Sized HPWH	Biz-Custom	Office	ROB	81	62	46	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1243	HotWater	Hot Water Pipe Insulation	Biz-Custom	Office	Retro	181	138	108	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1244	HotWater	Hot Water Pipe Insulation	Biz-Custom	Office	Retro	238	234	237	240	238	181	178	175	173	170	170	170	170	170	170	170	170	170	170	170	
1245	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1246	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Office	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1247	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom/SBDI	Office	Retro	61	58	43	34	27	20	15	11	0	0	0	0	0	0	0	0	0	0	0	0	
1248	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom/SBDI	Office	Retro	47	40	33	26	21	16	12	9	0	0	0	0	0	0	0	0	0	0	0	0	
1249	HotWater	LED Specialty Lamp	Biz-Custom/SBDI	Office	Retro	66	57	47	37	29	22	17	12	0	0	0	0	0	0	0	0	0	0	0	0	
1250	Interior Lighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Custom/SBDI	Office	Retro	289	249	205	164	128	97	73	54	0	0	0	0	0	0	0	0	0	0	0	0	
1251	Interior Lighting	LED <13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Custom/SBDI	Office	Retro	292	241	199	150	114	86	64	0	0	0	0	0	0	0	0	0	0	0	0	0	
1252	Interior Lighting	LED <20 Watt Lamp Replacing Interior Halogen PAR 49-90 Watt Lamp	Biz-Custom/SBDI	Office	Retro	241	199	159	124	94	71	53	0	0	0	0	0	0	0	0	0	0	0	0	0	
1253	Interior Lighting	LED <20 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Biz-Custom/SBDI	Office	Retro	835	717	592	473	368	281	211	156	0	0	0	0	0	0	0	0	0	0	0	0	
1254	Interior Lighting	LED 62-120 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Biz-Custom/SBDI	Office	Retro	637	547	452	361	281	214	161	119	0	0	0	0	0	0	0	0	0	0	0	0	
1255	Interior Lighting	LED 62-130 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Biz-Custom/SBDI	Office	Retro	336	355	355	336	303	260	215	172	134	102	76	57	0	0	0	0	0	0	0	0	
1256	Interior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Custom/SBDI	Office	Retro	1,300	1,118	923	737	574	437	328	243	0	0	0	0	0	0	0	0	0	0	0	0	
1257	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Office	Retro	469	422	362	299	239	186	142	106	79	0	0	0	0	0	0	0	0	0	0	0	
1258	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Office	Retro	691	622	534	441	353	274	209	157	116	0	0	0	0	0	0	0	0	0	0	0	
1259	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Custom/SBDI	Office	Retro	781	703	604	499	399	310	236	177	131	0	0	0	0	0	0	0	0	0	0	0	
1260	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Custom	Office	Retro	120	127	127	120	108	93	77	61	48	36	27	20	0	0	0	0	0	0	0	0	
1261	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Office	Retro	1,994	1,714	1,416	1,131	880	671	503	373	0	0	0	0	0	0	0	0	0	0	0	0	
1262	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Custom/SBDI	Office	Retro	2,767	2,490	2,146	1,768	1,412	1,099	838	628	466	0	0	0	0	0	0	0	0	0	0	0	
1263	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Custom/SBDI	Office	Retro	2,787	2,588	2,156	1,780	1,422	1,107	844	633	469	0	0	0	0	0	0	0	0	0	0	0	
1264	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Custom	Office	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1265	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Office	Retro	1,362	1,171	967	772	601	458	344	255	0	0	0	0	0	0	0	0	0	0	0	0	
1266	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Custom/SBDI	Office	Retro	1,967																				

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1355	Cooking	Commercial Electric Steam Cooker	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1356	Cooking	Dishwasher - Low Temp Door (Energy Star)	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1357	Cooking	Dishwasher - High Temp Door (Energy Star)	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1358	Cooking	Energy efficient electric fryer	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1359	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1360	Cooking	Insulated Holding Cabinets (3/4 Size)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1361	Cooking	Insulated Holding Cabinets (Half Size)	Biz-Standard/SBDI	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1362	Cooking	Air Conditioner - 17 SEER (5-20 Tons)	Biz-Standard/SBDI	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1363	Cooking	Air Conditioner - 18 SEER (5-20 Tons)	Biz-Standard/SBDI	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1364	Cooking	Air Conditioner - 21 SEER (5-20 Tons)	Biz-Standard/SBDI	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1365	Cooking	Air Conditioner - 14.3 SEER (20+ Tons)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1366	Cooking	Air Conditioner - 15 SEER (20+ Tons)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1367	Cooking	Air Conditioner - 17 SEER (20+ Tons)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1368	Cooking	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Warehouse	Retro	46	39	33	60	50	40	57	46	30	43	34	22	32	26	17	24	19	13	18	15	
1369	Cooking	Air Side Economizer	Biz-Custom	Warehouse	Retro	52	49	44	38	31	25	19	15	11	8	38	36	33	28	23	19	14	11	8	6	
1370	Cooking	Advanced Rooftop Controls	Biz-Standard/SBDI	Warehouse	Retro	175	165	147	126	104	83	64	49	37	27	0	0	0	0	0	128	121	109	94	77	
1371	Cooking	HVAC Occupancy Controls	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1372	Cooking	Air Conditioner - 16 SEER (<5 Tons)	Biz-Standard/SBDI	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1373	Cooking	Air Conditioner - 17 SEER (<5 Tons)	Biz-Standard/SBDI	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1374	Cooking	Air Conditioner - 18 SEER (<5 Tons)	Biz-Standard/SBDI	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1375	Cooking	Air Conditioner - 21 SEER (<5 Tons)	Biz-Standard/SBDI	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1376	Cooking	Smart Thermostat	Biz-Standard/SBDI	Warehouse	ROB	25	26	27	27	27	27	27	27	27	27	27	21	21	21	21	21	21	21	21	21	
1377	Cooking	PFAC - <7,000 Btu/h - logging	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1378	Cooking	PFAC - 7,000 to 15,000 Btu/h - logging	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1379	Cooking	PFAC - >15,000 Btu/h - logging	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1380	Cooking	Air Cooled Chiller	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1381	Cooking	Water Cooled Chiller	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1382	Cooking	Chiller Tune-up	Biz-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1383	Cooking	Window Film	Biz-Custom	Warehouse	Retro	22	23	22	21	19	16	13	10	8	6	19	19	16	15	13	12	10	8	6	5	
1384	Cooking	Triple Pane Windows	Biz-Custom	Warehouse	ROB	0	0	0	0	0	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	
1385	Cooking	Energy Recovery Ventilator	Biz-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1386	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1387	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 247 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Warehouses	Retro	56	44	33	25	18	0	0	0	0	0	0	0	0	0	0	0	14	11	8	6	5
1388	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 175-300 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	60	46	35	27	20	0	0	0	0	0	0	0	0	0	0	0	15	12	9	7	5
1389	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 247 HID 175-300 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	57	44	34	25	19	0	0	0	0	0	0	0	0	0	0	0	14	11	8	6	5
1390	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	68	53	40	30	22	0	0	0	0	0	0	0	0	0	0	0	17	13	10	8	6
1391	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 247 HID 301-500 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	61	47	36	27	20	0	0	0	0	0	0	0	0	0	0	0	15	12	9	7	5
1392	Exterior Lighting	301-500 Watt Lamp or Fixture	Biz-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1393	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1394	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1395	Heating	Heat Pump - 18 SEER (<5 Tons)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1396	Heating	Heat Pump - 21 SEER (<5 Tons)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1397	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Warehouse	ROB	1	2	2	3	3	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	
1398	Heating	Heat Pump - 15.0 SEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1399	Heating	Heat Pump - 16.0 SEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1400	Heating	Heat Pump - 14.5 SEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1401	Heating	Heat Pump - 15.5 SEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1402	Heating	Heat Pump - 12 SEER 3.4 COP (>239,000 Btu/hr)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1403	Heating	Heat Pump - 13 SEER 3.6 COP (>239,000 Btu/hr)	Biz-Standard	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1404	Heating	Geothermal HP - 17 SEER - <135kbtu	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1405	Heating	Geothermal HP - 19 SEER - <135kbtu	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1406	Heating	PTHP - <7,000 Btu/h - logging	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1407	Heating	PTHP - 7,000 to 15,000 Btu/h - logging	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1408	Heating	PTHP - >15,000 Btu/h - logging	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1409	Hot Water	Res-Shell Heat Pump Water Heater	Biz-Standard	Warehouse	ROB	1	3	6	8	11	14	18	22	28	33	39	44	48	52	56	58	59	60	61	61	
1410	Hot Water	Commercial-Shell HPWH	Biz-Custom	Warehouse	ROB	0	1	2	3	4	5	6	8	9	11	13	15	16	18	19	19	20	20	20	21	
1411	Hot Water	Hot Water Pipe Insulation	Biz-Custom	Warehouse	Retro	27	21	16	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1412	Hot Water	Faucet Aerator	Biz-Custom	Warehouse	Retro	34	35	36	36	36	27	27	27	27	26	20	19	19	18	18	14	13	13	13	12	
1413	Hot Water	low Flow Rinse-Sprayers	Biz-Custom	Warehouse	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1414	Hot Water	ENERGY STAR Commercial Washing Machines	Biz-Standard/SBDI	Warehouse	ROB	16	14	12	9	7	6	4	3	0	0	0	0	0	0	0	0	0	0	0	0	
1415	Interior Lighting	LED <11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	13	11	9	7	6	4	3	2	0	0	0	3	3	2	2	1	1	1	1	0	0
1416	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	18	15	13	10	8	6	4	3	0	0	0	4	3	3	2	1	1	1	1	0	0
1417	Interior Lighting	LED Specialty Lamp	Biz-Standard/SBDI	Warehouse	Retro	13	11	9	7	6	4	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0
1418	Interior Lighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Warehouse	Retro	142	122	101	81	63	48	36	27	0	0	0	36	31	25	20	16	12	9	7	0	0
1419	Interior Lighting	LED <13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Standard/SBDI	Warehouse</																						

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1496	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Warehouse	Retro	43	64	71	76	84	105	127	148	164	173	173	164	148	127	105	84	64	43	103	94	81
1497	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Warehouse	Retro	8	9	10	12	15	17	19	19	19	19	19	18	16	13	11	9	12	11	10	9	8
1498	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1499	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Warehouse	Retro	5	6	6	7	9	10	12	13	13	13	13	12	11	9	8	6	8	7	7	6	5
1500	Wholbidg, HVAC	HVAC - Energy Management System	Bi-Custom	Warehouse	Retro	16	17	18	23	27	32	35	36	36	34	30	26	21	17	13	21	19	18	16	19	19
1501	Wholbidg, HVAC	Cool Roof	Bi-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1502	Wholbidg, HVAC	Retro-commissioning, Bld Optimization	Bi-Custom	Warehouse	Retro	28	42	46	49	54	87	110	126	137	145	168	179	180	175	168	173	200	162	152	141	141
1503	Wholbidg, HVAC	Wholbidg - Com RET	Bi-Custom	Warehouse	Retro	106	155	169	177	191	216	262	324	355	372	370	348	379	367	330	294	266	266	275	286	286
1504	Wholbidg, HVAC	Wholbidg - Custom (Other)	Bi-Custom	Warehouse	Retro	71	103	112	118	128	157	188	216	237	248	247	232	232	252	245	220	196	177	178	183	191
1505	Wholbidg, HVAC	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Warehouse	Retro	91	88	82	72	60	39	30	23	17	12	0	0	0	0	0	0	0	0	0	0	0
1506	Wholbidg, HVAC	Wholbidg - Com NC	Bi-Custom	Warehouse	NC	327	75	303	336	409	188	249	342	638	281	485	591	1,082	284	423	441	671	386	559	646	646
1507	Behavioral	COM Connections	Bi-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1508	Behavioral	Business Energy Reports	Bi-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1509	Behavioral	Building Benchmarking	Bi-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1510	Behavioral	Strategic Energy Management	Bi-Custom/SDM	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1511	Behavioral	BEIMS	Bi-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1512	Behavioral	Building Operator Certification	Bi-Custom	Warehouse	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1513	Compressor&dr	Retro-commissioning, Compressed Air Optimization	Bi-Custom	Warehouse	Retro	475	450	405	348	287	586	516	440	363	291	439	387	330	272	218	329	290	247	204	164	164
1514	Compressor&dr	Compressed Air Leak Repair	Bi-Custom	Other	Retro	841	757	650	537	429	965	822	679	544	322	723	617	509	408	241	543	462	382	306	181	181
1515	Compressor&dr	Efficient Air Compressors (VSD)	Bi-Standard	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1516	Compressor&dr	AODD Pump Controls	Bi-Custom	Other	Retro	601	491	388	300	227	169	125	0	0	0	428	554	283	220	168	126	93	0	0	0	0
1517	Compressor&dr	No Loss Condensate Drain	Bi-Standard	Other	Retro	22	32	35	37	40	50	60	70	78	82	97	108	95	87	79	77	76	76	76	75	75
1518	Compressor&dr	Efficient Air Nozzles	Bi-Standard	Other	Retro	41	50	60	69	76	80	79	75	67	58	48	38	30	23	17	41	36	43	50	56	56
1519	Compressor&dr	Compressed Air - Custom	Bi-Custom	Other	ROB	776	848	882	871	817	729	623	512	407	316	778	777	762	628	595	535	460	380	303	236	236
1520	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Other	ROB	10	10	11	11	12	12	12	12	12	12	12	12	9	9	9	9	9	9	9	9	9
1521	Cooking	Commercial Electric Connection Oven	Bi-Custom	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1522	Cooking	Commercial Electric Giddle	Bi-Custom	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1523	Cooking	Commercial Electric Steam Cooker	Bi-Standard	Other	ROB	3	3	4	4	5	5	5	5	5	6	6	5	5	5	5	5	5	5	5	4	4
1524	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Other	ROB	11	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	10	10	10	10	10
1525	Cooking	Dishwasher High Temp Door (Energy Star)	Bi-Custom	Other	ROB	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1526	Cooking	Energy efficient electric fryer	Bi-Custom	Other	ROB	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1527	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1528	Cooking	Insulated Holding Cabinets (3/4 Size)	Bi-Standard	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1529	Cooking	Air Conditioner - 17 SEER (5/30 Sts)	Bi-Standard/SDM	Other	ROB	14	18	22	26	30	34	38	41	43	45	47	48	49	50	50	46	46	44	43	42	42
1530	Cooking	Air Conditioner - 17 SEER (5/30 Sts)	Bi-Standard/SDM	Other	ROB	19	23	29	35	40	46	50	55	58	61	63	65	66	67	67	62	61	59	58	57	57
1531	Cooking	Air Conditioner - 18 SEER (5/30 Sts)	Bi-Standard/SDM	Other	ROB	26	32	41	49	57	65	71	77	82	86	89	91	93	94	94	88	86	84	82	80	80
1532	Cooking	Air Conditioner - 21 SEER (5/30 Sts)	Bi-Standard/SDM	Other	ROB	2	4	5	7	9	12	15	18	22	25	28	31	34	36	38	39	39	39	40	40	39
1533	Cooking	Air Conditioner - 14 SEER (20+ Tons)	Bi-Standard	Other	ROB	3	5	6	7	9	11	12	13	14	15	16	16	16	16	16	16	16	16	16	16	16
1534	Cooking	Air Conditioner - 17 SEER (20+ Tons)	Bi-Standard	Other	ROB	3	5	6	7	9	11	12	13	14	15	16	16	16	16	16	16	16	16	16	16	16
1535	Cooking	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Bi-Custom	Other	Retro	398	338	308	552	471	387	532	441	377	256	397	329	265	296	245	197	220	183	147	164	136
1536	Cooking	Air Side Economizer	Bi-Custom	Other	Retro	498	551	581	579	547	492	422	347	277	215	215	215	215	215	215	425	402	361	309	255	203
1537	Cooking	Advanced Rooftop Controls	Bi-Standard/SDM	Other	Retro	1,534	1,524	1,435	1,096	900	716	554	421	315	233	0	0	0	0	0	0	0	0	0	0	0
1538	Cooking	HVAC Occupancy Controls	Bi-Custom	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1539	Cooking	Air Conditioner - 16 SEER (<5 Tons)	Bi-Standard/SDM	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1540	Cooking	Air Conditioner - 17 SEER (<5 Tons)	Bi-Standard/SDM	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1541	Cooking	Air Conditioner - 18 SEER (<5 Tons)	Bi-Standard/SDM	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1542	Cooking	Air Conditioner - 21 SEER (<5 Tons)	Bi-Standard/SDM	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1543	Cooking	Smart Thermostat	Bi-Standard/SDM	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1544	Cooking	PTAC - <7,000 Btuh - lodging	Bi-Custom	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1545	Cooking	PTAC - 7,000 to 15,000 Btuh - lodging	Bi-Custom	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1546	Cooking	PTAC - >15,000 Btuh - lodging	Bi-Custom	Other	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1547	Cooking	Air Cooled Chiller	Bi-Standard	Other	ROB	10	13	17	22	28	34	41	47	54	59	64	68	71	74	76	77	78	78	78	78	78
1548	Cooking	Water Cooled Chiller	Bi-Standard	Other	ROB	2	3	4	6	7	9	11	13	15	18	19	21	22	23	24	25	26	26	26	26	26
1549	Cooking	Chiller Tune-up	Bi-Custom	Other	Retro	365	328	282	506	432	356															

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1712	Cooling	Smart Thermostat	Bi2-BSS	BSS	ROB	20	23	25	28	29	31	32	33	33	34	28	28	27	27	26	26	26	25	25	25	25
1713	Cooling	PFAC - <7,000 Btu/h - Iodging	Bi2-Custom	BSS	ROB	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
1714	Cooling	PFAC - 7,000 to 15,000 Btu/h - Iodging	Bi2-Custom	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1715	Cooling	PFAC - >15,000 Btu/h - Iodging	Bi2-Custom	BSS	ROB	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1716	Cooling	Air-Cooled Chiller	Bi2-BSS	BSS	ROB	1	2	3	4	5	6	8	9	11	13	15	16	18	19	20	21	21	21	22	22	22
1717	Cooling	Water-Cooled Chiller	Bi2-BSS	BSS	ROB	0	0	1	1	1	2	2	3	3	4	5	6	6	7	7	6	7	7	7	7	7
1718	Cooling	Chiller Tune-up	Bi2-Custom	BSS	Retro	64	58	50	90	76	63	87	72	58	65	54	43	49	40	33	36	30	24	27	23	23
1719	Cooling	Window Film	Bi2-Custom	BSS	Retro	49	51	50	47	42	36	29	23	18	13	43	42	34	32	29	25	20	16	12	9	9
1720	Cooling	Triple Pane Windows	Bi2-Custom	BSS	ROB	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	4	4
1721	Cooling	Exhaust Recovery Ventilator	Bi2-Custom	BSS	Retro	33	37	39	42	52	62	71	78	82	81	76	68	58	48	38	51	46	42	40	35	35
1722	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi2-Custom	BSS	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1723	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi2-Custom	BSS	Retro	42	32	25	19	14	0	0	0	0	0	0	0	0	0	0	0	0	10	8	6	5
1724	Exterior Lighting	LED <=130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Bi2-Custom	BSS	Retro	45	35	26	20	15	0	0	0	0	0	0	0	0	0	0	0	0	11	9	7	5
1725	Exterior Lighting	LED <=130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi2-Custom	BSS	Retro	42	33	25	19	14	0	0	0	0	0	0	0	0	0	0	0	0	11	8	6	5
1726	Exterior Lighting	LED <=225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi2-Custom	BSS	Retro	51	40	30	23	17	0	0	0	0	0	0	0	0	0	0	0	0	13	10	8	6
1727	Exterior Lighting	LED <=225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi2-Custom	BSS	Retro	45	35	27	20	15	0	0	0	0	0	0	0	0	0	0	0	0	11	9	7	5
1728	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Bi2-Custom	BSS	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1729	Heating	Heat Pump - 16 SEER (<5 Tons)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1730	Heating	Heat Pump - 17 SEER (<5 Tons)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1731	Heating	Heat Pump - 18 SEER (<5 Tons)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1732	Heating	Heat Pump - 21 SEER (<5 Tons)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1733	Heating	Variable Refrigerant Flow Heat Pump	Bi2-Custom	BSS	ROB	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1734	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1735	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1736	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1737	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1738	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1739	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1740	Heating	Geothermal HP - 17 IEER < 135kbtu	Bi2-Custom	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1741	Heating	Geothermal HP - 19 IEER < 135kbtu	Bi2-Custom	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1742	Heating	PTHP - <2,000 Btu/h - Iodging	Bi2-Custom	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1743	Heating	PTHP - 7,000 to 15,000 Btu/h - Iodging	Bi2-Custom	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1744	Heating	PTHP - >15,000 Btu/h - Iodging	Bi2-Custom	BSS	ROB	2	5	6	12	16	21	27	34	41	50	58	65	72	78	83	87	89	91	91	92	92
1745	Hot Water	Res-Strip Heat Pump Water Heater	Bi2-BSS	BSS	ROB	1	2	4	5	7	9	12	15	18	22	25	29	32	35	37	38	39	40	40	40	40
1746	Hot Water	Commercial-Sized HPWH	Bi2-BSS	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1747	Hot Water	Hot Water Pipe Insulation	Bi2-Custom	BSS	ROB	35	27	20	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1748	Hot Water	Low Flow Re-Rinse Sprayers	Bi2-Custom	BSS	Retro	44	45	46	47	47	35	35	35	34	34	25	19	14	24	23	17	17	16	16	16	
1749	Hot Water	ENERGY STAR Commercial Washing Machines	Bi2-Custom	BSS	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1750	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Bi2-BSS	BSS	Retro	9	10	11	12	12	11	10	9	7	6	7	6	5	5	5	3	3	3	2	2	1
1751	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Bi2-BSS	BSS	Retro	7	8	9	9	9	8	7	6	4	5	4	5	4	4	2	2	2	2	2	1	1
1752	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Bi2-BSS	BSS	Retro	9	11	12	13	13	12	11	9	8	6	7	6	6	6	5	3	3	3	2	2	2
1753	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen B8/R 45-65 Watt Lamp	Bi2-BSS	BSS	Retro	78	91	101	107	107	101	91	78	65	52	60	54	48	44	27	25	23	20	16	13	13
1754	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 3.5-50 Watt Lamp	Bi2-BSS	BSS	Retro	72	84	93	99	99	84	72	60	48	40	48	45	40	40	25	23	21	18	15	12	12
1755	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Bi2-BSS	BSS	Retro	65	76	84	89	89	84	76	65	54	43	50	44	40	36	22	21	19	16	13	11	11
1756	Interior Lighting	LED <=20 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi2-BSS	BSS	Retro	232	237	272	272	272	232	199	164	131	102	78	58	43	0	0	0	0	58	64	68	68
1757	Interior Lighting	LED <=20 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi2-BSS	BSS	Retro	143	167	185	196	196	185	167	143	118	95	74	56	42	31	0	0	0	36	42	46	49
1758	Interior Lighting	LED <=225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi2-BSS	BSS	Retro	174	193	203	203	193	174	149	123	98	77	58	44	32	0	0	0	43	48	51	51	48
1759	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Bi2-BSS	BSS	Retro	306	356	395	417	417	356	306	253	202	157	120	90	67	0	0	0	76	89	99	104	
1760	Interior Lighting	LED <=225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi2-BSS	BSS	Retro	60	70	77	82	82	77	70	60	49	40	46	41	37	33	20	19	17	15	12	10	10
1761	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Bi2-BSS	BSS	Retro	86	101	112	118	118	101	86	71	57	44	34	25	19	0	0	0	22	25	28	30	
1762	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, K1s, and Fixtures)	Bi2-BSS	BSS	Retro	98	114	126	133	133	114	98	81	65	50	63	57	53	33	33	32	28	24	20	20	
1763	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Bi2-BSS	BSS	Retro	33	37	39	39	37	33	29	24	19	15	11	8	6	0	0	0	8	9	10	10	
1764	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Bi2-BSS	BSS	Retro	233	271																			

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (MWh)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1853	HVAC	Efficient HVAC O&M	Biz-Custom	Industrial	Retro	258	272	273	454	441	407	508	464	412	464	411	357	354	313	270	265	235	203	201	179	
1854	Lighting	Efficient Lighting Equipment	Biz-Standard	Industrial	Retro	1,815	2,271	2,762	3,230	3,618	3,624	3,835	3,650	3,317	2,860	2,379	1,917	1,511	1,154	868	2,113	1,846	2,242	2,623	2,931	
1855	Lighting	Efficient Lighting O&M	Biz-Custom	Industrial	Retro	230	251	261	421	419	395	471	434	391	421	377	332	348	281	248	258	210	187	196	160	
1856	Machine Drive	Efficient MechDr Equipment	Biz-Custom	Industrial	ROB	1,916	2,292	2,681	3,054	3,406	3,692	3,936	4,140	4,327	4,454	4,571	4,674	4,734	4,744	4,758	4,254	4,173	4,084	4,009	3,944	
1857	Machine Drive	Efficient MechDr O&M	Biz-Custom	Industrial	Retro	1,267	1,333	1,335	2,216	2,151	1,985	2,471	2,252	1,998	2,243	1,987	1,720	1,705	1,503	1,293	1,271	1,126	972	960	853	
1858	Process Heat	Efficient ProHeat Equipment	Biz-Custom	Industrial	ROB	296	355	415	472	527	571	609	640	669	689	707	723	732	734	736	658	645	632	620	610	
1859	Process Heat	Efficient ProHeat O&M	Biz-Custom	Industrial	Retro	394	415	416	693	674	623	777	710	632	711	631	548	544	481	415	409	363	313	310	275	
1860	Process Refrig	Efficient ProRefrig Equipment	Biz-Custom	Industrial	ROB	263	314	367	419	467	506	539	567	593	611	626	641	649	650	652	583	572	560	549	541	
1861	Process Refrig	Efficient ProRefrig O&M	Biz-Custom	Industrial	Retro	209	220	221	367	356	329	410	374	332	373	330	286	284	251	216	212	188	163	161	143	
1862	Other Process	Efficient Other Facility Process Equipment	Biz-Custom	Industrial	ROB	560	651	742	825	900	958	1,006	1,046	1,084	1,108	1,131	993	981	960	942	926	915	906	902	900	
1863	Other Process	Efficient Other Facility Process O&M	Biz-Custom	Industrial	Retro	440	462	461	637	594	537	777	720	172	130	98	398	346	346	328	295	265	211	169	133	
1864	Whole Building	Power Distribution (Transformers)	Biz-Custom	Industrial	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1865	Whole Building	Strategic Energy Management	Biz-Custom-IBM	Industrial	Retro	4,242	4,217	3,989	6,738	6,243	5,989	7,031	6,195	5,321	6,164	5,324	4,003	4,691	4,056	3,099	3,906	3,034	2,275	2,654	2,801	
1866	Motors	Efficient Motor Pmp Equipment - OI Cost	Biz-Agriculture	Agriculture	ROB	95	114	135	156	176	192	205	216	225	232	238	244	247	249	248	222	217	213	209	206	
1867	Motors	Efficient Motor Pmp Equipment - OI Cost	Biz-Agriculture	Agriculture	ROB	47	57	68	78	88	96	103	108	113	116	119	122	123	124	124	111	109	106	104	103	
1868	Motors	Efficient Motor Pmp Equipment - OI Cost	Biz-Agriculture	Agriculture	ROB	19	23	27	31	35	38	41	43	45	46	48	49	49	49	49	50	44	43	43	42	
1869	Motors	Efficient Motor Pmp O&M	Biz-Agriculture	Agriculture	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1870	Refrigeration	Efficient Refrigeration Equipment	Biz-Agriculture	Agriculture	ROB	43	51	61	70	79	86	92	97	101	104	107	109	111	111	111	100	98	96	94	92	
1871	Lighting	Efficient Lighting	Biz-Agriculture	Agriculture	Retro	1,167	1,245	1,264	1,216	1,116	970	804	645	507	387	293	219	0	0	0	0	595	1,056	1,059	1,009	913
1872	Lighting	Grow Lighting	Biz-Agriculture	Agriculture	Retro	2,764	2,253	1,786	1,380	1,051	784	574	0	0	0	0	0	0	0	0	0	2,038	1,671	1,337	1,044	800
1873	Ventilation	Efficient Ventilation	Biz-Agriculture	Agriculture	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1874	HVAC	HVAC	Biz-Agriculture	Agriculture	ROB	13	16	19	22	25	27	29	30	32	33	34	34	34	35	35	35	31	31	30	29	

Appendix C. Business Incremental Annual Program Realistic Achievable Potential (Total Utility \$)

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1642	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Other	Retro	\$1,337	\$2,026	\$2,174	\$2,461	\$2,738	\$3,462	\$4,236	\$4,981	\$5,593	\$5,967	\$6,032	\$5,778	\$5,258	\$4,569	\$4,260	\$4,211	\$4,211	\$3,877	\$3,594	\$3,487		
1643	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Other	Retro	\$862	\$1,304	\$1,578	\$1,752	\$1,752	\$2,211	\$2,700	\$3,168	\$3,550	\$3,814	\$3,814	\$3,646	\$3,311	\$2,872	\$2,666	\$2,631	\$2,631	\$2,631	\$2,631	\$2,316	\$2,166	
1644	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1645	Refrigeration	Refrigeration Economizer	Bi-Custom	Other	Retro	\$137	\$206	\$230	\$247	\$272	\$342	\$415	\$483	\$558	\$576	\$676	\$700	\$666	\$611	\$558	\$542	\$542	\$537	\$538	\$539	\$531	
1646	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Standard	Other	Retro	\$2,299	\$3,466	\$3,872	\$4,171	\$4,618	\$5,513	\$7,078	\$8,284	\$9,257	\$9,829	\$11,172	\$12,177	\$11,613	\$10,669	\$9,811	\$9,544	\$9,507	\$9,507	\$9,507	\$9,507	\$9,507	
1647	Refrigeration	Display Case Door Retrofits, Medium Temp	Bi-Custom	Other	Retro	\$189	\$287	\$322	\$349	\$388	\$490	\$600	\$706	\$792	\$845	\$855	\$819	\$745	\$647	\$541	\$603	\$597	\$597	\$549	\$509	\$404	
1648	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1649	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1650	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Other	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1651	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Standard	Other	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1652	Refrigeration	Energy Star Reach-In Refrigerator, Low Temp	Bi-Standard	Other	ROB	\$538	\$815	\$915	\$991	\$1,103	\$1,403	\$1,707	\$2,008	\$2,256	\$2,408	\$2,804	\$3,014	\$2,889	\$2,676	\$2,466	\$2,447	\$2,415	\$2,415	\$2,445	\$2,472	\$2,458	
1653	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Custom	Other	ROB	\$385	\$583	\$653	\$705	\$783	\$988	\$1,207	\$1,416	\$1,689	\$1,983	\$2,169	\$1,629	\$1,480	\$1,163	\$1,450	\$1,331	\$1,450	\$1,331	\$1,347	\$1,481	\$1,481	
1654	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Other	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1655	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Other	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1656	Refrigeration	Refrigeration - Custom	Bi-Custom	Other	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1657	Refrigeration	Retro-commencing Refrigerator Optimization	Bi-Custom	Other	Retro	\$3,754	\$5,672	\$6,349	\$6,853	\$7,603	\$12,511	\$16,118	\$18,688	\$20,708	\$22,738	\$26,434	\$28,324	\$28,867	\$28,561	\$27,727	\$28,833	\$28,684	\$27,612	\$26,465	\$26,565		
1658	Refrigeration	Energy Star Ice Machine	Bi-Custom	Other	ROB	\$48	\$122	\$205	\$295	\$396	\$553	\$679	\$863	\$1,069	\$1,291	\$1,503	\$1,701	\$1,880	\$2,035	\$2,161	\$2,256	\$2,321	\$2,359	\$2,377	\$2,379	\$2,379	
1659	Refrigeration	ESTAR Refrigerated Vending Machine	Bi-Custom	Other	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1660	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Other	Retro	\$1,989	\$3,012	\$3,379	\$3,656	\$4,005	\$5,138	\$6,285	\$7,388	\$8,292	\$10,474	\$11,008	\$11,332	\$10,789	\$10,107	\$9,877	\$9,741	\$9,683	\$9,613	\$9,613	\$10,756	\$11,012	
1661	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/1F	Bi-Custom	Other	Retro	\$945	\$1,428	\$1,600	\$1,728	\$1,918	\$2,421	\$2,957	\$3,470	\$3,889	\$4,140	\$4,947	\$5,159	\$4,934	\$4,559	\$4,099	\$4,086	\$4,127	\$4,164	\$4,127	\$4,164	\$4,131	
1662	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Other	Retro	\$40,261	\$60,610	\$69,530	\$72,692	\$80,347	\$100,950	\$122,721	\$144,366	\$159,925	\$189,496	\$170,204	\$161,940	\$146,389	\$126,360	\$104,816	\$116,422	\$114,130	\$114,130	\$114,130	\$114,130	\$104,328	\$96,060
1663	Ventilation	Demand Controlled Ventilation	Bi-Standard	Other	Retro	\$4,946	\$7,019	\$7,916	\$8,563	\$9,510	\$11,911	\$14,635	\$17,137	\$19,183	\$20,173	\$20,925	\$19,676	\$17,825	\$14,478	\$12,632	\$143,171	\$143,171	\$143,171	\$143,171	\$143,171	\$119,744	\$115,863
1664	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Other	Retro	\$5,834	\$6,552	\$7,096	\$7,899	\$9,295	\$12,237	\$14,389	\$16,178	\$17,271	\$17,470	\$16,743	\$15,247	\$13,258	\$11,079	\$8,858	\$8,242	\$8,242	\$8,242	\$8,242	\$8,242	\$8,242	\$8,242
1665	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Other	Retro	\$251	\$281	\$304	\$338	\$428	\$523	\$615	\$691	\$737	\$745	\$713	\$649	\$564	\$478	\$380	\$519	\$478	\$443	\$443	\$443	\$443	\$443
1666	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Other	Retro	\$4,641	\$5,205	\$5,629	\$6,257	\$7,007	\$9,667	\$11,359	\$12,745	\$13,587	\$13,724	\$13,135	\$11,944	\$10,372	\$8,655	\$6,889	\$9,537	\$8,773	\$8,127	\$8,127	\$8,127	\$8,127	\$8,127
1667	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Other	Retro	\$2,636	\$2,481	\$2,823	\$3,559	\$4,334	\$5,051	\$5,675	\$6,305	\$6,073	\$5,714	\$5,269	\$4,427	\$3,782	\$3,045	\$2,381	\$731	\$731	\$731	\$731	\$731	\$731	\$731
1668	Wholesale/ HVAC	HVAC - Energy Management System	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1669	Wholesale/ HVAC	Coil Roof	Bi-Custom	Other	Retro	\$4,397	\$5,190	\$5,810	\$6,277	\$6,984	\$11,281	\$14,741	\$17,313	\$18,799	\$20,989	\$23,962	\$25,756	\$26,523	\$25,825	\$25,835	\$25,835	\$26,178	\$26,108	\$25,308	\$23,034	\$22,399	
1670	Wholesale/ HVAC	Retro-commencing Bldg Optimization	Bi-Custom	Other	Retro	\$106,916	\$161,200	\$180,250	\$194,260	\$215,380	\$270,934	\$330,088	\$386,442	\$432,086	\$468,976	\$461,946	\$440,525	\$420,459	\$402,744	\$388,344	\$355,467	\$338,841	\$313,841	\$292,841	\$273,841	\$254,841	
1671	Wholesale/ HVAC	Whole/CEM - Com RET	Bi-Custom	Other	Retro	\$7,277	\$10,527	\$12,067	\$12,957	\$14,343	\$18,026	\$22,006	\$25,655	\$28,057	\$30,985	\$30,764	\$29,684	\$28,684	\$27,653	\$26,603	\$25,896	\$25,896	\$25,896	\$25,896	\$25,896	\$25,896	\$25,896
1672	Wholesale/ HVAC	Power Distribution Equipment (Transformers)	Bi-Custom	Other	Retro	\$9,402	\$9,194	\$8,975	\$9,307	\$9,654	\$16,964	\$45,792	\$13,852	\$27,488	\$20,762	\$15,482	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1673	Wholesale/ HVAC	Whole/CEM - Com NC	Bi-Custom	Other	NC	\$24,049	\$40,689	\$20,766	\$25,613	\$38,109	\$128,753	\$172,072	\$238,001	\$448,300	\$1,955,575	\$47,310	\$42,861	\$796,539	\$209,402	\$131,747	\$331,511	\$509,536	\$1,009,865	\$443,679	\$505,190	\$505,190	
1674	Wholesale/ HVAC	Whole/CEM - Com Other	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1675	Behavioral	COM Competitors	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1676	Behavioral	Business Energy Reports	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1677	Behavioral	Building Benchmarking	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1678	Behavioral	Strategic Energy Management	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1679	Behavioral	BEMS	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1680	Behavioral	Building Operator Certification	Bi-Custom	Other	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1681	Compressor/Air	Retro-commencing Compressed Air Optimization	Bi-Custom	BSS	Retro	\$17,355	\$16,737	\$15,179	\$13,146	\$10,941	\$22,474	\$19,959	\$17,149	\$14,749	\$14,749	\$15,543	\$17,555	\$15,597	\$13,408	\$11,666	\$9,084	\$8,745	\$12,218	\$10,838	\$8,755	\$7,087	
1682	Compressor/Air	Compressed Air Leak Repair	Bi-Custom	BSS	Retro	\$2,015	\$2,005	\$1,742	\$1,480	\$1,192	\$2,681	\$2,315	\$1,937	\$1,552	\$1,222	\$944	\$732	\$181	\$15,474	\$15,274	\$17,153	\$14,816	\$12,377	\$14,816	\$12,377	\$10,078	\$6,040
1683	Compressor/Air	Efficient Air Compressors (VSD)	Bi-Custom	BSS	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1684	Compressor/Air	ADD Pump Controls	Bi-Custom	BSS	Retro	\$1,073	\$1,128	\$82,200	\$6,498	\$5,032	\$3,836	\$2,890	\$0	\$0	\$0	\$10,624	\$9,189	\$7,743	\$5,729	\$4,439	\$3,386	\$2,552	\$0	\$0	\$0	\$0	
1685	Compressor/Air	NOO Low Condensate Drain	Bi-Custom	BSS	Retro	\$971	\$1,467	\$1,641	\$1,770	\$1,963	\$2,275	\$2,618	\$3,018	\$3,360	\$3,960	\$4,211	\$5,026	\$5,234	\$4,818	\$4,218	\$4,120	\$4,120	\$4,120	\$4,120	\$4,120	\$4,120	
1686	Compressor/Air	Efficient Air Nozzles	Bi-Custom	BSS	Retro	\$1,132	\$1,258	\$1,590	\$1,944	\$2,284	\$2,643	\$2,732	\$2,760	\$2,641	\$4,402	\$2,086	\$1,740	\$1,405	\$1,105	\$861	\$1,634	\$1,834	\$2,076	\$2,193	\$1,705	\$2,006	
1687	Compressor/Air	Compressed Air - Custom	Bi-Custom	BSS	Retro	\$3,121	\$3,257	\$3,924	\$3,974	\$3,915	\$4,414	\$2,811	\$2,811	\$1,991	\$1,991	\$1,683	\$3,834	\$3,236	\$3,094	\$2,803	\$2,433	\$2,433	\$2,433				

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Total Utility \$)

Ameren Missouri 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1791	Motors	Power Drive Systems	Bi-Custom	BSS	\$5,263	\$6,650	\$81,300	\$9,553	\$10,718	\$11,426	\$11,541	\$11,046	\$10,045	\$8,722	\$7,278	\$5,877	\$4,622	\$3,561	\$2,700	\$6,626	\$5,823	\$7,130	\$8,390	\$9,427	
1792	Motors	Switch Reluctance Motors	Bi-Custom	BSS	\$8,120	\$12,343	\$19,300	\$15,097	\$16,851	\$17,282	\$16,541	\$15,046	\$14,045	\$12,722	\$10,728	\$8,877	\$7,328	\$6,278	\$5,200	\$6,206	\$5,403	\$7,130	\$8,390	\$9,427	
1793	Motors	Escalators Motor Efficiency Controllers	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1794	Office	Energy Star Printer/Copier/Fax	Bi-Custom	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1795	Office	Smart Power Strip - Commercial Use	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1796	Office	Plug Load Occupancy Sensor	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1797	Office	Electrically Commutated Plug Fans in data centers	Bi-Custom	BSS	\$516	\$786	\$888	\$966	\$1,081	\$1,175	\$1,692	\$2,001	\$2,260	\$2,424	\$2,464	\$2,373	\$2,172	\$1,897	\$1,593	\$1,788	\$1,777	\$1,644	\$1,532	\$1,495	
1798	Office	Energy Star Server	Bi-Custom	ROB	\$7	\$19	\$32	\$46	\$61	\$81	\$105	\$133	\$163	\$194	\$225	\$252	\$282	\$305	\$332	\$334	\$341	\$343	\$342	\$340	
1799	Office	Server Virtualization	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1800	Office	High Efficiency ChAC Unit	Bi-Custom	ROB	\$53	\$134	\$226	\$325	\$436	\$576	\$748	\$950	\$1,177	\$1,421	\$1,669	\$1,910	\$2,131	\$2,328	\$2,488	\$2,625	\$2,721	\$2,793	\$2,847	\$2,884	
1801	Office	Computer Room Air Conditioner Economizer	Bi-Custom	BSS	\$54	\$123	\$183	\$205	\$220	\$246	\$311	\$379	\$458	\$549	\$636	\$723	\$808	\$888	\$962	\$1,030	\$1,095	\$1,156	\$1,214	\$1,270	
1802	Office	Data Center Hot/Cold Aisle Configuration	Bi-Custom	BSS	\$54	\$82	\$92	\$99	\$110	\$119	\$170	\$199	\$223	\$237	\$239	\$229	\$208	\$180	\$150	\$167	\$165	\$152	\$140	\$136	
1803	Office	Energy Star Laptop	Bi-Custom	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1804	Office	Energy Star Monitor	Bi-Custom	ROB	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1805	Refrigeration	Strip Curtains	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1806	Refrigeration	Bare Section Line	Bi-Custom	BSS	\$31	\$47	\$62	\$56	\$63	\$79	\$96	\$113	\$127	\$135	\$136	\$130	\$118	\$102	\$85	\$95	\$94	\$86	\$80	\$77	
1807	Refrigeration	Floating Head Pressure Controls	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1808	Refrigeration	Saturated Suction Controls	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1809	Refrigeration	Compressor Retrofit	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1810	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Custom	BSS	\$357	\$540	\$605	\$654	\$726	\$917	\$1,120	\$1,314	\$1,473	\$1,569	\$1,584	\$1,514	\$1,376	\$1,193	\$995	\$1,109	\$1,094	\$1,066	\$931	\$902	
1811	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	BSS	\$91	\$188	\$233	\$249	\$287	\$489	\$597	\$701	\$785	\$866	\$864	\$806	\$732	\$635	\$529	\$590	\$582	\$535	\$495	\$479	
1812	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1813	Refrigeration	Refrigeration Economizer	Bi-Custom	BSS	\$30	\$46	\$51	\$55	\$60	\$76	\$92	\$107	\$119	\$126	\$115	\$147	\$123	\$100	\$119	\$119	\$119	\$119	\$119	\$118	
1814	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	BSS	\$1,476	\$2,219	\$2,472	\$2,656	\$2,933	\$3,681	\$4,470	\$5,216	\$5,813	\$6,154	\$7,311	\$7,579	\$7,206	\$6,619	\$6,050	\$5,880	\$5,827	\$5,849	\$5,866	\$5,783	
1815	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1816	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	BSS	\$61	\$92	\$103	\$112	\$124	\$156	\$191	\$224	\$251	\$268	\$270	\$258	\$235	\$204	\$170	\$189	\$187	\$172	\$159	\$154	
1817	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1818	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1819	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1820	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Custom	BSS	\$216	\$326	\$365	\$394	\$437	\$551	\$672	\$788	\$882	\$999	\$1,120	\$1,167	\$1,115	\$1,029	\$946	\$924	\$920	\$928	\$935	\$927	
1821	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1822	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1823	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1824	Refrigeration	Refrigeration - Custom	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1825	Refrigeration	Refrigeration - Custom	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1826	Refrigeration	Refrigeration	Bi-Custom	BSS	\$806	\$1,218	\$1,363	\$1,471	\$1,632	\$2,086	\$2,460	\$2,800	\$3,146	\$3,446	\$4,783	\$5,634	\$6,081	\$6,132	\$5,852	\$6,190	\$6,158	\$5,228	\$4,612	\$5,274	
1827	Refrigeration	Energy Star Ice Machine	Bi-Custom	BSS	\$9	\$23	\$39	\$56	\$75	\$96	\$129	\$164	\$203	\$245	\$286	\$323	\$357	\$387	\$411	\$429	\$441	\$448	\$445	\$452	\$452
1828	Refrigeration	ESTAR Refrigerated Vending Machine	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1829	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	BSS	\$530	\$802	\$900	\$973	\$1,083	\$1,268	\$1,474	\$1,967	\$2,208	\$2,789	\$3,038	\$3,018	\$2,873	\$2,692	\$2,630	\$2,594	\$2,579	\$2,569	\$2,564	\$2,533	
1830	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	BSS	\$252	\$380	\$426	\$460	\$511	\$645	\$787	\$924	\$1,036	\$1,103	\$1,138	\$1,174	\$1,116	\$1,062	\$1,008	\$1,009	\$1,011	\$1,011	\$1,011	\$1,011	
1831	Ventilation	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	BSS	\$16,912	\$25,415	\$29,293	\$30,273	\$33,510	\$42,023	\$50,992	\$59,457	\$66,396	\$70,021	\$70,714	\$66,633	\$60,111	\$55,780	\$48,240	\$48,240	\$48,240	\$48,240	\$48,240	\$48,240	
1832	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Custom	BSS	\$1,632	\$2,051	\$2,351	\$2,717	\$3,360	\$4,223	\$5,142	\$6,124	\$7,162	\$8,242	\$9,366	\$10,526	\$11,712	\$12,926	\$14,168	\$15,438	\$16,736	\$18,062	\$19,416	\$20,898	
1833	Ventilation	High Volume Low Speed Fan, 20	Bi-Custom	BSS	\$42	\$84	\$92	\$99	\$103	\$132	\$170	\$197	\$229	\$259	\$285	\$292	\$280	\$259	\$232	\$202	\$185	\$166	\$153	\$146	\$137
1834	Ventilation	High Volume Low Speed Fan, 22	Bi-Custom	BSS	\$22	\$24	\$28	\$34	\$41	\$45	\$57	\$70	\$82	\$92	\$98	\$94	\$86	\$74	\$62	\$56	\$62	\$62	\$62	\$62	\$62
1835	Ventilation	High Volume Low Speed Fan, 24	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1836	Wholesale	HVAC - Energy Management System	Bi-Custom	BSS	\$0,074	\$5,470	\$6,061	\$7,634	\$9,900	\$10,895	\$12,184	\$12,946	\$13,004	\$13,433	\$11,609	\$9,752	\$8,111	\$6,374	\$5,128	\$4,139	\$7,314	\$7,314	\$7,314	\$7,314	
1837	Wholesale	HVAC - Cool Roof	Bi-Custom	BSS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1838	Wholesale	HVAC - Refrigeration, Bld Optimization	Bi-Custom	BSS	\$7,385	\$11,151	\$12,473	\$13,566	\$14,919	\$16,434	\$18,189	\$19,668	\$20,332	\$21,280	\$22,453	\$23,857	\$25,487	\$27,337	\$29,300	\$31,373	\$33,550	\$35,836	\$38,230	\$40,731	
1839	Wholesale	WholeBldg - Com RET	Bi-Custom	BSS	\$44,617	\$52,313	\$60,204	\$67,240	\$73,947	\$79,334	\$83,998	\$88,038	\$91,933	\$94,767	\$97,653	\$99,248	\$101,380	\$102,972	\$104,116	\$104,889	\$105,206	\$105,206	\$105,206	\$105,206	
1840	Wholesale	WholeBldg - Custom (Other)	Bi-Custom	BSS	\$24,634	\$40,179	\$44,902	\$48,392	\$53,604	\$67,495	\$82,231	\$97,271	\$107,637	\$114,336	\$115,076	\$109,740	\$102,938	\$108,925	\$107,860	\$106,741	\$106,551	\$106,551	\$106,551	\$106,551	
1841	Wholesale	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	BSS	\$18,622	\$19,734	\$18,805	\$17,026	\$14,719	\$13,229	\$9,831	\$7,697	\$5,903	\$4,457	\$3,326	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1842	Behavioral	WholeBldg - Com NC	Bi-Custom	BSS	\$4,952	\$10,667	\$43,316	\$48,635	\$72,586	\$72,641	\$36,941	\$5,095	\$96,242	\$42,845	\$74,561	\$91,639	\$171,003	\$44,955	\$67,571	\$71,170	\$109,388	\$63,517	\$99,889	\$108,455	
1843	Behavioral	COM Competitors	Bi-Custom	BSS	\$124	\$190	\$245	\$434	\$624	\$789	\$1,066	\$1,316	\$1,671	\$1,974	\$2,355	\$2,649	\$2,987	\$3,236	\$3,522	\$3,696	\$3,925	\$4,048	\$4,239	\$4,429	

Appendix C. Business Incremental Annual Program Realistic Achievable Potential (Total Utility \$)

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1869	Motors	Efficient Motor Pmp/O&M	Biz-Agriculture	Agriculture	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1870	Refrigeration	Efficient Refrigeration Equipment	Biz-Agriculture	Agriculture	ROB	\$5,956	\$7,264	\$8,661	\$10,061	\$11,438	\$12,642	\$13,600	\$14,437	\$15,228	\$15,822	\$16,888	\$16,920	\$17,203	\$17,509	\$17,732	\$16,010	\$15,864	\$15,864	\$15,683	\$15,552	\$15,459	
1871	Lighting	Efficient Lighting	Biz-Agriculture	Agriculture	Retro	\$169,448	\$175,814	\$180,041	\$174,775	\$161,888	\$141,881	\$118,583	\$96,035	\$76,146	\$58,779	\$44,828	\$33,849	\$0	\$0	\$0	\$0	\$159,991	\$174,420	\$173,711	\$167,711	\$167,176	\$152,914
1872	Lighting	Grow Lighting	Biz-Agriculture	Agriculture	Retro	\$395,434	\$332,797	\$272,292	\$217,090	\$170,064	\$130,275	\$97,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$387,673	\$334,478	\$326,719	\$207,651	\$160,886	
1873	Ventilation	Efficient Ventilation	Biz-Agriculture	Agriculture	Retro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1874	HVAC	HVAC	Biz-Agriculture	Agriculture	ROB	\$2,667	\$3,244	\$3,857	\$4,469	\$5,068	\$5,487	\$5,995	\$6,347	\$6,677	\$6,919	\$7,148	\$7,360	\$7,507	\$7,575	\$7,651	\$6,890	\$6,809	\$6,713	\$6,639	\$6,581	\$6,581	

Measure #	End-Use	Measure Name	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1	Compressor	Compressor - Compressed Air Optimization	per kWh	82,855	78,025	70,229	60,356	49,844	101,591	89,506	76,290	62,966	50,520	37,890	27,819	17,218	47,240	37,890	57,145	50,347	42,913	35,430	28,417	
2	Compressor	Compressed Air Leak Repair	per kWh	166,900	130,225	123,005	106,618	85,187	191,459	163,190	134,732	108,065	63,890	43,594	142,392	101,049	81,049	47,918	107,696	91,794	75,787	60,786	35,538	
3	Compressor	Efficient Air Compressors (VSD)	per HP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	Compressor	AODD Pump Controls	per measure	3	2	2	2	1	1	1	1	1	1	1	2	2	2	1	1	1	1	0	0	
5	Compressor	No Loss Condensate Drain	per measure	7	3	3	3	4	5	4	5	4	12	10	9	7	6	7	6	5	5	5	5	
6	Compressor	Efficient Air Noodles	per measure	2	3	10	12	14	14	14	14	12	10	9	7	7	4	3	7	6	6	8	9	
7	Compressor	Compressed Air - Custom	per kWh	156,936	174,356	184,033	184,033	174,356	156,936	138,473	111,382	88,993	69,245	170,480	170,364	167,381	138,025	130,767	117,702	101,155	83,536	66,744	51,534	
8	Cooking	Commercial Combination Oven (Electric)	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	Cooking	Commercial Electric Convection Oven	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	Cooking	Commercial Electric Griddle	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	Cooking	Commercial Electric Steam Cooker	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	Cooking	Dishwasher - Low Temp (Energy Star)	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Cooking	Dishwasher - High Temp Door (Energy Star)	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Cooking	Energy efficient electric (Foot Size)	per measure	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15	Cooking	Insulated Holding Cabinet (Full Size)	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	Cooking	Insulated Holding Cabinet (1/4 Size)	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	Cooking	Insulated Holding Cabinet (Half Size)	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	Cooking	Air Conditioner - 17 (18-20 Tons)	per ton	61	77	94	113	131	159	165	178	189	198	205	211	215	218	220	202	198	194	189	185	
19	Cooking	Air Conditioner - 17 (18-20 Tons)	per ton	62	77	95	114	133	150	166	180	191	200	208	213	217	220	220	205	201	196	191	187	
20	Cooking	Air Conditioner - 21 (21-25 Tons)	per ton	55	69	85	101	118	134	148	160	170	178	184	189	193	195	195	182	178	174	170	166	
21	Cooking	Air Conditioner - 21 (21-25 Tons)	per ton	16	27	39	52	68	88	111	136	163	190	215	238	258	274	287	293	298	301	302	298	
22	Cooking	Air Conditioner - 15 (15-20 Tons)	per ton	15	26	37	49	64	82	104	127	152	177	201	222	241	256	268	273	278	281	282	278	
23	Cooking	Air Conditioner - 17 (18-20 Tons)	per ton	13	22	31	41	54	69	87	107	128	149	169	187	203	215	225	230	234	236	237	234	
24	Cooking	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	per ton	3,204	2,884	2,479	4,450	3,799	3,132	4,308	3,577	2,888	3,221	2,683	2,166	2,423	2,012	1,625	1,817	1,509	1,218	1,363	1,132	
25	Cooking	Air Side Economizer	per ton	1,698	1,887	1,992	1,992	1,887	1,698	1,460	1,205	983	749	1,645	1,844	1,811	1,494	1,415	1,274	1,095	904	722	562	
26	Cooking	Advanced Rooftop Controls	per ton	228	228	216	195	167	138	110	86	65	49	36	0	0	0	0	0	0	0	0	0	
27	Cooking	HVAC Occupancy Controls	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
28	Cooking	Air Conditioner - 16 (SEER < 5 Tons)	per ton	125	160	202	248	297	346	392	434	469	499	523	541	555	565	573	542	533	523	511	499	
29	Cooking	Air Conditioner - 17 (SEER < 5 Tons)	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
30	Cooking	Air Conditioner - 18 (SEER < 5 Tons)	per ton	79	98	117	136	154	170	184	196	205	212	218	222	225	225	225	205	201	196	191	187	
31	Cooking	Air Conditioner - 21 (SEER < 5 Tons)	per ton	232	240	246	251	254	254	254	254	254	254	254	196	194	193	192	191	191	191	191	191	
32	Cooking	Smart Thermostat	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
33	Cooking	PTAC - < 7,000 Btu/h - lodging	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
34	Cooking	PTAC - 7,000 to 15,000 Btu/h - lodging	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
35	Cooking	PTAC - > 15,000 Btu/h - lodging	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
36	Cooking	Water Cooled Chiller	per ton	73	97	127	163	205	252	302	352	399	443	477	507	531	550	564	575	583	583	583	583	
37	Cooking	Chiller Tune-up	per ton	13	19	25	33	42	53	65	78	91	104	114	123	131	137	142	146	148	151	151	151	
38	Cooking	Window Film	per measure	3,244	2,920	2,509	4,506	3,845	3,170	4,361	3,621	2,924	3,271	2,716	2,193	2,463	2,037	1,645	1,840	1,528	1,233	1,380	1,146	
39	Cooking	Triple Pane Windows	per measure	697	705	735	697	627	539	445	356	277	211	161	681	669	551	522	470	404	334	267	207	
40	Cooking	Energy Recovery Ventilator	per measure	4	4	6	8	11	14	17	21	26	30	34	37	40	43	45	47	48	49	49	49	
41	Exterior lighting	LED < 80 Watt Lamp or Fixture Replacing Garage or Exterior 127/110/100-175 Watt Lamp or Fixture	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	Exterior lighting	LED < 80 Watt Lamp or Fixture Replacing Garage or Exterior 127/110/100-175 Watt Lamp or Fixture	per measure	34	26	20	15	11	11	10	10	10	10	10	10	10	10	10	10	10	8	7	5	4
43	Exterior lighting	LED 62-130 Watt Lamp or Fixture Replacing Garage or Exterior 127/110/100-175 Watt Lamp or Fixture	per measure	30	23	18	13	10	10	10	10	10	10	10	10	10	10	10	10	10	7	6	4	3
44	Exterior lighting	LED 62-130 Watt Lamp or Fixture Replacing Garage or Exterior 127/110/100-175 Watt Lamp or Fixture	per measure	16	13	10	7	5	5	5	5	5	5	5	5	5	5	5	5	5	4	3	2	1
45	Exterior lighting	LED 30-50 Watt Lamp or Fixture Replacing Garage or Exterior 127/110/100-175 Watt Lamp or Fixture	per measure	19	14	11	8	6	6	6	6	6	6	6	6	6	6	6	6	5	4	3	2	2
46	Exterior lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7/110/100-175 Watt Lamp or Fixture	per measure	10	8	6	4	3	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1
47	Exterior lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7/110/100-175 Watt Lamp or Fixture	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Heating	Heat Pump - 16 (SEER < 5 Tons)	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
49	Heating	Heat Pump - 17 (SEER < 5 Tons)	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
50	Heating	Heat Pump - 18 (SEER < 5 Tons)	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
51	Heating	Heat Pump - 21 (SEER < 5 Tons)	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
52	Heating	Variable Refrigerant Flow Heat Pump	per ton	9	11	15	19	24	30	36	42	47	52	56	60	63	65	67	66	65	64	63	63	
53	Heating	Heat Pump - 15.0 (IEER COP 3.6 (65,000-134,000 Btu/yr))	per ton	42	54	67	83	99	116	131	145	157	167	175	181	185	189	192	193	184	178	175	171	
54	Heating	Heat Pump - 15.0 (IEER COP 3.6 (65,000-134,000 Btu/yr))	per ton	7	10	13	17	22	27	34	40	47	53	59	66	71	76	79	82	82	83	82	81	
55	Heating	Heat Pump - 15.0 (IEER COP 3.1 (43,000-239,000 Btu/yr))	per ton	8	11	14	19	24	31	38	45	52	59	66	71	76	79	82	82	83	82	81	77	
56	Heating	Heat Pump - 15.0 (IEER COP 3.1 (43,000-239,000 Btu/yr))	per ton	7	10	13	18	23	29	35	42	49	55	61	66	71	74	77	77	77	78	77	75	
57	Heating	Heat Pump - 12 (IEER COP 3.4 (39,000-239,000 Btu/yr))	per ton																					

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
214	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 12/17 HID	Biz-Custom	Education	per measure	50	39	30	22	17	0	0	0	0	0	0	0	0	0	0	0	13	10	7	6	4	
215	Exterior Lighting	LED 85-225 Watt Lamp or Fixture	Biz-Custom	Education	per measure	26	20	16	12	9	0	0	0	0	0	0	0	0	0	0	0	7	5	4	3	2	
216	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID	Biz-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
217	Heating	Heat Pump - 16 SEER (5 Tons)	Biz-Custom	Education	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
218	Heating	Heat Pump - 17 SEER (5 Tons)	Biz-Custom	Education	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
219	Heating	Heat Pump - 18 SEER (5 Tons)	Biz-Custom	Education	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
220	Heating	Heat Pump - 21 SEER (5 Tons)	Biz-Custom	Education	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
221	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Education	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
222	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Custom	Education	per ton	21	37	36	47	60	76	99	114	129	147	167	187	196	202	203	205	206	206	203	200	200	
223	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Custom	Education	per ton	19	30	40	52	67	84	104	124	144	164	184	196	209	219	226	227	229	230	227	223	223	
224	Heating	Heat Pump - 14.5 IEER COP 3.5 (133,000-239,000 Btu/hr)	Biz-Custom	Education	per ton	20	28	37	49	63	79	98	117	136	154	174	184	196	203	213	215	216	215	213	210	210	
225	Heating	Heat Pump - 14.5 IEER COP 3.7 (133,000-239,000 Btu/hr)	Biz-Custom	Education	per ton	19	27	36	47	60	76	95	113	130	147	163	176	187	196	203	205	206	205	206	203	200	
226	Heating	Heat Pump - 12 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Custom	Education	per ton	20	29	39	51	66	83	101	121	141	160	177	192	204	214	221	222	224	224	221	218	218	
227	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Custom	Education	per ton	17	24	31	41	53	67	82	98	114	130	148	165	173	179	181	182	182	182	179	176	176	
228	Heating	Geothermal HP - 17 IEER < 135kWh	Biz-Custom	Education	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
229	Heating	Geothermal HP - 19 IEER < 135kWh	Biz-Custom	Education	per ton	32	37	42	47	51	54	57	59	60	61	62	62	62	62	62	62	62	62	62	62	62	62
230	Heating	PTHP - 7,000 to 15,000 Btu/h - lodging	Biz-Custom	Education	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
231	Heating	PTHP - >15,000 Btu/h - lodging	Biz-Custom	Education	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
232	HotWater	Res-Std Heat Pump Water Heater	Biz-Custom	Education	per measure	21	26	33	41	49	57	65	72	78	82	86	89	92	93	95	95	90	88	86	84	82	
233	HotWater	Commercial-Std HPWH	Biz-Custom	Education	per measure	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	4	4	4	4	4	
234	HotWater	Fast Aerator	Biz-Custom	Education	per measure	1,309	998	749	555	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
235	HotWater	Low Flow Pre-Brine Strainers	Biz-Custom	Education	per measure	3,402	2,593	1,945	1,442	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
236	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Education	per measure	64	66	67	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	
237	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
238	HotWater	LED <11 Watt Lamp Replacing Interior Halogen A 28-53 Watt Lamp	Biz-Custom/SBDI	Education	per measure	142	122	101	81	63	48	36	27	0	0	0	0	0	0	0	0	0	0	0	0	0	
239	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 32/70 Watt Lamp	Biz-Custom/SBDI	Education	per measure	114	98	81	64	50	38	29	21	0	0	0	0	0	0	0	0	0	0	0	0	0	
240	Interior Lighting	LED Specialty Lamp	Biz-Custom/SBDI	Education	per measure	138	170	141	112	87	67	50	37	0	0	0	0	0	0	0	0	0	0	0	0	0	
241	Interior Lighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Custom/SBDI	Education	per measure	64	54	45	36	28	21	16	11	0	0	0	0	0	0	0	0	0	0	0	0	0	
242	Interior Lighting	LED <13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Custom/SBDI	Education	per measure	925	764	610	475	362	271	201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
243	Interior Lighting	LED <20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Custom/SBDI	Education	per measure	405	334	267	208	158	119	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
244	Interior Lighting	LED <20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Custom/SBDI	Education	per measure	398	342	282	225	175	134	100	74	0	0	0	0	0	0	0	0	0	0	0	0	0	
245	Interior Lighting	LED <58 Watt Lamp or Fixture Replacing Interior HID 175-300 Watt Lamp	Biz-Custom/SBDI	Education	per measure	245	210	174	139	108	82	62	46	0	0	0	0	0	0	0	0	0	0	0	0	0	
246	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID 175-300 Watt Lamp or Fixture	Biz-Custom/SBDI	Education	per measure	101	107	107	101	91	78	65	52	40	31	23	17	0	0	0	0	0	25	27	27	25	
247	Interior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Custom/SBDI	Education	per measure	405	348	288	230	179	136	102	76	0	0	0	0	0	0	0	0	0	101	87	72	57	
248	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Education	per measure	664	598	514	424	339	264	201	151	112	82	62	49	38	30	25	22	18	15	13	12	11	
249	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Education	per measure	692	623	536	442	353	275	210	157	117	82	62	49	38	30	25	22	18	15	13	12	11	
250	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, K1s, and Futures)	Biz-Custom/SBDI	Education	per measure	988	889	764	631	504	392	299	224	166	0	0	0	0	0	0	0	0	0	0	0	0	
251	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Custom/SBDI	Education	per measure	335	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	
252	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Custom/SBDI	Education	per measure	4,750	4,082	3,371	2,693	2,096	1,597	1,198	888	0	0	0	0	0	0	0	0	0	0	0	0	0	
253	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Education	per measure	6,570	5,914	5,082	4,197	3,353	2,609	1,989	1,492	1,106	0	0	0	0	0	0	0	0	0	0	0	0	
254	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, K1s, and Futures)	Biz-Custom/SBDI	Education	per measure	5,250	4,725	4,081	3,354	2,679	2,085	1,589	1,192	884	0	0	0	0	0	0	0	0	0	0	0	0	
255	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Custom/SBDI	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
256	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Education	per measure	3,014	2,590	2,139	1,709	1,330	1,014	760	564	0	0	0	0	0	0	0	0	0	0	0	0	0	
257	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, K1s, and Futures)	Biz-Custom/SBDI	Education	per measure	3,382	3,044	2,616	2,160	1,726	1,343	1,024	768	569	0	0	0	0	0	0	0	0	0	0	0	0	
258	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Custom/SBDI	Education	per measure	3,190	2,871	2,488	2,038	1,628	1,267	966	724	537	0	0	0	0	0	0	0	0	0	0	0	0	
259	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Custom/SBDI	Education	per measure	1,255	1,189	1,070	919	759	607	472	360	270	200	0	0	0	0	0	0	0	0	0	0	0	
260	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Custom/SBDI	Education	per measure	6,290	6,433	5,790	4,976	4,109	3,283	2,555	1,947	1,461	1,083	1,697	1,608	1,447	1,244	1,083	1,008	1,008	1,008	1,008	1,008	1,008	
261	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Custom/SBDI	Education	per measure	1,528	1,448	1,303	1,120	925	739	575	438	329	244	382	362	326	280	231	185	144	110	82	61	61	
262	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Custom/SBDI	Education	per ft	901,224	1,001,261	1,056,831	1,056,831	901,224	774,525	639,622	511,049	397,649	303,083	227,387	168,583	0	0	0	0	0	0	0	0	0	
263	Interior Lighting	Lighting Power Density	Biz-Custom	Education	per sq ft	5	6	8	9	10	11	11	11	10	8	6	5	4	3	2	3	2	3	2	2	3	
264	Interior Lighting	LED Lighting Redesign/Custom	Biz-Custom	Education																							

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
283	Office_NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
284	Office_NonPC	Plug Load Occupancy Sensor	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
285	Office_PC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Education	per measure	5	7	8	9	11	14	19	24	30	35	40	45	49	53	55	57	57	57	57	10	10
286	Office_PC	Energy Star Server	Bi-Custom	Education	per measure	1	4	6	9	11	15	24	30	35	40	45	49	53	55	57	57	57	57	10	10	
287	Office_PC	Server Virtualization	Bi-Custom	Education	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
288	Office_PC	High Efficiency ChAC Unit	Bi-Custom	Education	per measure	23	58	97	139	185	243	312	393	483	578	673	764	845	914	972	1,012	1,039	1,056	1,066	1,070	
289	Office_PC	Computer Room Air Conditioner Economizer	Bi-Custom	Education	per kWh	3,817	362	402	431	475	594	719	837	910	982	992	982	930	837	719	594	666	641	583	535	513
290	Office_PC	Data Center Hot/Cold Aisle Configuration	Bi-Custom	Education	per kWh	2,857	5,786	6,429	6,888	7,585	9,693	11,495	13,375	14,860	15,685	15,885	14,860	13,375	11,495	9,693	7,585	6,429	10,478	10,241	9,230	8,541
291	Office_PC	Energy Star Laptop	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
292	Office_PC	Energy Star Monitor	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
293	Refrigeration	Strip Curtains	Bi-Custom	Education	per sq ft	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
294	Refrigeration	Bare Suction Line	Bi-Custom	Education	per HP	115	172	191	205	226	282	342	398	442	467	467	442	398	342	282	232	313	305	277	254	
295	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
296	Refrigeration	Saturated Suction Controls	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
297	Refrigeration	Compressor Retrofit	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
298	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Education	per measure	18	27	30	33	36	45	54	63	70	74	74	70	63	54	45	36	45	50	48	40	
299	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Education	per measure	21	31	35	37	41	51	62	72	80	85	85	80	72	62	51	37	55	55	50	46	
300	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Education	per HP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
301	Refrigeration	Refrigeration Economizer	Bi-Custom	Education	per kWh	4,011	6,016	6,684	7,162	7,886	9,970	11,952	13,907	15,450	16,308	15,936	14,962	13,907	11,952	9,970	7,886	7,162	15,288	15,107	15,096	
302	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Standard	Education	per door	83	125	139	149	164	205	249	289	322	339	342	339	322	289	249	205	318	314	314	309	
303	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Standard	Education	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
304	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Education	per measure	3	4	4	5	5	6	8	9	10	10	10	10	9	8	6	7	7	6	6	5	
305	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
306	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Education	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
307	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Standard	Education	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
308	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Education	per door	8	12	13	14	16	20	24	28	31	32	38	40	38	34	31	30	30	30	30	30	30
309	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Education	per door	5	7	8	8	9	11	14	16	18	19	18	19	17	15	14	14	14	14	14	14	
310	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Education	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
311	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Education	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
312	Refrigeration	Refrigeration - Custom	Bi-Custom	Education	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
313	Refrigeration	Refrigeration - Custom	Bi-Custom	Education	per kWh	54,770	82,155	91,283	97,804	107,694	175,866	224,833	258,378	284,349	303,478	354,605	379,621	383,700	376,479	362,396	373,649	368,513	351,644	330,276	307,233	
314	Refrigeration	ESAB Refrigerated Vending Machine	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
315	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
316	Refrigeration	LED Refrigerated Display Case Lighting Average GW/EF	Bi-Custom	Education	per linear ft	489	733	815	873	961	1,203	1,457	1,696	1,884	2,355	2,350	2,178	2,106	2,064	2,054	2,020	1,983	1,944	1,934	2,221	
317	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Education	per measure	156	174	193	207	228	286	346	402	447	472	559	578	548	501	457	402	402	437	437	437	
318	Ventilation	LED Refrigerated Display Case Lighting Controls	Bi-Standard	Education	per measure	300	584	649	696	766	959	1,163	1,351	1,501	1,584	1,584	1,501	1,163	959	766	607	1,058	1,034	941	868	
319	Ventilation	Demand Controlled Ventilation	Bi-Standard	Education	per HP	433	649	721	773	851	1,065	1,290	1,501	1,667	1,790	1,790	1,667	1,301	1,290	1,065	851	773	719	668	596	
320	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Education	per measure	3	3	3	3	4	5	6	7	7	7	7	7	6	5	4	3	5	4	4	4	
321	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Education	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
322	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Education	per measure	2	2	2	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
323	Wholesale HVAC	HVAC - Energy Management System	Bi-Custom	Education	per measure	174,086	186,520	205,382	257,054	311,269	362,187	424,723	424,723	402,390	362,187	311,269	257,054	205,382	159,689	252,388	232,377	213,781	221,787	192,790	233,482	
324	Wholesale HVAC	HVAC - Energy Management System	Bi-Custom	Education	per kWh	396,792	480,480	559,078	621,136	659,609	655,609	559,078	480,480	396,792	317,031	246,683	188,019	141,600	104,581	79,465	104,581	104,581	104,581	104,581	104,581	104,581
325	Wholesale HVAC	Roof Cooling	Bi-Custom	Education	per kWh	274,544	411,860	457,423	490,096	539,657	591,667	626,242	1,294,740	1,424,881	1,520,733	1,779,940	1,902,251	1,932,728	1,886,542	1,815,978	1,872,362	1,846,627	1,763,095	1,655,022	1,540,002	
326	Wholesale HVAC	Refrigeration, BiD Optimization	Bi-Custom	Education	per kWh	282,687	424,031	471,445	504,798	555,846	605,689	644,418	680,223	1,089,028	1,149,469	1,199,469	1,238,836	1,267,139	1,238,836	1,199,469	1,149,469	1,089,028	1,049,048	994,445	849,390	
327	WholeBuilding	WholeBldg - Com RET	Bi-Custom	Education	per kWh	188,458	282,687	314,087	336,532	370,564	463,793	561,612	633,482	738,019	766,313	766,313	738,019	738,019	738,019	738,019	738,019	738,019	738,019	738,019	738,019	
328	WholeBuilding	WholeBldg - Custom (Other)	Bi-Custom	Education	per measure	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	37,517	
329	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Education	per kWh	848,230	195,393	786,588	871,912	1,295,130	488,831	647,433	887,372	1,656,129	730,443	1,259,251	1,533,037	2,833,364	737,671	1,097,959	1,145,048	1,742,446	1,001,600	1,499,307	1,675,557	
330	WholeBldg_NC	WholeBldg - Com NC	Bi-Custom	Education	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
331	Behavioral	COM Competitions	Bi-Custom	Education	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
332	Behavioral	Business Energy Reports	Bi-Custom	Education	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
333	Behavioral	Building Benchmarking	Bi-Custom	Education	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
334	Behavioral	Strategic Energy Management	Bi-Custom SEM	Education</																						

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Ameren Missouri | 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
570	HotWater	Commercial-Sized HPWH	Biz-Standard	Food Service	per measure	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
571	HotWater	Hot Water Pipe Insulation	Biz-Custom	Food Service	per measure	829	829	474	351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
572	HotWater	Faucet Aerator	Biz-Custom	Food Service	per measure	2,359	1,798	1,349	1,000	0	0	0	0	0	0	0	0	1,348	1,012	750	0	0	0	0	0	1,327
573	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Custom	Food Service	per measure	45	46	47	47	47	36	36	36	36	35	35	27	27	27	27	27	27	20	20	20	20
574	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575	InteriorLighting	LED <11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Standard/SBDI	Food Service	per measure	39	34	28	22	17	13	10	7	0	0	0	0	0	0	0	0	0	0	0	0	0
576	InteriorLighting	LED 7-20 Watt Lamp Replacing Interior Halogens 13-70 Watt Lamp	Biz-Standard/SBDI	Food Service	per measure	31	27	22	18	14	10	8	6	0	0	0	0	0	0	0	0	0	0	0	0	0
577	InteriorLighting	LED Specialty Lamp	Biz-Standard/SBDI	Food Service	per measure	54	47	39	31	24	18	14	10	0	0	0	0	0	0	0	0	0	0	0	0	
578	InteriorLighting	LED <14 Watt Lamp Replacing Interior Halogen BR/A 45 Watt Lamp	Biz-Standard/SBDI	Food Service	per measure	290	249	206	165	128	98	73	54	0	0	0	0	0	0	0	0	0	0	0	0	
579	InteriorLighting	LED <13 Watt Lamp Replacing Interior Halogen MR 16 35-50 Watt Lamp	Biz-Standard/SBDI	Food Service	per measure	423	349	279	217	166	124	92	0	0	0	0	0	0	0	0	0	0	0	0	0	
580	InteriorLighting	LED <20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Standard/SBDI	Food Service	per measure	185	153	122	95	72	54	40	0	0	0	0	0	0	0	0	0	0	0	0	0	
581	InteriorLighting	LED <80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Biz-Standard/SBDI	Food Service	per measure	172	147	122	97	76	58	43	32	0	0	0	0	0	0	0	0	0	0	0	0	
582	InteriorLighting	LED 62- 130 Watt Lamp or Fixture Replacing Interior HID 716-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Service	per measure	106	91	75	60	47	36	27	20	0	0	0	0	0	0	0	0	0	0	0	0	
583	InteriorLighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent Lamp or Fixture	Biz-Standard	Food Service	per measure	44	46	46	44	39	34	28	22	17	13	10	7	0	0	0	0	0	0	0	0	
584	InteriorLighting	LED 85- 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Food Service	per measure	175	150	124	99	77	59	44	33	0	0	0	0	0	0	0	0	0	0	0	0	
585	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Service	per measure	62	56	48	40	32	25	19	14	10	0	0	0	0	0	0	0	0	0	0	0	
586	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Food Service	per measure	65	59	50	42	33	26	20	15	11	0	0	0	0	0	0	0	0	0	0	0	
587	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Food Service	per measure	93	83	72	59	47	37	28	21	16	0	0	0	0	0	0	0	0	0	0	0	
588	InteriorLighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Food Service	per measure	31	33	33	31	28	24	20	16	12	10	7	5	0	0	0	0	0	0	0	0	
589	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Service	per measure	446	383	316	253	197	150	112	83	0	0	0	0	0	0	0	0	0	0	0	0	
590	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Food Service	per measure	617	565	477	394	315	245	187	140	104	0	0	0	0	0	0	0	0	0	0	0	
591	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Food Service	per measure	493	444	381	315	252	196	149	112	83	0	0	0	0	0	0	0	0	0	0	0	
592	InteriorLighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
593	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Food Service	per measure	283	243	201	160	125	95	71	53	0	0	0	0	0	0	0	0	0	0	0	0	
594	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Biz-Standard/SBDI	Food Service	per measure	317	286	246	203	162	126	96	72	53	0	0	0	0	0	0	0	0	0	0	0	
595	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Food Service	per measure	259	220	232	191	153	119	91	68	50	0	0	0	0	0	0	0	0	0	0	0	
596	InteriorLighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Food Service	per measure	118	112	100	86	71	57	44	34	25	19	0	0	0	0	0	0	0	0	0	0	
597	InteriorLighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Food Service	per measure	753	795	795	753	678	582	481	384	299	228	359	325	199	188	169	146	120	96	75	57	
598	InteriorLighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Food Service	per measure	169	178	178	169	152	131	108	86	67	51	81	73	45	42	38	33	27	22	17	13	
599	InteriorLighting	Lighting Power Density	Biz-Custom	Food Service	per sq ft	129,006	143,326	151,280	151,280	148,336	129,006	110,870	91,559	73,154	56,922	43,385	33,549	24,132	0	0	32,252	35,831	37,820	37,820	35,331	
600	InteriorLighting	LED Lighting Redesign/Custom	Biz-Standard	Food Service	per project	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	0	0	0	0	0	
601	InteriorLighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Biz-Standard/SBDI	Food Service	per measure	88	65	0	0	0	0	0	0	22	16	0	0	0	0	0	5	4	0	0	0	
602	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
603	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Food Service	per HP	1	2	2	3	4	5	7	8	10	12	13	15	16	17	17	18	19	19	19	19	
604	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Food Service	per measure	28	35	42	49	55	58	58	55	49	42	56	54	54	54	54	53	43	41	37	32	
605	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
606	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Food Service	per measure	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
607	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Biz-Custom	Food Service	per measure	14	17	20	24	27	29	32	34	36	37	34	34	34	34	33	32	32	31	30	30	
608	Miscellaneous	Pool Pump Timer	Biz-Custom	Food Service	per measure	5	7	8	9	11	12	13	14	15	14	15	14	13	13	13	13	12	12	12	12	
609	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Food Service	per measure	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
610	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Food Service	per measure	8	10	12	14	16	18	19	20	21	22	22	22	23	23	23	23	23	21	20	20	
611	Miscellaneous	High Efficiency Dryer	Biz-Custom	Food Service	per kWh	3	3	4	5	5	6	6	7	7	7	7	8	8	8	8	8	7	7	7	6	
612	Miscellaneous	Miscellaneous Custom	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
613	Motors	Cages V-Belt	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
614	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Standard	Food Service	per HP	34	38	41	45	56	68	79	88	93	93	88	79	68	56	45	61	55	50	48	42	
615	Motors	Power Drive Systems	Biz-Custom	Food Service	per kWh	28,806	36,054	49,658	50,800	56,488	59,571	59,571	56,488	50,800	49,658	36,054	28,806	27	24	21	17,084	12,817	31,107	27,040	38,100	
616	Motors	Switch Reluctance Motors	Biz-Custom	Food Service	per measure	7	10	12	14	17	21	24	27	28	28	28	27	24	21	17	19	18	17	15	15	
617	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
618	Office_JoinnC	Energy Star Printer/Copier/Fax	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
619	Office_JoinnC	Smart Power Strip - Commercial Use	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
620	Office_JoinnC	Plug Load Occupancy Sensor	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
621	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Food Service	per measure	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
622	Office_PC	Energy Star Server	Biz-Custom	Food Service	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
623	Office_PC	Server Virtualization	Biz-Custom	Food Service	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
624	Office_PC	High Efficiency ChAC unit	Biz-Custom	Food Service	per measure	2	4	6	9	12																

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
715	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 147/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Health	per measure	68	53	40	30	22	0	0	0	0	0	0	0	0	0	0	0	17	13	10	8	6	
716	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 147/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Health	per measure	60	46	35	27	20	0	0	0	0	0	0	0	0	0	0	0	15	12	9	7	5	
717	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 147/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Health	per measure	33	25	19	14	11	0	0	0	0	0	0	0	0	0	0	0	8	6	5	4	3	
718	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 147/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Health	per measure	37	29	22	17	12	0	0	0	0	0	0	0	0	0	0	0	9	7	6	4	3	
719	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 147/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Health	per measure	19	15	11	8	6	0	0	0	0	0	0	0	0	0	0	0	5	4	3	2	2	
720	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Bi-Custom	Health	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
721	Heating	Heat Pump - 16 SEER (<5 Tons)	Bi-Standard	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
722	Heating	Heat Pump - 17 SEER (<5 Tons)	Bi-Standard	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
723	Heating	Heat Pump - 18 SEER (<5 Tons)	Bi-Standard	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
724	Heating	Heat Pump - 21 SEER (<5 Tons)	Bi-Standard	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
725	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
726	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Bi-Standard	Health	per ton	1	2	3	4	5	6	7	9	11	13	15	16	17	19	19	20	20	20	20	20	20	20
727	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Bi-Standard	Health	per ton	1	2	3	4	5	6	8	10	12	14	16	17	19	20	21	21	22	22	22	22	22	22
728	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Bi-Standard	Health	per ton	1	2	3	4	5	6	7	9	11	13	14	16	17	18	19	20	20	20	20	20	20	20
729	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Bi-Standard	Health	per ton	1	2	3	4	5	6	8	10	12	14	15	17	18	19	19	20	20	20	20	20	20	20
730	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Bi-Standard	Health	per ton	1	2	3	4	5	6	8	9	11	13	15	16	17	19	20	20	20	20	20	20	20	20
731	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Bi-Standard	Health	per ton	1	2	2	3	4	5	6	8	9	11	12	14	15	16	17	17	17	17	17	18	17	17
732	Heating	Geothermal HP - 17 IEER < 135kbtu	Bi-Custom	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
733	Heating	Geothermal HP - 19 IEER < 135kbtu	Bi-Custom	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
734	Heating	PTHP - <7,000 Btu/h - loading	Bi-Custom	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
735	Heating	PTHP - 7,000 to 15,000 Btu/h - loading	Bi-Custom	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
736	Heating	PTHP - >15,000 Btu/h - loading	Bi-Custom	Health	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
737	Hot Water	Res-Shield Heat Pump Water Heater	Bi-Standard	Health	per measure	3	3	4	5	6	7	7	8	9	9	10	10	10	10	9	9	9	9	9	8	8	
738	Hot Water	Commercial-Size HPWH	Bi-Standard	Health	per measure	143	109	82	61	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	
739	Hot Water	Hot Water Pipe Insulation	Bi-Custom	Health	per measure	137	394	296	229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
740	Hot Water	Faucet Aerator	Bi-Custom	Health	per measure	10	10	10	10	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
741	Hot Water	Low Flow Pre-Rinse Sprayers	Bi-Custom	Health	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
742	Hot Water	ENERGY STAR Commercial Washing Machines	Bi-Custom	Health	per measure	125	108	89	71	55	42	32	23	0	0	0	31	27	22	18	14	11	8	6	0	0	
743	Hot Water	LED <11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Bi-Standard/SBDI	Health	per measure	100	86	71	57	44	34	25	19	10	0	25	21	18	14	11	8	6	5	0	0	0	
744	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Bi-Standard/SBDI	Health	per measure	174	150	124	99	77	59	44	33	0	0	44	37	31	25	19	15	11	8	0	0	0	
745	Interior Lighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Bi-Standard/SBDI	Health	per measure	620	533	440	352	274	209	156	116	0	0	155	133	110	88	68	52	39	29	0	0		
746	Interior Lighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Bi-Standard/SBDI	Health	per measure	904	747	597	464	354	265	197	0	0	0	226	187	149	116	88	66	49	0	0	0		
747	Interior Lighting	LED <13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Bi-Standard/SBDI	Health	per measure	396	327	261	203	155	116	86	0	0	0	99	82	65	51	39	29	22	0	0	0		
748	Interior Lighting	LED <20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Bi-Standard/SBDI	Health	per measure	383	329	272	217	169	129	97	72	0	0	0	0	0	0	0	0	96	82	68	54	42	
749	Interior Lighting	LED <80 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Health	per measure	236	203	167	134	104	79	60	44	0	0	0	0	0	0	0	0	59	51	42	33	26	
750	Interior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Health	per measure	97	103	103	97	88	75	62	50	39	29	22	16	0	0	0	0	24	26	26	24	22	
751	Interior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi-Standard	Health	per measure	391	316	277	222	172	131	99	73	0	0	0	0	0	0	0	0	98	84	69	55	43	
752	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Health	per measure	391	316	277	222	172	131	99	73	0	0	0	0	0	0	0	0	98	84	69	55	43	
753	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi-Standard/SBDI	Health	per measure	465	416	360	297	237	185	141	106	78	0	0	0	0	0	0	0	121	109	94	77	62	
754	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Health	per measure	485	436	375	310	247	193	147	110	82	0	0	0	0	0	0	0	88	69	52	39	29	
755	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Health	per measure	692	623	535	442	353	275	209	157	116	0	0	0	0	0	0	0	59	62	62	59	53	
756	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Bi-Standard	Health	per measure	235	248	248	235	211	181	150	120	93	71	53	32	30	25	19	0	0	0	0	0	0	
757	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Health	per measure	3,326	2,858	2,361	1,886	1,468	1,119	839	622	0	0	0	0	0	0	0	0	832	715	590	472	367	
758	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Health	per measure	4,601	4,141	3,559	2,939	2,348	1,827	1,393	1,045	775	0	0	0	0	0	0	0	1,150	1,035	890	735	597	
759	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Bi-Standard/SBDI	Health	per measure	3,976	3,309	2,844	2,348	1,876	1,460	1,113	835	619	0	0	0	0	0	0	0	939	827	711	587	469	
760	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Standard	Health	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
761	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Standard/SBDI	Health	per measure	2,110	1,814	1,498	1,197	931	710	532	395	0	0	0	0	0	0	0	0	528	453	374	299	233	
762	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Health	per measure	2,388	2,132	1,832	1,513	1,209	941	717	538	399	0	0	0	0	0	0	0	592	533	458	378	302	
763	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Health	per measure	2,234	2,011	1,728	1,410	1,140	887	676	507	376	0	0	0	0	0	0	0	558	503	432	357	285	
764	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Bi-Standard	Health	per measure	878	832	749	644	532	425	331	252	189	140	0	0	0	0	0	0	220	208	187	161	133	
765	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Bi-Standard/SBDI	Health	per measure	5,016	4,752	4,277	3,676	3,036	2,425	1,887	1,438	1,079	800	1,438	1,154										

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End-Use	Measure Name	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
877	Cooking	Insulated Holding Cabinets (Half-Size)	Lodging per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
878	Cooking	Air Conditioner - 17 IER (5-20 Tons)	Lodging per measure	9	12	15	18	22	25	29	32	35	37	38	40	41	42	42	42	40	39	39	38	37
879	Cooking	Air Conditioner - 18 IER (5-20 Tons)	Lodging per ton	9	11	13	15	18	22	26	29	32	35	37	39	40	41	42	42	40	39	39	38	37
880	Cooking	Air Conditioner - 21 IER (5-20 Tons)	Lodging per ton	8	11	13	16	20	23	26	29	31	33	35	36	37	37	37	38	36	35	35	34	33
881	Cooking	Air Conditioner - 3 IER (20+ Tons)	Lodging per ton	1	3	4	6	8	10	13	17	21	25	29	33	36	39	42	44	45	45	46	46	
882	Cooking	Air Conditioner - 15 IER (20+ Tons)	Lodging per ton	1	2	4	6	8	10	13	16	20	24	27	31	34	37	40	41	42	45	45	44	
883	Cooking	Air Conditioner - 17 IER (20+ Tons)	Lodging per ton	1	2	3	5	7	9	11	14	17	21	24	27	30	32	35	36	37	38	38	38	
884	Cooking	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Lodging per measure	411	370	318	571	487	402	552	459	370	414	344	278	311	258	208	233	193	156	175	145	
885	Cooking	Air-Side Economizer	Lodging per ton	60	66	58	281	266	239	206	170	136	106	260	260	255	211	199	180	154	127	102	79	
886	Cooking	Advanced Rooftop Controls	Lodging per measure	48	56	63	70	76	80	84	87	89	91	93	92	92	92	92	92	92	92	92	92	
887	Cooking	HVAC Occupancy Controls	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
888	Cooking	Air Conditioner - 45 SEER (5 Tons)	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
889	Cooking	Air Conditioner - 17 SEER (5 Tons)	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
890	Cooking	Air Conditioner - 18 SEER (5 Tons)	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
891	Cooking	Air Conditioner - 21 SEER (5 Tons)	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
892	Cooking	Air Conditioner - 23 SEER (5 Tons)	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
893	Cooking	Smart Thermostat	Lodging per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
894	Cooking	PTAC - <7,000 Btu/h - lodging	Lodging per measure	21	27	33	40	46	52	58	63	61	63	64	64	64	63	62	61	56	54	52	51	
895	Cooking	PTAC - 7,000 to 15,000 Btu/h - lodging	Lodging per ton	19	24	30	36	41	47	52	56	55	56	57	58	57	55	54	52	50	48	47	45	
896	Cooking	PTAC - >15,000 Btu/h - lodging	Lodging per ton	18	23	28	34	40	45	50	54	53	54	55	55	55	54	53	52	50	48	46	45	
897	Cooking	Air-Cooled Chiller	Lodging per ton	3	5	8	10	14	18	22	27	32	38	43	47	51	55	57	59	61	62	63	63	
898	Cooking	Water Cooled Chiller	Lodging per ton	3	5	8	10	14	18	22	27	32	38	43	47	51	55	57	59	61	62	63	63	
899	Cooking	Chiller Tune-up	Lodging per measure	909	818	703	1,262	1,077	888	1,222	1,014	819	916	614	687	571	461	515	428	346	387	321	321	
900	Cooking	Window Film	Lodging per measure	311	318	328	311	280	241	199	159	124	94	304	299	246	233	210	180	149	119	93	71	
901	Cooking	Triple Pane Windows	Lodging per measure	1	2	3	4	5	6	8	10	11	13	15	17	18	19	20	21	21	22	22	22	
902	Cooking	Energy Recovery Ventilator	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
903	Cooking	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Lodging per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
904	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Lodging per measure	31	24	19	14	10	0	0	0	0	0	0	0	0	0	0	0	8	6	5	3	
905	Exterior Lighting	LED <20 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 175-300 Watt Lamp or Fixture	Lodging per measure	27	21	16	12	9	0	0	0	0	0	0	0	0	0	0	0	7	5	4	3	
906	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 175-300 Watt Lamp or Fixture	Lodging per measure	15	12	9	7	5	0	0	0	0	0	0	0	0	0	0	0	4	3	2	1	
907	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 301-500 Watt Lamp or Fixture	Lodging per measure	17	13	10	8	6	0	0	0	0	0	0	0	0	0	0	0	4	3	2	1	
908	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Lodging per measure	9	7	5	4	3	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	
909	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Lodging per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
910	Heating	Heat Pump - 16 SEER (5 Tons)	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
911	Heating	Heat Pump - 17 SEER (5 Tons)	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
912	Heating	Heat Pump - 18 SEER (5 Tons)	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
913	Heating	Heat Pump - 21 SEER (5 Tons)	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
914	Heating	Variable Refrigerant Flow Heat Pump	Lodging per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
915	Heating	Heat Pump - 15.0 IER COP 3.6 (65,000-134,000 Btu/hr)	Lodging per ton	1	1	2	3	3	4	6	7	8	9	11	12	13	14	14	15	15	15	15	15	
916	Heating	Heat Pump - 16.0 IER COP 3.8 (65,000-134,000 Btu/hr)	Lodging per ton	1	1	2	3	4	5	6	7	8	10	10	11	12	13	14	15	15	15	15	15	
917	Heating	Heat Pump - 14.5 IER COP 3.5 (135,000-239,000 Btu/hr)	Lodging per ton	1	1	2	3	3	4	5	6	7	8	10	11	12	13	14	15	15	15	15	15	
918	Heating	Heat Pump - 15.5 IER COP 3.7 (135,000-239,000 Btu/hr)	Lodging per ton	1	1	2	3	3	4	5	6	7	8	10	11	12	13	14	15	15	15	15	15	
919	Heating	Heat Pump - 12 IER 3.4 COP (>239,000 Btu/hr)	Lodging per ton	1	1	2	3	4	5	6	7	8	10	11	12	13	14	15	15	15	15	16	16	
920	Heating	Heat Pump - 13 IER 3.6 COP (>239,000 Btu/hr)	Lodging per ton	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15	15	16	16	
921	Heating	Geothermal HP - 17 IER < 135kbtu	Lodging per ton	3	4	4	5	5	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	
922	Heating	Geothermal HP - 19 IER < 135kbtu	Lodging per ton	10	13	15	18	20	22	24	26	27	28	29	29	30	30	30	30	30	30	30	30	30
923	Heating	PTHP - 7,000 to 15,000 Btu/h - lodging	Lodging per ton	11	13	16	19	21	23	25	27	28	29	29	29	29	29	29	29	29	29	29	29	
924	Heating	PTHP - 15,000 to 30,000 Btu/h - lodging	Lodging per ton	11	13	16	19	21	23	25	27	28	29	29	29	29	29	29	29	29	29	29	29	
925	Hot Water	Res-Steel Heat Pump Water Heater	Lodging per ton	10	12	14	16	19	21	22	24	22	23	23	23	23	23	22	22	21	19	18	17	
926	Hot Water	Commercial-Sized HPWH	Lodging per measure	15	19	24	29	35	41	46	51	55	59	61	64	65	66	67	64	63	61	60	59	
927	Hot Water	Hot Water Pipe Insulation	Lodging per measure	2	3	3	4	5	6	6	7	8	8	8	8	9	9	9	9	9	9	9	8	
928	Hot Water	Faucet Aerator	Lodging per measure	1,588	1,210	908	673	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
929	Hot Water	Low Flow Pre-Rinse Sprayers	Lodging per measure	5,192	3,957	2,969	2,204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
930	Hot Water	ENERGY STAR Commercial Washing Machines	Lodging per measure	98	101	102	104	104	79	79	78	78	78	78	60	59	58	58	58	45	44	44	44	
931	Interior Lighting	LED <11 Watt Lamp Replacing Interior Halogen A 28-53 Watt Lamp	Lodging per measure	210	181	149	119	93	71	53	39	0	0	53	45	37	30	23	18	13	10	0	0	
932	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 33-70 Watt Lamp	Lodging per measure	168	144	119	95	74	56	42	31	0	0	42	36	30	24	19	14	11	8	0	0	
933	Interior Lighting	LED Specialty Lamp	Lodging per measure	293	252	208	166	129	98	74	55	0	0	73	63	52	42	32	25	18	14	0	0	
934	Interior Lighting	LED <14 Watt Lamp Replacing Interior Halogen BR/45-65 Watt Lamp	Lodging per measure	868	746	616	492	383	292	219	162	0	0	217	187									

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
998	WholeBldg. HVAC	Retro-commissioning, BU Optimization	Bi-Custom R/CX	Logding	per kWh	114,592	171,888	190,886	204,628	225,321	367,953	476,404	540,589	594,977	634,348	741,921	794,250	802,792	787,683	758,220	781,763	771,047	735,723	691,017	642,993	
999	WholeBuilding	WholeBldg - Com RET	Bi-Custom	Logding	per kWh	132,740	199,110	221,333	237,036	261,006	326,671	395,570	460,278	511,370	539,751	511,370	559,833	492,596	438,783	398,844	438,783	398,844	399,796	412,810	431,308	
1000	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Logding	per kWh	88,983	132,740	147,489	158,024	174,004	217,781	263,713	306,852	340,913	359,834	359,834	340,913	373,222	363,268	328,398	292,522	265,896	266,531	275,206	287,539	
1001	WholeBldg. HVAC	WholeBldg - Com NC	Bi-Custom	Logding	per kWh	17,617	17,617	16,890	15,023	12,911	10,662	8,519	6,639	5,052	3,790	2,410	0	0	0	0	0	0	0	0	0	0
1002	WholeBldg. HVAC	WholeBldg - Com NC	Bi-Custom	Logding	per kWh	398,623	91,790	369,355	409,419	608,176	229,538	304,012	416,679	777,660	342,991	342,991	591,301	719,861	1,330,449	346,384	515,663	537,675	818,192	470,317	680,836	788,783
1003	Behavioral	COM Competitions	Bi-Custom	Logding	per kWh	5,196	7,793	13,855	17,071	24,071	29,857	39,554	47,873	59,569	68,999	80,695	89,014	98,711	104,497	114,713	119,446	110,772	123,991	124,442		
1004	Behavioral	Business Energy Reports	Bi-Custom	Logding	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1005	Behavioral	Building Benchmarking	Bi-Custom	Logding	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1006	Behavioral	Strategic Energy Management	Bi-Custom	Logding	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1007	Behavioral	BEAMS	Bi-Custom	Logding	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1008	Behavioral	Building Operator Certification	Bi-Custom	Logding	per kWh	157,133	148,661	133,889	115,132	95,095	183,832	170,766	145,552	130,170	96,385	145,367	138,075	109,164	90,128	72,289	100,025	96,056	81,673	67,596	54,317	
1009	Compressadr	Retro-commissioning, Compressed Air Optimization	Bi-Custom R/CX	Retail	per kWh	315,830	286,095	244,456	201,630	161,099	362,074	308,613	254,796	204,365	130,825	271,556	251,480	193,697	153,274	96,818	205,667	173,995	143,333	114,935	67,564	
1010	Compressadr	Compressed Air Leak Repair	Bi-Custom	Retail	per kWh	296,788	329,731	348,031	345,031	329,731	296,788	255,084	210,638	162,237	130,362	32,401	322,180	316,540	247,288	222,591	191,298	157,078	126,222	98,214		
1011	Compressadr	Efficient Air Compressors (VSD)	Bi-Custom	Retail	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1012	Compressadr	AODD Pump Controls	Bi-Custom	Retail	per kWh	6	5	4	3	2	2	1	0	0	0	0	5	4	3	2	2	1	1	0	0	0
1013	Compressadr	No Loss Condensate Drain	Bi-Custom	Retail	per measure	3	16	20	23	26	27	27	26	23	20	14	14	13	12	12	11	10	9	9	10	
1014	Compressadr	Efficient Air Nozzles	Bi-Custom	Retail	per measure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1015	Compressadr	Compressed Air - Custom	Bi-Custom	Retail	per kWh	296,788	329,731	348,031	345,031	329,731	296,788	255,084	210,638	162,237	130,362	32,401	322,180	316,540	247,288	222,591	191,298	157,078	126,222	98,214		
1016	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1017	Cooking	Commercial Electric Connection Oven	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1018	Cooking	Commercial Electric Griddle	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1019	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1020	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1021	Cooking	Dishwasher - High Temp Door (Energy Star)	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1022	Cooking	Energy efficient electric fryer	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1023	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1024	Cooking	Insulated Holding Cabinets (3/4 Size)	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1025	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Custom	Retail	per measure	31	39	48	58	67	76	84	91	97	101	105	108	110	112	112	111	104	102	99	97	
1026	Cooking	Air Conditioner - 17 TEER (5-20 Tons)	Bi-Custom	Retail	per ton	31	39	48	58	68	77	85	92	97	102	106	108	110	112	112	110	104	102	100	97	
1027	Cooking	Air Conditioner - 18 TEER (5-20 Tons)	Bi-Custom	Retail	per ton	28	35	43	52	60	68	76	82	87	91	94	97	99	100	100	100	93	91	89	87	
1028	Cooking	Air Conditioner - 21 TEER (20+ Tons)	Bi-Custom	Retail	per ton	8	14	20	27	35	45	53	60	67	73	78	83	87	91	92	91	84	82	80	77	
1029	Cooking	Air Conditioner - 24 TEER (20+ Tons)	Bi-Custom	Retail	per ton	8	13	19	25	33	42	53	65	78	91	103	114	124	132	140	147	150	142	144	145	
1030	Cooking	Air Conditioner - 15 TEER (20+ Tons)	Bi-Custom	Retail	per ton	7	11	16	21	28	36	46	56	66	77	87	96	104	111	118	120	122	122	120		
1031	Cooking	Air Conditioner - 17 TEER (20+ Tons)	Bi-Custom	Retail	per ton	1,697	1,527	1,312	2,356	2,011	1,658	2,281	1,894	1,529	1,171	1,420	1,147	1,283	1,065	860	962	799	642	522	509	
1032	Cooking	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Bi-Custom	Retail	per ton	857	962	1,005	1,005	952	857	726	608	486	378	931	930	914	753	714	643	552	456	364	284	
1033	Cooking	Air-Side Economizer	Bi-Custom	Retail	per measure	112	112	108	95	82	68	54	42	32	24	18	0	0	0	0	0	0	0	0	0	
1034	Cooking	Advanced Rooftop Controls	Bi-Custom	Retail	per ton	112	144	162	223	267	311	353	390	422	469	470	487	499	499	509	516	488	460	470	460	
1035	Cooking	HVAC Occupancy Controls	Bi-Custom	Retail	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1036	Cooking	Air Conditioner - 16 SEER (5 Tons)	Bi-Custom	Retail	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1037	Cooking	Air Conditioner - 18 SEER (5 Tons)	Bi-Custom	Retail	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1038	Cooking	Air Conditioner - 21 SEER (5 Tons)	Bi-Custom	Retail	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1039	Cooking	Air Conditioner - 24 SEER (5 Tons)	Bi-Custom	Retail	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1040	Cooking	Smart Thermostat	Bi-Custom	Retail	per measure	135	140	144	136	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
1041	Cooking	PTAC - <7,000 Btu/h - ledging	Bi-Custom	Retail	per measure	93	108	123	136	147	156	164	170	151	150	149	146	143	141	139	137	137	137	137	137	
1042	Cooking	PTAC - 7,000 to 15,000 Btu/h - ledging	Bi-Custom	Retail	per measure	80	93	106	117	127	135	141	146	150	150	129	128	126	123	121	120	118	115	112	109	
1043	Cooking	PTAC - >15,000 Btu/h - ledging	Bi-Custom	Retail	per measure	70	86	103	120	137	150	163	173	184	166	162	166	165	161	158	155	140	136	131	127	
1044	Cooking	Air-Cooled Chiller	Bi-Custom	Retail	per ton	54	71	94	120	152	186	223	260	294	325	352	375	392	406	417	424	430	430	430	430	
1045	Cooking	Water Cooled Chiller	Bi-Custom	Retail	per ton	10	14	19	24	31	39	48	58	67	76	84	91	97	102	105	108	110	112	112	112	
1046	Cooking	Chiller Tune-up	Bi-Custom	Retail	per ton	2,517	2,265	1,947	3,495	2,460	3,383	2,809	2,268	2,337	2,107	1,903	1,580	1,427	1,185	957	1,070	1,185	1,185	1,185		
1047	Cooking	Window Film	Bi-Custom	Retail	per measure	490	517	517	440	441	379	313	250	195	148	149	470	368	388	331	284	235	188	146	111	
1048	Cooking	Triple Pane Windows	Bi-Custom	Retail	per measure	2																				

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1069	Heating	Geothermal HP - 19 ER < 13.5kWh	Biz-Custom	Retail	per ton	46	53	60	67	72	77	82	88	83	85	87	88	88	88	88	88	88	88	88	88	88	
1070	Heating	PTHP < 7,000 Btuh - lodging	Biz-Custom	Retail	per ton	49	57	64	71	77	82	86	89	79	78	78	78	76	75	72	72	72	72	72	72	72	
1071	Heating	PTHP > 15,000 Btuh - lodging	Biz-Custom	Retail	per ton	43	52	63	73	83	91	99	105	99	101	101	101	100	98	96	94	85	82	80	77	77	
1072	Heating	PTHP > 15,000 Btuh - lodging	Biz-Custom	Retail	per ton	42	52	62	73	82	91	99	105	99	101	101	101	100	98	96	94	85	82	80	77	77	
1073	HotWater	Res-Sted Heat Pump Water Heater	Biz-Standard	Retail	per measure	19	25	32	39	46	54	61	68	73	78	82	87	88	88	85	83	82	80	78	78	78	
1074	HotWater	Commercial-Sized HPWH	Biz-Standard	Retail	per measure	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1075	HotWater	Hot Water Pipe Insulation	Biz-Custom	Retail	per measure	783	597	448	332	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1076	HotWater	Faucet Aerator	Biz-Custom	Retail	per measure	1,890	1,441	1,081	801	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1077	HotWater	Low Flow Pre- Rinse Sprayers	Biz-Custom	Retail	per measure	36	37	37	38	38	29	29	28	28	28	28	22	21	21	21	21	16	16	16	16	16	
1078	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1079	HotWater	ENERGY STAR Residential Washing Machines	Biz-Custom	Retail	per measure	229	283	324	387	445	511	583	662	0	0	0	0	0	0	0	0	0	0	0	0	0	
1079	HotWater	LED <=11 Watt Replacing Interior Halogen A 28-53 Watt Lamp	Biz-Standard/SBDI	Retail	per measure	263	216	186	149	116	88	66	49	0	0	0	0	0	0	0	0	0	0	0	0	0	
1080	HotWater	LED <=11 Watt Replacing Interior Halogen B 35-70 Watt Lamp	Biz-Standard/SBDI	Retail	per measure	458	394	325	260	202	154	110	86	0	0	0	0	0	0	0	0	0	0	0	0	0	
1081	HotWater	LED Specialty Lamp	Biz-Standard/SBDI	Retail	per measure	2,201	1,891	1,562	1,248	971	740	555	412	0	0	0	0	0	0	0	0	0	0	0	0	0	
1082	HotWater	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Standard/SBDI	Retail	per measure	3,209	2,650	2,138	1,648	1,256	942	699	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1083	HotWater	LED <=13 Watt Lamp Replacing Interior Halogen MR-36 35-50 Watt Lamp	Biz-Standard/SBDI	Retail	per measure	1,405	1,160	937	721	550	413	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1084	HotWater	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp or Fixture	Biz-Standard/SBDI	Retail	per measure	1,314	1,129	933	745	580	442	332	246	0	0	0	0	0	0	0	0	0	0	0	0	0	
1085	HotWater	LED <=40 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Biz-Standard/SBDI	Retail	per measure	809	695	574	459	357	272	204	151	0	0	0	0	0	0	0	0	0	0	0	0	0	
1086	HotWater	LED <=40 Watt Lamp or Fixture Replacing Interior HID 175-300 Watt Lamp or Fixture	Biz-Standard/SBDI	Retail	per measure	334	352	352	334	301	258	213	170	133	101	76	56	0	0	0	0	0	0	0	0	0	
1087	HotWater	LED Fixture with Network Controls Replacing Interior HID	Biz-Standard	Retail	per measure	1,340	1,151	951	760	591	451	338	251	0	0	0	0	0	0	0	0	0	0	0	0	0	
1088	HotWater	LED 85-225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Standard/SBDI	Retail	per measure	1,211	1,090	986	773	618	481	366	275	204	0	0	0	0	0	0	0	0	0	0	0	0	
1089	HotWater	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Retail	per measure	1,263	1,136	977	807	644	501	382	287	213	0	0	0	0	0	0	0	0	0	0	0	0	
1090	HotWater	LED Replacing Interior T5 Fluorescent (Type B, K1s, and F1sures)	Biz-Standard/SBDI	Retail	per measure	1,801	1,621	1,393	1,151	919	715	545	409	303	0	0	0	0	0	0	0	0	0	0	0	0	
1091	HotWater	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Standard/SBDI	Retail	per measure	611	645	645	611	550	472	390	312	243	185	139	103	0	0	0	0	0	0	0	0	0	
1092	HotWater	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Standard	Retail	per measure	8,651	7,443	6,147	4,911	3,821	2,913	2,185	1,620	0	0	0	0	0	0	0	0	0	0	0	0	0	
1093	HotWater	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Retail	per measure	11,979	10,743	9,267	7,653	6,114	4,758	3,626	2,771	2,017	0	0	0	0	0	0	0	0	0	0	0	0	
1094	HotWater	LED Replacing Interior T8 Fluorescent (Type B, K1s, and F1sures)	Biz-Standard/SBDI	Retail	per measure	9,572	8,616	7,404	6,151	4,886	3,802	2,997	2,174	1,612	0	0	0	0	0	0	0	0	0	0	0	0	
1095	HotWater	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Standard/SBDI	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1096	HotWater	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Standard	Retail	per measure	5,495	4,723	3,900	3,116	2,425	1,848	1,387	1,028	0	0	0	0	0	0	0	0	0	0	0	0	0	
1097	HotWater	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Standard/SBDI	Retail	per measure	6,167	5,550	4,770	3,939	3,147	2,469	1,867	1,400	1,038	0	0	0	0	0	0	0	0	0	0	0	0	
1098	HotWater	LED Replacing Interior T12 Fluorescent (Type B, K1s, and F1sures)	Biz-Standard/SBDI	Retail	per measure	5,887	5,236	4,500	3,716	2,959	2,310	1,761	1,331	979	0	0	0	0	0	0	0	0	0	0	0	0	
1099	HotWater	LED Replacing Interior T12 Fluorescent (Type C)	Biz-Standard/SBDI	Retail	per measure	2,287	2,167	1,951	1,676	1,384	1,106	861	656	492	365	0	0	0	0	0	0	0	0	0	0	0	
1100	HotWater	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Biz-Standard	Retail	per measure	10,901	11,506	10,901	9,812	8,432	6,964	5,564	4,329	3,300	5,201	4,712	2,876	2,725	2,453	2,008	1,741	1,391	1,082	825	612	485	
1101	HotWater	Remote Mounted Occupancy Sensor Controlling > 60 Watts	Biz-Standard/SBDI	Retail	per measure	2,448	2,583	2,583	2,448	2,203	1,993	1,564	1,249	972	741	1,168	1,058	646	612	551	473	391	312	243	185	145	
1102	HotWater	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Biz-Standard/SBDI	Retail	per sq ft	1,838,221	2,042,265	2,155,611	2,155,611	2,042,265	1,838,221	1,570,794	1,304,633	1,042,384	811,082	618,196	463,799	343,857	0	0	0	0	0	0	0	0	0
1103	HotWater	Lighting Power Density	Biz-Custom	Retail	per project	10	13	16	18	21	22	22	22	21	21	18	16	13	10	8	6	5	6	3	4	5	
1104	HotWater	LED Lighting Redesign/Custom	Biz-Standard	Retail	per measure	1,249	926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1105	HotWater	LED or Electroluminescent Replacing Interior Incandescent/CT Exit Sign	Biz-Standard/SBDI	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1106	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Custom	Retail	per measure	5	8	12	16	21	27	34	42	50	58	66	73	79	84	88	91	94	96	97	97	97	
1107	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Standard	Retail	per HP	81	101	122	142	158	167	167	158	142	122	116	116	116	116	116	116	116	116	116	116	116	
1108	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Retail	per measure	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	
1109	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Retail	per measure	67	70	72	73	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	
1110	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Retail	per measure	40	49	58	68	77	85	92	98	103	106	99	99	99	98	96	93	91	89	88	87	86	
1111	Miscellaneous	Pool Pump, Trerer	Biz-Custom	Retail	per measure	118	145	173	201	228	253	273	291	304	315	294	293	291	283	277	271	265	261	258	255	255	
1112	Miscellaneous	Pool Pump, Trerer	Biz-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1113	Miscellaneous	Pool Heater Heat Pump (Covered)	Biz-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1114	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Biz-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1115	Miscellaneous	High Efficiency Dryer	Biz-Custom	Retail	per measure	8	10	12	14	15	17	18	20	21	21	22	22	22	23	23	23	21	20	20	19	18	
1116	Miscellaneous	Miscellaneous Custom	Biz-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1117	Miscellaneous	Collego V-Belt	Biz-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1118	Miscellaneous	Collego V-Belt	Biz-Custom	Retail	per HP	131	146	156	172	215	261	304															

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1139	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Retail	per measure	12	18	20	22	24	30	36	42	47	49	49	47	42	36	30	33	32	29	27	26
1140	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Retail	per HP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1141	Refrigeration	Refrigeration Economizer	Bi-Custom	Retail	per kWh	2,330	3,495	3,884	4,161	4,582	5,735	6,934	8,080	8,977	9,475	11,223	11,998	10,993	10,065	9,171	8,883	8,773	8,777	8,778	8,771
1142	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	Retail	per door	140	218	242	260	286	358	434	505	561	592	704	724	686	678	573	555	548	548	548	548
1143	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Retail	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1144	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	Retail	per measure	5	7	8	8	9	11	13	16	17	18	18	17	16	13	11	12	12	11	10	10
1145	Refrigeration	0-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1146	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Custom	Retail	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1147	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Custom	Retail	per door	14	21	23	25	27	34	41	48	54	57	67	69	66	66	60	55	53	52	52	52
1148	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Custom	Retail	per door	8	12	13	14	16	20	24	28	31	33	33	31	34	33	30	26	24	24	24	25
1149	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Retail	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1150	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Custom	Retail	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1151	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Custom	Retail	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1152	Refrigeration	Refrigeration - Custom	Bi-Custom	Retail	per kWh	63,317	94,975	105,528	113,066	124,500	203,309	259,498	298,698	320,722	300,835	409,343	438,861	443,576	437,288	418,048	431,596	426,019	406,518	381,616	359,280
1153	Refrigeration	Refrigeration - Custom	Bi-Custom	Retail	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1154	Refrigeration	Energy Star Ice Machine	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1155	Refrigeration	STAR Refrigerated Vending Machine	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1156	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1157	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	Retail	per linear ft	852	1,279	1,421	1,522	1,676	2,098	2,540	2,956	3,284	4,105	4,425	4,349	4,097	3,797	3,671	3,581	3,521	3,457	3,425	3,411
1158	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Retail	per measure	202	303	337	361	398	498	603	701	779	823	974	1,007	954	874	796	771	762	762	762	748
1159	Ventilation	Demand Controlled Ventilation	Bi-Custom	Retail	per measure	453	680	755	809	891	1,115	1,350	1,571	1,745	1,842	1,842	1,745	1,571	1,350	1,115	1,231	1,203	1,095	1,003	962
1160	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Custom	Retail	per HP	613	920	1,022	1,095	1,206	1,510	1,828	2,127	2,363	2,494	2,494	2,363	2,127	1,828	1,510	1,666	1,629	1,482	1,358	1,302
1161	Ventilation	High Volume Low Speed Fan, 20	Bi-Custom	Retail	per measure	7	8	8	9	11	13	16	17	18	18	17	16	13	11	10	10	10	10	10	10
1162	Ventilation	High Volume Low Speed Fan, 24	Bi-Custom	Retail	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1163	Ventilation	High Volume Low Speed Fan, 24	Bi-Custom	Retail	per measure	4	4	5	6	8	9	10	11	11	10	9	8	6	5	6	6	7	6	6	6
1164	WholeBuilding, HVAC	HVAC - Energy Management System	Bi-Custom	Retail	per kWh	203,898	218,462	240,554	301,075	364,575	424,213	471,301	497,458	497,458	471,301	424,213	364,575	301,075	240,554	187,176	295,587	270,879	259,769	225,866	273,431
1165	WholeBuilding, HVAC	Control Room	Bi-Custom	Retail	per kWh	561,625	653,498	726,036	766,331	726,036	653,498	561,625	463,804	370,573	288,344	219,772	164,883	122,243	0	0	0	0	0	0	0
1166	WholeBuilding, HVAC	Refrigeration - Custom	Bi-Custom	Retail	per kWh	321,454	482,181	535,757	575,025	632,074	1,032,185	1,319,981	1,516,466	1,668,894	1,781,161	2,081,245	2,228,061	2,251,986	2,251,986	2,251,986	2,251,986	2,251,986	2,251,986	2,251,986	2,251,986
1167	WholeBuilding, HVAC	WholeBuilding - Com RET	Bi-Custom	Retail	per kWh	414,482	621,723	690,803	740,146	814,994	1,020,035	1,235,172	1,437,224	1,586,578	1,685,378	1,748,086	1,710,464	1,318,137	1,370,104	1,245,955	1,245,955	1,245,955	1,245,955	1,245,955	1,245,955
1168	WholeBuilding, HVAC	WholeBuilding - Custom (Other)	Bi-Custom	Retail	per kWh	276,231	414,482	460,536	543,329	680,023	823,448	988,150	1,064,505	1,123,585	1,123,585	1,064,505	988,150	823,448	680,023	543,329	460,536	414,482	390,263	367,359	338,915
1169	WholeBuilding, HVAC	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Retail	per measure	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008	55,008
1170	WholeBuilding, HVAC	WholeBuilding - Com NC	Bi-Custom	Retail	per kWh	1,244,705	286,490	1,153,314	1,278,416	1,899,036	716,735	949,281	1,301,084	2,428,253	1,707,992	1,846,342	2,247,713	4,154,341	1,081,589	1,609,852	1,678,895	2,554,813	2,862,565	2,125,886	2,456,739
1171	Behavioral	COM Competitions	Bi-Custom	Retail	per kWh	12,167	18,251	32,446	39,978	56,371	69,322	92,630	112,112	139,503	160,387	188,978	208,461	231,169	244,720	261,112	268,644	279,728	282,833	290,373	290,725
1172	Behavioral	Business Energy Reports	Bi-Custom	Retail	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1173	Behavioral	Building Benchmarking	Bi-Custom	Retail	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1174	Behavioral	Strategic Energy Management	Bi-Custom SEM	Retail	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1175	Behavioral	BEIMS	Bi-Custom	Retail	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1176	Behavioral	Building Operator Certification	Bi-Custom	Retail	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1177	Compressor	Refrigeration - Custom	Bi-Custom	Retail	per kWh	17,972	165,929	146,651	126,034	104,082	222,139	186,964	159,307	131,527	105,684	159,178	119,460	96,645	79,120	119,460	105,684	96,645	89,610	89,610	79,984
1178	Compressor	Compressed Air Leak Repair	Bi-Custom	Office	per kWh	365,458	310,943	267,429	220,084	176,324	396,292	337,778	278,896	223,678	132,443	29,219	253,334	269,157	167,759	99,182	222,934	190,000	158,888	126,819	74,387
1179	Compressor	Efficient Air Compressors (VSD)	Bi-Custom	Office	per HP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1180	Compressor	ADD Pump Controls	Bi-Custom	Office	per measure	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1181	Compressor	No Loss Condensate Drain	Bi-Custom	Office	per measure	4	5	6	7	9	30	11	13	14	15	14	13	14	13	12	11	12	11	10	11
1182	Compressor	Efficient Air Nozzles	Bi-Custom	Office	per measure	14	18	22	25	28	30	28	25	22	18	14	11	8	6	15	13	16	19	21	
1183	Compressor	Compressed Air - Custom	Bi-Custom	Office	per kWh	324,835	360,932	380,922	360,922	360,932	324,835	279,188	230,544	184,201	143,328	352,869	352,869	346,455	285,691	270,669	245,626	209,376	172,906	138,151	
1184	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Office	per measure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1185	Cooking	Commercial Electric Connection Oven	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1186	Cooking	Commercial Electric Griddle	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1187	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1188	Cooking	Dishwasher - High Temp Door (Energy Star)	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1189	Cooking	Energy Efficient Electric Fryer	Bi-Custom																						

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1214	Cooling	Chiller Tune-up	Biz-Custom	Office	per ton	6,417	5,776	4,964	8,932	7,607	6,271	8,626	7,183	5,784	6,470	5,272	4,338	4,852	4,029	3,233	3,639	3,022	2,440	2,729	2,856	
1215	Cooling	Window Film	Biz-Custom	Office	per measure	1,870	1,974	1,974	1,870	1,683	1,477	1,195	955	743	566	1,827	1,795	1,481	1,403	1,263	1,085	896	716	557	425	
1216	Cooling	Triple Pane Windows	Biz-Custom	Office	per measure	7	12	16	29	37	47	57	69	80	91	100	108	115	121	125	128	131	132	132	132	
1217	Cooling	Energy Recovery Ventilator	Biz-Custom	Office	per measure	1,472	1,636	1,753	1,930	2,416	2,925	3,403	3,781	3,991	3,991	3,811	3,403	2,925	2,416	1,930	2,606	2,371	2,173	2,084	1,812	
1218	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1219	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 247 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	per measure	230	179	136	102	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1220	Exterior Lighting	LED 62-120 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	per measure	202	157	120	90	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1221	Exterior Lighting	LED 62-120 Watt Lamp or Fixture Replacing Garage or Exterior 247 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	per measure	110	86	65	49	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1222	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 127 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	per measure	126	98	75	56	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1223	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 247 HID 100-175 Watt Lamp or Fixture	Biz-Custom	Office	per measure	66	51	39	29	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1224	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Biz-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1225	Heating	Heat Pump - 16 SEER (5 Tons)	Biz-Custom	Office	per ton	2	2	3	3	4	5	6	6	7	8	8	8	8	9	9	9	9	9	9	8	
1226	Heating	Heat Pump - 17 SEER (5 Tons)	Biz-Custom	Office	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1227	Heating	Heat Pump - 18 SEER (5 Tons)	Biz-Custom	Office	per ton	2	2	3	3	4	5	6	7	8	9	10	11	11	12	12	12	12	12	11	11	
1228	Heating	Heat Pump - 21 SEER (5 Tons)	Biz-Custom	Office	per ton	2	2	3	3	4	5	6	7	8	9	10	11	11	12	12	12	12	12	11	11	
1229	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Office	per ton	8	13	16	20	24	28	31	35	38	40	42	43	45	46	46	44	43	42	41	41	
1230	Heating	Heat Pump - 15.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Custom	Office	per ton	8	11	15	19	25	31	38	46	53	60	67	72	77	81	83	84	84	85	84	82	
1231	Heating	Heat Pump - 16.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Custom	Office	per ton	9	12	16	21	28	35	43	51	60	68	75	81	86	90	93	94	94	95	94	92	
1232	Heating	Heat Pump - 14.5 IEER COP 3.1 (135,000-239,000 Btu/hr)	Biz-Custom	Office	per ton	8	11	16	21	28	35	43	51	60	68	75	81	86	90	93	94	94	95	94	92	
1233	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Custom	Office	per ton	8	11	15	19	25	31	38	46	54	61	67	73	77	81	85	88	89	89	88	87	
1234	Heating	Heat Pump - 12 IEER 3.4 COP (x239,000 Btu/hr)	Biz-Custom	Office	per ton	8	11	15	19	25	31	38	46	54	61	67	73	77	81	85	88	89	89	88	87	
1235	Heating	Heat Pump - 13 IEER 3.6 COP (x239,000 Btu/hr)	Biz-Custom	Office	per ton	7	10	13	17	22	27	34	42	50	59	67	74	80	85	89	92	93	92	91	91	
1236	Heating	Geothermal HP - 17 IEER < 135kWh	Biz-Custom	Office	per ton	4	4	5	5	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
1237	Heating	Geothermal HP - 19 IEER < 135kWh	Biz-Custom	Office	per ton	10	12	15	16	18	20	21	22	23	23	23	24	24	24	24	24	24	24	24	24	24
1238	Heating	PTHP - <7,000 Btu/h - lodging	Biz-Custom	Office	per ton	26	31	37	42	46	50	53	55	51	51	51	50	49	48	48	47	47	42	40	39	
1239	Heating	PTHP - 7,000 to 15,000 Btu/h - lodging	Biz-Custom	Office	per ton	25	31	37	43	49	54	58	62	66	69	72	75	78	80	81	81	81	76	74	73	
1240	Heating	PTHP - >15,000 Btu/h - lodging	Biz-Custom	Office	per ton	23	28	34	40	45	50	54	57	54	54	55	55	55	53	52	51	46	45	43	42	
1241	HotWater	Best-Sized Heat Pump Water Heater	Biz-Custom	Office	per measure	8	11	15	20	26	32	40	48	55	63	70	75	80	84	87	87	88	88	87	85	
1242	HotWater	Commercial-Sized HPWH	Biz-Custom	Office	per measure	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	4	
1243	HotWater	Hot Water Pipe Insulation	Biz-Custom	Office	per measure	1,082	832	624	463	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1244	HotWater	Water Heating Tankless Water Heater	Biz-Custom	Office	per measure	2,552	1,945	1,459	1,082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1245	HotWater	Water Heating Tankless Water Heater	Biz-Custom	Office	per measure	46	49	50	51	51	39	39	38	38	38	38	38	38	38	38	38	38	38	38	38	
1246	HotWater	Water Heating Tankless Water Heater	Biz-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1247	Interior Lighting	ENERGY STAR Commercial Washing Machines	Biz-Custom/SBDI	Office	per measure	548	471	389	311	242	184	138	103	0	0	0	0	0	0	0	0	0	0	0	0	
1248	Interior Lighting	LED <11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Biz-Custom/SBDI	Office	per measure	438	376	311	248	193	147	110	82	0	0	0	0	0	0	0	0	0	0	0	0	
1249	Interior Lighting	LED <7-20 Watt Lamp Replacing Interior Halogen 35-70 Watt Lamp	Biz-Custom/SBDI	Office	per measure	783	656	542	433	337	257	193	143	0	0	0	0	0	0	0	0	0	0	0	0	
1250	Interior Lighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Biz-Custom/SBDI	Office	per measure	2,240	1,925	1,590	1,270	989	753	565	419	0	0	0	0	0	0	0	0	0	0	0	0	
1251	Interior Lighting	LED <13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Biz-Custom/SBDI	Office	per measure	3,267	2,698	2,156	1,677	1,278	959	711	0	0	0	0	0	0	0	0	0	0	0	0	0	
1252	Interior Lighting	LED <20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Biz-Custom/SBDI	Office	per measure	1,431	1,181	944	734	560	420	311	0	0	0	0	0	0	0	0	0	0	0	0	0	
1253	Interior Lighting	LED <62-120 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Biz-Custom/SBDI	Office	per measure	1,423	1,223	1,010	807	628	478	359	266	0	0	0	0	0	0	0	0	0	0	0	0	
1254	Interior Lighting	LED 62-120 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Biz-Custom/SBDI	Office	per measure	876	753	622	497	386	295	221	164	0	0	0	0	0	0	0	0	0	0	0	0	
1255	Interior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Biz-Custom/SBDI	Office	per measure	362	382	382	362	325	280	231	185	144	109	82	61	0	0	0	0	0	0	0	0	
1256	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Office	per measure	1,451	1,247	1,029	823	640	488	366	271	0	0	0	0	0	0	0	0	0	0	0	0	
1257	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Office	per measure	1,539	1,385	1,190	983	785	611	466	349	259	0	0	0	0	0	0	0	0	0	0	0	
1258	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Biz-Custom/SBDI	Office	per measure	1,605	1,445	1,241	1,025	819	637	486	364	270	0	0	0	0	0	0	0	0	0	0	0	
1259	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Biz-Custom/SBDI	Office	per measure	2,289	2,061	1,771	1,462	1,168	909	693	520	385	0	0	0	0	0	0	0	0	0	0	0	
1260	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Biz-Custom	Office	per measure	776	819	819	776	699	601	496	396	308	235	176	131	0	0	0	0	0	0	0	0	
1261	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Office	per measure	11,008	9,461	7,813	6,242	4,857	3,702	2,777	2,059	0	0	0	0	0	0	0	0	0	0	0	0	
1262	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Biz-Custom/SBDI	Office	per measure	15,227	13,705	11,779	9,727	7,772	6,047	4,609	3,458	2,564	0	0	0	0	0	0	0	0	0	0	0	
1263	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Biz-Custom/SBDI	Office	per measure	12,167	10,951	9,412	7,772	6,210	4,832	3,683	2,763	2,049	0	0	0	0	0	0	0	0	0	0	0	
1264	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Biz-Custom	Office	per measure	6,985	6,033	4,957	3,961	3,082	2,249	1,762	1,307	0	0	0	0	0	0	0	0	0	0	0	0	
1265	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Biz-Custom/SBDI	Office	per measure	7,88																				

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1280	Miscellaneous	Pool Pump Timer	Bi-Custom	Office	per measure	13	16	19	22	25	27	30	32	33	34	32	32	32	31	30	29	29	28	28	28
1281	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1282	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Office	per measure	19	24	28	33	37	41	45	47	50	51	54	54	54	54	54	50	49	47	46	45
1283	Miscellaneous	High Efficiency Dryer	Bi-Custom	Office	per measure	6	8	10	11	13	14	15	16	17	17	18	18	18	18	18	16	16	16	15	15
1284	Miscellaneous	Miscellaneous Custom	Bi-Custom	Office	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1285	Motors	Caged V-belt	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1286	Motors	Power Drive Systems	Bi-Standard	Office	per kWh	236	262	281	309	387	468	545	605	639	639	689	605	545	468	387	309	417	380	348	334
1287	Motors	Switch Reluctance Motors	Bi-Custom	Office	per kWh	271,399	339,680	411,322	478,607	531,733	561,244	561,244	531,733	478,607	411,322	339,680	271,399	211,177	160,956	120,757	79,078	254,760	208,492	159,955	138,900
1288	Motors	Escalators Motor Efficiency Controllers	Bi-Custom	Office	per measure	47	71	79	84	93	116	141	164	182	182	192	182	182	164	141	116	128	125	114	105
1289	Offices, NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1290	Offices, NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1291	Offices, NonPC	Plug Load Occupancy Sensor	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1292	Offices, NonPC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Office	per measure	14	21	24	25	28	35	46	59	74	90	107	123	138	151	161	169	174	176	175	173
1293	Offices, NonPC	Energy Star Server	Bi-Custom	Office	per kWh	4	11	18	26	35	46	59	74	90	107	123	138	151	161	169	174	176	175	173	170
1294	Offices, NonPC	Server Virtualization	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1295	Offices, NonPC	High Efficiency ChAC unit	Bi-Custom	Office	per measure	72	179	298	426	567	743	956	1,204	1,480	1,771	2,062	2,337	2,585	2,799	2,975	3,097	3,180	3,234	3,264	3,276
1297	Offices, NonPC	Computer Room Air Conditioner Economizer	Bi-Custom	Office	per measure	739	1,109	1,232	1,520	1,819	2,202	2,583	2,847	3,005	3,005	3,005	2,847	2,583	2,202	1,819	1,520	1,232	1,007	962	1,036
1298	Offices, NonPC	Data Center Hot/Cold Aisle Configuration	Bi-Custom	Office	per kWh	11,807	17,711	19,679	21,085	23,127	29,058	35,186	40,942	45,487	48,011	48,011	45,487	40,942	35,186	29,058	23,127	16,858	11,807	11,348	12,538
1299	Offices, NonPC	Energy Star Laptop	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300	Offices, NonPC	Energy Star Monitor	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1301	Refrigeration	Strip Curtains	Bi-Custom	Office	per sq.ft.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1302	Refrigeration	Bare Suction Line	Bi-Custom	Office	per hp	45	68	75	80	89	111	134	156	173	183	183	173	156	134	111	122	120	109	100	96
1303	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1304	Refrigeration	Saturated Suction Controls	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1305	Refrigeration	Compressor Retrofit	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1306	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Custom	Office	per measure	7	11	12	13	14	18	21	25	28	29	29	28	25	21	18	19	19	17	16	15
1307	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Office	per measure	8	12	14	15	16	20	24	28	32	33	33	32	28	24	20	22	22	20	18	17
1308	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Office	per hp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1309	Refrigeration	Refrigeration Economizer	Bi-Custom	Office	per kWh	1,573	2,360	2,622	2,809	3,093	3,671	4,688	5,455	6,060	6,397	7,777	7,830	7,421	6,597	5,293	4,067	2,975	2,302	1,937	1,604
1310	Refrigeration	Anti-Swear Heater Controls MT	Bi-Custom	Office	per floor	58	87	97	103	114	143	173	201	223	236	221	236	221	218	218	218	218	218	218	214
1311	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Office	per measure	2	3	3	3	4	5	6	7	7	8	8	7	7	6	5	5	5	5	4	4
1312	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1313	Refrigeration	OS/PC Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Office	per floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1314	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Custom	Office	per floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1315	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Standard	Office	per floor	7	10	11	12	13	16	20	23	25	27	32	33	31	28	26	25	25	25	25	24
1316	Refrigeration	Anti-Swear Heater Controls LT	Bi-Custom	Office	per floor	3	5	6	7	8	10	12	13	14	14	14	13	14	14	13	11	10	10	11	11
1317	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Office	per floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1318	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Office	per floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1319	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Office	per floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1320	Refrigeration	Refrigeration - Custom	Bi-Custom	Office	per kWh	24,464	36,695	40,773	43,685	48,103	78,552	104,424	115,408	127,008	135,582	158,389	169,562	171,384	163,159	161,889	166,895	164,001	157,066	147,522	137,269
1321	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi-Custom	Office	per measure	0	1	1	1	2	2	3	4	5	6	7	8	8	9	9	10	10	10	10	10
1322	Refrigeration	Energy Star Ice Machine	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1323	Refrigeration	STAR Refrigerated Venting Machine	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1324	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Office	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1325	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	Office	per linear ft.	364	547	607	651	717	897	1,096	1,264	1,404	1,705	1,892	1,859	1,752	1,623	1,570	1,531	1,505	1,478	1,635	1,655
1326	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Office	per measure	86	130	144	156	170	213	258	300	333	352	431	408	374	340	330	326	319	316	326	320
1327	Refrigeration	Demand Controlled Ventilation	Bi-Standard	Office	per measure	3,519	4,261	4,959	5,509	5,815	5,509	4,959	4,261	3,519	2,612	2,188	1,668	1,251	928	2,639	3,196	3,719	4,132	4,361	
1328	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Custom	Office	per hp	4,297	5,203	6,054	6,726	7,100	7,100	6,726	6,054	5,203	4,297	3,493	2,671	2,036	1,528	1,133	3,223	3,902	4,541	5,045	5,325
1329	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Office	per measure	11	13	14	15	19	23	26	29	31	31	31	26	23	19	15	11	10	10	11	14
1330	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Office	per measure	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1331	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Office	per measure	7	8	9	11	13	15	17	18	18	17	15	13	11	9	12	11	10	9	8	8
1332	WholeBldg, HVAC	HVAC - Energy Management System	Bi-Custom	Office	per kWh	493,944	529,226	582,744	729,354	883,183	1,027,657	1,205,094	1,414,727	1,650,094	1,917,727	2,204,727	2,514,727	2,844,727	3,200,094	3,584,727	4,000,094	4,444,727	4,914,727	5,414,727	5,944,727
1333	WholeBldg, HVAC	Cool Roof	Bi-Custom	Office	per kWh	781,233	946,004	1,100,754	1,222,938	1,290,812</															

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End-Use	Measure Name	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1423	interior lighting	LED Fixture with Network Controls Replacing Interior HID	per measure	166	175	175	166	149	128	106	84	66	50	38	28	0	0	0	41	44	44	41	37
1424	interior lighting	LED 85-225 Watt Lamp or Fixture Replacing Interior HID 30-1500 Watt Lamp or Fixture	per measure	664	571	471	471	323	223	168	124	0	0	0	0	0	0	0	166	143	118	94	73
1425	interior lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	per measure	665	598	514	427	359	293	233	188	144	112	112	150	129	106	85	66	50	38	28	0
1426	interior lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	per measure	624	624	536	443	354	275	210	157	117	0	0	0	0	0	0	173	156	134	111	88
1427	interior lighting	LED Replacing Interior T5 Fluorescent (Type C)	per measure	989	890	765	632	505	393	299	225	166	0	0	247	222	191	158	126	98	75	56	42
1428	interior lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	per measure	335	354	354	302	259	214	171	133	101	76	56	0	0	0	0	84	88	88	84	75
1429	interior lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	per measure	4,754	4,086	3,374	2,696	2,098	1,599	1,200	889	0	0	1,189	1,021	844	674	524	400	300	222	0	0
1430	interior lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	per measure	6,576	5,919	5,087	4,201	3,356	2,632	1,991	1,493	1,107	0	0	1,182	1,016	839	670	522	398	298	221	0
1431	interior lighting	LED Replacing Interior T8 Fluorescent (Type C)	per measure	5,254	4,729	4,065	3,357	2,682	2,087	1,591	1,193	885	0	0	1,314	1,182	1,016	839	670	522	398	298	221
1432	interior lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1433	interior lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	per measure	3,017	2,593	2,141	1,711	1,331	1,014	761	564	0	0	754	648	535	428	333	254	190	141	0	0
1434	interior lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	per measure	3,385	3,047	2,619	2,162	1,728	1,348	1,025	769	570	0	0	846	762	655	541	432	317	242	181	134
1435	interior lighting	LED Replacing Interior T12 Fluorescent (Type C)	per measure	3,193	2,874	2,470	2,020	1,630	1,268	967	725	538	0	0	798	719	617	510	407	317	242	181	134
1436	interior lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	per measure	1,256	1,190	1,071	920	760	607	472	360	270	200	0	0	0	0	0	314	297	268	230	190
1437	interior lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	per measure	7,482	7,089	6,381	5,484	4,529	3,618	2,815	2,146	1,610	1,194	1,194	1,772	1,595	1,371	1,132	905	704	536	402	298
1438	interior lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	per measure	1,684	1,595	1,436	1,234	1,019	814	634	483	362	269	421	399	359	307	255	204	158	121	91	67
1439	interior lighting	Lighting Power Density	per sq ft	985,905	1,056,341	1,156,133	1,095,341	985,905	847,302	699,722	559,068	435,013	331,561	248,572	184,423	0	0	246,476	273,835	289,033	289,033	273,835	
1440	interior lighting	LED Lighting Redesign/Custom	per project	6	7	9	10	11	12	12	12	11	10	9	7	6	4	3	3	3	2	2	3
1441	interior lighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	per measure	670	497	0	0	0	0	0	167	124	0	0	0	0	0	0	42	31	0	0	0
1442	Miscellaneous	Vending Machine Controller - Non-Refrigerated	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1443	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	per HP	0	1	1	1	2	2	3	3	4	4	4	4	5	5	5	6	6	6	6	6
1444	Miscellaneous	High Efficiency Hand Dryers	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1445	Miscellaneous	Ozone Commercial Laundry	per measure	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1446	Miscellaneous	ENERGY STAR Interrupted Power Supply	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1447	Miscellaneous	Pool Pump w/ Variable Frequency Drive	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1448	Miscellaneous	Pool Pump Timer	per measure	6	7	8	10	11	12	13	14	15	14	14	14	14	14	13	13	13	13	12	12
1449	Miscellaneous	Pool Heater Heat Pump (Uncovered)	per measure	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1450	Miscellaneous	Pool Heater Heat Pump (Covered)	per measure	8	10	12	14	16	18	19	21	22	22	22	23	23	24	24	24	22	21	21	20
1451	Miscellaneous	High Efficiency Dryer	per measure	3	3	4	5	5	6	7	7	7	8	8	8	8	8	8	8	7	7	7	6
1452	Miscellaneous	Miscellaneous Custom	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1453	Miscellaneous	Caged V-Belt	per measure	29	36	41	46	49	49	46	41	36	29	24	18	14	10	8	22	27	31	35	36
1454	Miscellaneous	Motor	per kWh	53	59	63	69	87	122	136	143	143	136	122	105	72	69	69	94	85	78	75	65
1455	Miscellaneous	Power Drive Systems	per kWh	41,280	51,665	62,562	72,796	80,877	85,365	80,877	72,796	62,562	51,665	41,280	32,120	24,481	18,367	14,577	44,577	38,749	46,922	54,597	60,658
1456	Miscellaneous	Switch Reluctance Motor's	per measure	11	16	18	19	21	26	32	37	41	43	43	41	37	32	26	29	28	26	24	23
1457	Miscellaneous	Escalator Motor Efficiency Controllers	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1458	Office_JoinC	Energy Star Printer/Copier/Fax	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1459	Office_JoinC	Smart Power Strip - Commercial Use	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1460	Office_JoinC	Plug Load Occupancy Sensor	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1461	Office_PC	Electrically Commutated Plug Fans in data centers	per measure	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	2	2	2	2
1462	Office_PC	Energy Star Server	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1463	Office_PC	Server Virtualization	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1464	Office_PC	High Efficiency ChAC unit	per measure	4	11	18	25	34	44	57	72	89	106	123	140	155	167	178	185	190	193	195	196
1465	Office_PC	Computer Room Air Conditioner Economizer	per measure	44	66	74	87	109	132	153	170	180	180	170	153	132	109	120	117	107	96	94	
1466	Office_PC	Data Center Hot/Cold Aisle Configuration	per kWh	706	1,060	1,177	1,261	1,389	1,738	2,105	2,471	2,872	3,282	3,721	4,249	4,849	5,516	6,255	7,064	7,933	8,854	9,830	10,856
1467	Office_PC	Energy Star Laptop	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1468	Refrigeration	Energy Star Monitor	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1469	Refrigeration	Strip Curtains	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1470	Refrigeration	Refrigeration	per kWh	143	215	238	255	289	325	389	513	605	688	842	966	1,035	1,067	1,128	1,151	1,129	1,081	1,030	972
1471	Refrigeration	Bare Suction Line	per sq ft	47	71	79	85	93	116	141	164	182	192	192	182	164	141	116	129	126	114	105	101
1472	Refrigeration	Floating Head Pressure Controls	per HP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1473	Refrigeration	Saturated Suction Controls	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1474	Refrigeration	Compressor Retrofit	per measure	8	11	13	13	15	18	22	26	29	31	31	29	26	22	18	20	20	18	17	16
1475	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	per measure	9	13	14	15	17	21	26	30	33	35	35	33	30	26	21	23	23	21	19	18
1476	Refrigeration	Evaporator Fan Motor Controls	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1477	Refrigeration	Variable Speed Condenser Fan	per kWh	1,654	2,481	2,756	2,953	3,252	4,079	4,929	5,735	6,371	7,265	7,965	8,232	7,802	7,144	6,509	6,305	6,227	6,320	6,225	6,116
1478	Refrigeration	Refrigeration Economizer	per kWh	21	32	36	38	42	53	64	74	82	87	103	106	101	92	84	82	80	81	80	79
1479	Refrigeration	Anti-Sweat Heater Controls MT	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1480	Refrigeration	Display Case Door Retrofit, Medium Temp	per kWh	1	1	1	1	1	2	2	3												

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1496	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Warehouse	per HP	52	78	87	93	103	128	155	181	201	212	212	201	181	155	128	138	138	126	115	111		
1497	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Warehouse	per measure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1498	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Warehouse	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1499	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Warehouse	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1500	Whoilebig, HVAC	HVAC - Energy Management System	Bi-Custom	Warehouse	per kWh	19,070	20,860	22,970	28,749	34,812	40,507	45,003	47,901	47,501	46,903	40,507	34,812	28,749	22,970	17,873	28,225	25,866	24,805	21,562	26,109		
1501	Whoilebig, HVAC	Cool Roof	Bi-Custom	Warehouse	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1502	Whoilebig, HVAC	Retroc-commissioning, BE Optimization	Bi-Custom RCK	Warehouse	per kWh	30,095	46,042	51,138	54,812	58,615	63,355	66,355	68,604	69,359	69,079	67,079	63,355	58,615	54,812	51,138	46,042	51,547	50,099	47,073	43,098	47,234	
1503	Whoilebig, HVAC	Whoilebig - Comm BE	Bi-Custom	Warehouse	per kWh	132,839	199,258	221,988	237,212	263,200	326,915	395,865	444,804	511,751	540,513	540,513	511,751	444,804	395,865	326,915	263,200	237,212	263,200	309,141	400,094	413,117	431,630
1504	Whoilebig, HVAC	Whoilebig - Custom (Other)	Bi-Custom	Warehouse	per kWh	88,659	132,839	147,999	158,141	174,134	217,943	263,910	307,981	341,167	360,102	360,102	341,167	307,981	263,910	217,943	158,141	132,839	328,642	292,740	266,094	265,729	275,411
1505	Whoilebig, HVAC	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Warehouse	per kWh	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630	17,630
1506	Whoilebig, HVAC	Whoilebig - Comm NC	Bi-Custom	Warehouse	per kWh	388,930	91,818	369,630	409,724	668,629	229,709	304,239	416,989	778,240	838,246	838,246	778,240	668,629	409,724	304,239	229,709	1,331,440	515,947	538,075	818,801	470,667	683,333
1507	Behavioral	COM Completions	Bi-Custom	Warehouse	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1508	Behavioral	Business Energy Reports	Bi-Custom	Warehouse	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1509	Behavioral	Building Benchmarking	Bi-Custom	Warehouse	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1510	Behavioral	Strategic Energy Management	Bi-Custom	Warehouse	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1511	Behavioral	BEIMS	Bi-Custom	Warehouse	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1512	Behavioral	Building Operator Certification	Bi-Custom	Warehouse	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1513	Compressor&dr	Retroc-commissioning, Compressed Air Optimization	Bi-Custom RCK	Other	per kWh	510,483	483,641	435,320	374,121	308,938	629,716	554,808	472,889	390,426	313,349	472,889	416,106	354,667	292,819	234,682	354,215	312,080	266,000	219,614	176,146		
1514	Compressor&dr	Compressed Air Leak Repair	Bi-Custom	Other	per kWh	1,025,462	923,007	793,246	655,082	523,401	1,176,337	1,002,664	827,817	663,939	392,851	882,267	751,998	620,863	497,976	294,413	661,701	563,998	465,647	373,482	220,810		
1515	Compressor&dr	Efficient Air Compressors (VSD)	Bi-Standard	Other	per HP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1516	Compressor&dr	AODD Pump Controls	Bi-Custom	Other	per measure	20	17	13	10	8	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1517	Compressor&dr	No Loss Condensate Drain	Bi-Standard	Other	per measure	11	16	18	19	21	27	32	38	42	44	52	54	51	47	43	41	41	41	41	41	40	
1518	Compressor&dr	Efficient Air Nozzles	Bi-Standard	Other	per measure	42	53	64	75	83	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	
1519	Compressor&dr	Compressed Air - Custom	Bi-Custom	Other	per kWh	964,244	1,074,275	1,130,732	1,130,732	1,074,275	964,244	828,685	684,348														
1520	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Other	per measure	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1521	Cooking	Commercial Electric Connection Oven	Bi-Custom	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1522	Cooking	Commercial Electric Giddle	Bi-Custom	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1523	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Other	per measure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1524	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Other	per measure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1525	Cooking	Dishwasher High Temp Door (Energy Star)	Bi-Custom	Other	per measure	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
1526	Cooking	Energy Efficient Electric Fryer	Bi-Custom	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1527	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1528	Cooking	Insulated Holding Cabinets (3/4 Size)	Bi-Standard	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1529	Cooking	Air Conditioner - 17 SEER (5-30 Tons)	Bi-Standard/SBDI	Other	per ton	125	158	194	232	270	306	339	367	390	408	422	433	441	448	448	448	416	408	399	390	380	
1530	Cooking	Air Conditioner - 18 SEER (5-30 Tons)	Bi-Standard/SBDI	Other	per ton	127	159	196	234	273	309	342	370	394	412	427	438	446	452	452	452	421	413	403	394	384	
1531	Cooking	Air Conditioner - 21 SEER (5-30 Tons)	Bi-Standard/SBDI	Other	per ton	112	142	174	208	243	275	304	329	350	367	379	389	397	402	402	402	374	367	359	350	341	
1532	Cooking	Air Conditioner - 21 SEER (30-35 Tons)	Bi-Standard/SBDI	Other	per ton	34	57	81	107	141	181	228	281	339	391	443	490	531	564	591	603	613	613	613	613	613	
1533	Cooking	Air Conditioner - 14.5 SEER (20+ Tons)	Bi-Standard	Other	per ton	32	53	75	101	131	169	213	262	313	365	413	457	495	526	551	562	572	577	579	579		
1534	Cooking	Air Conditioner - 17 SEER (20+ Tons)	Bi-Standard	Other	per ton	27	44	63	84	111	142	179	220	264	307	348	385	417	443	464	473	481	486	488	481		
1535	Cooking	Air Conditioner - 17 SEER (20+ Tons)	Bi-Standard	Other	per ton	6,991	5,932	5,098	4,514	3,813	3,041	2,466	2,054	1,761	1,541	1,365	1,227	1,124	1,048	1,000	954	904	854	804	754		
1536	Cooking	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Bi-Custom	Other	per ton	3,893	3,893	4,097	4,097	3,893	3,893	3,002	2,727	1,777	1,353	1,013	75	0	0	0	0	0	0	0	0	0	
1537	Cooking	Air Side Economizer	Bi-Standard/SBDI	Other	per measure	469	469	445	400	344	284	227	177	135	101	75	0	0	0	0	0	0	0	0	0	0	
1538	Cooking	Advanced Rooftop Controls	Bi-Custom	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1539	Cooking	HVAC Occupancy Controls	Bi-Standard/SBDI	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1540	Cooking	Air Conditioner - 16 SEER (<5 Tons)	Bi-Standard/SBDI	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1541	Cooking	Air Conditioner - 17 SEER (<5 Tons)	Bi-Standard/SBDI	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1542	Cooking	Air Conditioner - 18 SEER (<5 Tons)	Bi-Standard/SBDI	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1543	Cooking	Air Conditioner - 21 SEER (<5 Tons)	Bi-Standard/SBDI	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1544	Cooking	Smart Thermostat	Bi-Standard/SBDI	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1545	Cooking	PTAC - 7,000 Btu/h - lodging	Bi-Custom	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1546	Cooking	PTAC - 7,000 to 15,000 Btu/h - lodging	Bi-Custom	Other	per ton	0	0																				

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1567	Heating	Heat Pump - 16.0 IEER COP (3.8 (65,000-134,000 Btu/hr)	Bi-Standard	Other	per ton	1	1	2	2	3	3	4	5	5	6	7	8	8	9	9	9	9	9	9	9	
1568	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Bi-Standard	Other	per ton	1	1	2	2	3	3	4	5	5	6	7	7	8	8	8	8	8	8	8	8	
1569	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Bi-Standard	Other	per ton	1	1	2	2	3	3	4	5	5	6	6	7	7	8	8	8	8	8	8	8	
1570	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Bi-Standard	Other	per ton	1	1	2	2	3	3	4	5	5	6	6	7	8	8	9	9	9	9	9	9	
1571	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Bi-Standard	Other	per ton	1	1	2	2	3	3	4	5	5	6	6	7	7	7	7	7	7	7	7	7	
1572	Heating	Geothermal HP - 17 IEER < 135kbu	Bi-Custom	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1573	Heating	Geothermal HP - 19 IEER < 135kbu	Bi-Custom	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1574	Heating	PTHP - 7.000 to 15.000 Btu/h - logging	Bi-Custom	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1575	Heating	PTHP - >15,000 Btu/h - logging	Bi-Custom	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1576	Heating	PTHP - >15,000 Btu/h - logging	Bi-Custom	Other	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1577	HotWater	Res-Sized Heat Pump Water Heater	Bi-Standard	Other	per measure	27	35	45	57	70	83	97	110	122	132	140	146	152	158	158	154	152	149	147	143	
1578	HotWater	Commercial-Size HP/H	Bi-Custom	Other	per measure	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1579	HotWater	Hot Water Pipe Insulation	Bi-Custom	Other	per measure	2,309	1,760	1,320	979	0	0	0	0	0	0	1,732	1,320	990	734	0	0	0	0	0	1,299	
1580	HotWater	Faucet Aerator	Bi-Custom	Other	per measure	44	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	
1581	HotWater	Low Flow Pre-Rinse Sprayers	Bi-Custom	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1582	HotWater	ENERGY STAR Commercial Washing Machines	Bi-Custom	Other	per measure	559	481	397	317	247	188	141	105	0	0	0	0	0	0	0	0	0	0	0	0	
1583	InteriorLighting	LED <11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Bi-Standard/SBDI	Other	per measure	446	384	317	253	197	150	113	83	0	0	0	112	96	79	63	49	38	28	21	0	
1584	InteriorLighting	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	Bi-Standard/SBDI	Other	per measure	779	669	553	441	344	262	196	146	0	0	0	195	167	138	110	86	65	49	36	0	
1585	InteriorLighting	LED Specialty Lamp	Bi-Standard/SBDI	Other	per measure	2,077	1,785	1,474	1,178	916	699	524	389	0	0	0	519	446	369	294	229	175	131	97	0	
1586	InteriorLighting	LED <14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	Bi-Standard/SBDI	Other	per measure	3,029	2,501	1,999	1,555	1,185	889	659	0	0	0	0	757	625	500	389	296	222	165	0	0	
1587	InteriorLighting	LED <13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Bi-Standard/SBDI	Other	per measure	1,326	1,055	875	681	519	389	289	0	0	0	0	332	274	219	170	130	97	72	0	0	
1588	InteriorLighting	LED <20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Bi-Standard/SBDI	Other	per measure	1,339	1,151	951	759	591	450	338	251	0	0	0	0	0	0	0	0	0	335	288	238	190
1589	InteriorLighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Other	per measure	824	708	585	467	364	277	208	154	0	0	0	0	0	0	0	0	0	206	177	146	117
1590	InteriorLighting	LED <80 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi-Standard/SBDI	Other	per measure	340	359	359	340	306	263	217	174	135	103	77	57	0	0	0	0	0	85	90	90	85
1591	InteriorLighting	LED Fixture with Network Controls Replacing Interior HID	Bi-Standard	Other	per measure	1,365	1,174	969	774	603	459	345	255	0	0	0	0	0	0	0	0	341	293	242	194	151
1592	InteriorLighting	LED Fixture with Network Controls Replacing Interior HID	Bi-Standard/SBDI	Other	per measure	2,575	2,317	1,992	1,645	1,314	1,022	779	585	433	0	0	0	0	0	0	0	0	329	256	195	146
1593	InteriorLighting	LED Fixture with Network Controls Replacing Interior HID	Bi-Standard/SBDI	Other	per measure	2,885	2,417	2,077	1,715	1,366	1,066	813	610	452	0	0	0	0	0	0	0	0	671	604	519	429
1594	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type A, Kits, and Fixtures)	Bi-Standard/SBDI	Other	per measure	3,830	3,448	2,963	2,447	1,955	1,521	1,159	870	645	0	0	0	0	0	0	0	0	612	489	380	290
1595	InteriorLighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Other	per measure	1,299	1,371	1,371	1,299	1,169	1,005	830	663	516	393	295	219	0	0	0	0	0	325	343	343	335
1596	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type A, Kits, and Fixtures)	Bi-Standard	Other	per measure	18,419	15,829	13,072	10,445	8,127	6,094	4,647	3,405	2,591	1,949	1,449	1,049	744	535	388	282	203	154	112	86	66
1597	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Other	per measure	25,277	22,832	19,708	16,275	13,004	10,118	7,712	5,786	4,260	0	0	0	0	0	0	0	0	639	573	492	406
1598	InteriorLighting	LED Replacing Interior T8 Fluorescent (Type C)	Bi-Standard/SBDI	Other	per measure	20,357	18,323	15,747	13,004	10,390	8,085	6,162	4,633	3,428	0	0	0	0	0	0	0	0	288	202	154	115
1599	InteriorLighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Standard	Other	per measure	11,087	10,044	8,235	6,627	5,157	3,930	2,949	2,186	0	0	0	0	0	0	0	0	0	983	737	547	0
1600	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type A/Hybrid)	Bi-Standard/SBDI	Other	per measure	13,115	11,804	10,145	8,278	6,694	5,208	3,970	2,978	2,208	0	0	0	0	0	0	0	0	3,279	2,561	2,094	1,673
1601	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Other	per measure	12,271	11,135	9,569	7,933	6,314	4,913	3,745	2,809	2,083	0	0	0	0	0	0	0	0	3,279	2,561	2,094	1,673
1602	InteriorLighting	LED Replacing Interior T12 Fluorescent (Type C)	Bi-Standard/SBDI	Other	per measure	12,271	11,135	9,569	7,933	6,314	4,913	3,745	2,809	2,083	0	0	0	0	0	0	0	0	3,279	2,561	2,094	1,673
1603	InteriorLighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Standard	Other	per measure	4,865	4,609	4,148	3,562	2,944	2,352	1,830	1,395	1,047	776	0	0	0	0	0	0	0	1,216	1,152	1,037	891
1604	InteriorLighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Standard/SBDI	Other	per measure	22,790	22,790	22,790	19,484	16,702	13,769	11,078	8,575	6,536	4,900	3,633	2,697	1,933	1,404	1,038	775	575	424	314	226	176
1605	InteriorLighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Bi-Standard/SBDI	Other	per measure	5,135	5,135	4,856	4,371	3,756	3,103	2,478	1,938	1,470	1,103	839	618	454	324	234	169	124	93	69	51	
1606	InteriorLighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Bi-Standard/SBDI	Other	per sq ft	3,427,862	3,068,357	4,039,722	4,039,722	3,808,357	3,427,862	2,945,955	2,492,841	1,949,807	1,524,483	1,152,794	868,679	641,214	0	0	0	856,905	952,089	1,004,930	1,004,930	
1607	InteriorLighting	LED Lighting Redesign/Custom	Bi-Standard	Other	per project	20	24	30	34	38	40	40	40	38	34	30	24	20	15	12	9	11	6	7	9	
1608	InteriorLighting	LED or Electrochromic Replacing Interior Incandescent/ CFL Exit Sign	Bi-Standard/SBDI	Other	per measure	2,329	1,727	0	0	0	0	0	0	0	0	0	0	0	0	0	0	146	108	0	0	
1609	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1610	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Other	per HP	1	2	3	4	5	7	8	10	12	14	16	18	19	21	22	22	22	23	23	24	
1611	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1612	Miscellaneous	Office Commercial Laundry	Bi-Custom	Other	per measure	2	2	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
1613	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Bi-Custom	Other	per measure	96	99	102	104	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	
1614	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Other	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1615	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Other	per measure	22	27	33	38	43	48	52	55	58	60	66	76	86	96	105	115	124	134	144	154	
1616	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	Other	per measure	3	4	4	5	6	7	7	8	8	8	8	8	8	9	9	9	9	9	9	9	

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End-Use	Measure Name	Building Type	Program	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1637	Refrigeration	Strip Curtains	Other	Bi-Custom	per sq ft	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1638	Refrigeration	Bare Section Line	Other	Bi-Custom	per measure	44	66	74	79	87	109	132	153	170	180	180	170	153	132	109	120	117	107	98	94	0
1639	Refrigeration	Floating-Head Pressure Controls	Other	Bi-Custom	per HP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1640	Refrigeration	Saturated Suction Controls	Other	Bi-Custom	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1641	Refrigeration	Compressor Retrofit	Other	Bi-Custom	per measure	7	11	12	13	14	17	21	24	24	27	29	27	24	21	17	19	19	17	16	15	0
1642	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Other	Bi-Standard	per measure	8	12	13	14	16	20	24	28	31	33	33	31	28	24	20	22	21	19	18	17	0
1643	Refrigeration	Evaporator Fan Motor Controls	Other	Bi-Custom	per HP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1644	Refrigeration	Variable Speed Condenser Fan	Other	Bi-Custom	per measure	1,543	2,315	2,572	2,726	3,035	3,798	4,599	5,351	5,945	6,275	7,433	7,682	7,281	6,666	6,074	5,883	5,811	5,811	5,809	5,708	0
1645	Refrigeration	Refrigeration Compressor	Other	Bi-Standard	per door	30	45	50	53	59	74	89	104	115	122	144	149	141	129	118	114	113	113	113	111	0
1646	Refrigeration	Anti-Sweat Heater Controls MT	Other	Bi-Custom	per measure	1	1	2	2	2	2	3	3	4	4	4	4	3	3	3	3	3	2	2	2	0
1647	Refrigeration	Display Case Door Retrofit, Medium Temp	Other	Bi-Standard	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1648	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Other	Bi-Custom	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1649	Refrigeration	Cyclic Motor for Walk-In and Reach-In Evaporator Fan Motor	Other	Bi-Standard	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1650	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Other	Bi-Standard	per door	3	5	6	7	8	10	12	13	14	16	17	16	15	13	13	13	13	13	13	13	13
1651	Refrigeration	Anti-Sweat Heater Controls LT	Other	Bi-Standard	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1652	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Other	Bi-Standard	per door	2	3	3	3	4	5	6	7	7	7	7	7	7	7	7	7	6	5	5	5	6
1653	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Other	Bi-Standard	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1654	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Other	Bi-Standard	per door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1655	Refrigeration	Refrigeration - Custom	Other	Bi-Custom	per kWh	22,973	34,130	37,922	40,631	44,739	73,000	95,402	107,338	118,127	126,074	147,314	157,706	159,401	156,401	150,351	155,225	153,092	146,084	137,207	127,671	
1656	Refrigeration	Retro-commissioning, Refrigerator Optimization	Other	Bi-Custom RxC	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1657	Refrigeration	Energy Star Ice Machine	Other	Bi-Custom	per measure	0	0	1	2	2	2	3	3	4	4	5	6	6	7	8	8	8	8	8	8	
1658	Refrigeration	ESTAR Refrigerated Vending Machine	Other	Bi-Custom	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1659	Refrigeration	Vending Machine Controller - Refrigerated	Other	Bi-Custom	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1660	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Other	Bi-Custom	per linear ft	188	282	314	336	370	463	561	652	725	806	977	960	904	838	810	791	777	763	844	855	0
1661	Refrigeration	LED Refrigerated Display Case Lighting Controls	Other	Bi-Custom	per measure	45	67	74	80	88	110	133	155	172	182	215	222	211	193	176	170	168	168	168	168	165
1662	Refrigeration	Demand Controlled Ventilation	Other	Bi-Standard	per measure	231	347	386	413	455	569	689	802	891	941	891	802	689	569	628	618	618	618	618	618	618
1663	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Other	Bi-Standard	per HP	295	443	492	528	581	727	881	1,025	1,138	1,201	1,380	1,431	1,380	1,431	1,380	1,380	1,380	1,380	1,380	1,380	1,380
1664	Ventilation	High Volume Low Speed Fan, 20	Other	Bi-Standard	per measure	3	4	4	4	5	6	7	8	9	9	9	8	7	6	5	4	4	4	4	4	4
1665	Ventilation	High Volume Low Speed Fan, 22	Other	Bi-Standard	per measure	2	2	2	2	3	4	4	5	5	5	5	4	4	4	4	4	3	3	3	3	3
1666	Ventilation	High Volume Low Speed Fan, 24	Other	Bi-Standard	per measure	2	2	2	2	3	4	4	5	5	5	5	4	4	4	4	3	3	3	3	3	3
1667	Ventilation	High Volume Low Speed Fan, 22	Other	Bi-Standard	per measure	2	2	2	2	3	4	4	5	5	5	5	4	4	4	4	3	3	3	3	3	3
1668	WholeBldg_HVAC	Energy Management System	Other	Bi-Custom	per kWh	121,212	129,871	143,004	178,801	252,184	280,177	295,726	280,177	252,184	216,731	178,981	143,004	111,272	175,719	161,031	154,426	134,236	126,448	126,448	126,448	
1669	WholeBldg_HVAC	Cool Roof	Other	Bi-Custom	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1670	WholeBldg_HVAC	Recommissioning, BE Optimization	Other	Bi-Custom RxC	per kWh	191,097	286,645	318,694	343,244	375,752	613,609	784,458	901,520	992,116	1,048,856	1,237,248	1,324,527	1,336,257	1,333,562	1,264,428	1,305,680	1,285,770	1,226,912	1,152,559	1,072,273	
1671	WholeBldg_HVAC	Wholesaling - Com RET	Other	Bi-Custom	per kWh	509,123	765,685	848,539	909,149	1,001,087	1,252,946	1,517,207	1,765,396	1,961,356	2,070,212	2,070,212	1,961,356	1,830,238	1,689,971	1,589,351	1,689,949	1,529,764	1,334,415	1,183,359	1,054,281	
1672	WholeBldg	Wholesaling - Custom (Other)	Other	Bi-Custom	per kWh	339,416	509,123	565,693	606,099	667,391	835,298	1,011,671	1,176,890	1,307,570	1,380,141	1,380,141	1,307,570	1,176,890	1,034,492	930,314	1,059,567	1,123,966	1,019,983	1,023,276	1,055,853	1,102,854
1673	WholeBldg	Power Distribution Equipment Upgrades (Transformers)	Other	Bi-Custom	per measure	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669	67,669
1674	WholeBldg_NC	Wholesaling - Com VC	Other	Bi-Custom	per kWh	1,353,938	351,906	1,416,658	1,570,326	2,321,656	880,932	1,186,037	1,598,170	2,498,732	1,315,539	2,261,930	2,761,023	3,102,930	3,102,930	2,761,023	2,498,732	2,321,656	2,177,441	2,062,249	1,938,171	1,803,897
1675	Behavioral	COM Competitions	Other	Bi-Custom	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1676	Behavioral	Business Energy Reports	Other	Bi-Custom	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1677	Behavioral	Building Benchmarking	Other	Bi-Custom	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1678	Behavioral	Strategic Energy Management	Other	Bi-Custom SEM	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1679	Behavioral	BEIMS	Other	Bi-Custom	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1680	Behavioral	Building Operator Certification	Other	Bi-Custom	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1681	Compressor&dr	Retro-commissioning, Compressed Air Optimization	BSS	Bi-Custom RxC	per kWh	109,492	103,289	94,456	80,317	66,328	119,108	110,108	83,817	67,228	101,392	89,331	76,411	62,863	50,221	76,044	66,998	50,221	76,044	66,998	47,147	37,426
1682	Compressor&dr	Compressed Air Leak Repair	BSS	Bi-Custom	per kWh	220,449	198,133	170,296	140,635	112,365	252,543	215,254	177,718	145,542	84,274	189,407	164,441	133,288	106,507	63,205	142,055	121,081	99,966	80,180	47,404	
1683	Compressor&dr	Efficient Air Compressors (VSD)	BSS	Bi-BSS	per measure	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
1684	Compressor&dr	ADD Pump Controls	BSS	Bi-Custom	per measure	2	4	4	4	5	6	7	8	9	10	11	12	11	10	9	9	9	9	9	9	9
1685	Compressor&dr	No Loss Condensate Drain	BSS	Bi-BSS	per measure	8	9	11	13	15	17	18	18	17	15	13	11	9	7	5	10	9	9	9	9	9
1686	Compressor&dr	Efficient Air Nozzles	BSS	Bi-BSS	per measure	207,006	229,984	242,748	242,748	229,984	207,006	177,904	146,918	117,385	91,33											

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1712	Cooling	Smart Thermostat	Bi-BSS	BSS	per measure	24	28	31	33	35	37	38	39	40	40	34	33	33	32	32	32	31	31	31	30	30	
1713	Cooling	PFAC - <7,000 Btu/h - lodging	Bi-Custom	BSS	per ton	3	4	5	5	6	6	7	7	7	6	6	6	6	6	6	6	6	5	5	5	5	
1714	Cooling	PFAC - 7,000 to 15,000 Btu/h - lodging	Bi-Custom	BSS	per ton	3	3	4	5	5	5	5	6	6	6	6	6	5	5	5	5	5	5	4	4	4	
1715	Cooling	PFAC - >15,000 Btu/h - lodging	Bi-Custom	BSS	per ton	3	3	4	5	5	5	6	6	6	7	7	7	7	7	7	6	6	6	5	5	5	
1716	Cooling	Air-Cooled Chiller	Bi-BSS	BSS	per ton	12	21	30	39	52	66	84	103	123	143	163	180	195	207	224	230	234	238	238	238	238	
1717	Cooling	Water-Cooled Chiller	Bi-BSS	BSS	per ton	1	3	6	8	11	14	18	23	28	34	39	44	49	53	57	59	61	63	64	65	65	
1718	Cooling	Chiller Tune-up	Bi-Custom	BSS	per ton	969	872	750	1,346	1,149	947	1,203	1,082	874	977	771	655	733	608	491	550	456	369	412	342	342	
1719	Cooling	Window Film	Bi-Custom	BSS	per measure	226	239	239	226	204	175	145	116	90	69	221	217	179	170	153	131	108	87	67	51	51	
1720	Cooling	Triple Pane Windows	Bi-Custom	BSS	per measure	1	1	2	3	3	3	4	6	7	8	10	11	12	13	14	15	15	16	16	16	16	
1721	Cooling	Energy Recovery Ventilator	Bi-Custom	BSS	per ton	154	171	183	202	252	305	355	395	417	417	395	355	305	252	202	272	248	227	218	189	189	
1722	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1723	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	BSS	per measure	75	58	44	33	25	0	0	0	0	0	0	0	0	0	0	0	0	0	19	15	11	
1724	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	BSS	per measure	66	51	39	29	22	0	0	0	0	0	0	0	0	0	0	0	0	0	16	13	10	
1725	Exterior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	BSS	per measure	36	28	21	16	12	0	0	0	0	0	0	0	0	0	0	0	0	0	9	7	5	
1726	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	BSS	per measure	41	32	24	18	14	0	0	0	0	0	0	0	0	0	0	0	0	10	8	6	5	
1727	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	BSS	per measure	21	17	13	10	7	0	0	0	0	0	0	0	0	0	0	0	0	5	4	3	2	
1728	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1729	Heating	Heat Pump - 16 SEER (<5 Tons)	Bi-BSS	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1730	Heating	Heat Pump - 17 SEER (<5 Tons)	Bi-BSS	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1731	Heating	Heat Pump - 18 SEER (<5 Tons)	Bi-BSS	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1732	Heating	Heat Pump - 21 SEER (<5 Tons)	Bi-BSS	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1733	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	BSS	per ton	1	1	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
1734	Heating	Heat Pump - 15.0 IEER COP (3.6 (65,000-134,000 Btu/hr))	Bi-BSS	BSS	per ton	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	
1735	Heating	Heat Pump - 16.0 IEER COP (3.8 (65,000-134,000 Btu/hr))	Bi-BSS	BSS	per ton	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	
1736	Heating	Heat Pump - 14.5 IEER COP (3.5 (1,35,000-239,000 Btu/hr))	Bi-BSS	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	
1737	Heating	Heat Pump - 15.5 IEER COP (3.7 (1,35,000-239,000 Btu/hr))	Bi-BSS	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	
1738	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Bi-BSS	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	
1739	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Bi-BSS	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	
1740	Heating	Geothermal HP - 17 IEER < 1335kbu	Bi-Custom	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1741	Heating	Geothermal HP - 19 IEER < 1335kbu	Bi-Custom	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1742	Heating	PTHP - <2,000 Btu/h - lodging	Bi-Custom	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1743	Heating	PTHP - 7,000 to 15,000 Btu/h - lodging	Bi-Custom	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1744	Heating	PTHP - >15,000 Btu/h - lodging	Bi-Custom	BSS	per ton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1745	Hotwater	Res-Strip Heat Pump Water Heater	Bi-BSS	BSS	per measure	1	2	4	5	7	9	12	15	18	22	25	29	32	34	37	38	39	40	40	40	40	
1746	Hotwater	Commercial-Sized HPWH	Bi-BSS	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1747	Hotwater	Hot Water Pipe Insulation	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1748	Hotwater	Faucet Aerator	Bi-Custom	BSS	per measure	496	378	283	200	0	0	0	0	0	0	372	283	213	158	0	0	0	0	0	0	0	0
1749	Hotwater	Low Flow Pre-Rinse Sprayers	Bi-Custom	BSS	per measure	9	10	10	10	8	8	8	7	7	7	7	7	6	6	6	6	6	4	4	4	4	
1750	Hotwater	ENERGY STAR Commercial Washing Machines	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1751	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	Bi-BSS	BSS	per measure	21	25	28	29	29	28	25	21	18	14	16	15	13	12	7	7	7	6	5	4	4	
1752	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A 53-70 Watt Lamp	Bi-BSS	BSS	per measure	18	21	23	25	23	21	18	15	12	14	12	11	10	12	11	10	6	6	5	4	3	
1753	Interior Lighting	LED Specialty Lamp	Bi-BSS	BSS	per measure	47	55	61	64	64	61	55	47	39	31	36	32	29	26	16	15	14	12	10	8	8	
1754	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen B8/R 45-65 Watt Lamp	Bi-BSS	BSS	per measure	421	490	545	575	545	490	421	348	278	322	287	260	235	144	136	123	105	87	69	69	69	
1755	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 3.5-50 Watt Lamp	Bi-BSS	BSS	per measure	678	789	877	926	926	877	789	678	560	448	518	463	418	379	231	219	197	170	140	112	112	
1756	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Bi-BSS	BSS	per measure	335	390	434	458	458	434	390	335	277	221	256	229	207	187	114	108	98	84	69	55	55	
1757	Interior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Bi-BSS	BSS	per measure	344	382	403	403	382	344	295	244	195	152	116	87	64	0	0	86	95	101	101	101	95	
1758	Interior Lighting	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi-BSS	BSS	per measure	162	180	190	190	180	162	139	115	92	72	55	41	30	0	0	41	45	48	48	45	45	
1759	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Bi-BSS	BSS	per measure	297	345	384	405	405	384	297	245	196	152	116	65	0	0	74	86	96	101	101	101	101	
1760	Interior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi-BSS	BSS	per measure	72	84	93	99	99	93	84	72	60	48	45	49	45	40	25	23	21	18	15	12	12	
1761	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Bi-BSS	BSS	per measure	67	78	87	92	92	87	78	67	55	44	34	26	20	15	0	17	20	22	23	23	23	
1762	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-BSS	BSS	per measure	88	97	107	113	113	107	97	88	69	55	43	36	29	24	21	17	20	22	23	23	23	
1763	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Bi-BSS	BSS	per measure	188	209	221	221	209	188	163	134	107													

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1778	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1779	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-BSS	BSS	per HP	0	0	1	1	2	2	2	2	2	3	3	4	4	4	5	5	5	5	5	5	
1780	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1781	Miscellaneous	Ozone Commercial Laundry	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	
1782	Miscellaneous	ENERGY STAR Uninterruptible Power Supply	Bi-Custom	BSS	per measure	21	21	22	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
1783	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1784	Miscellaneous	Pool Pump Timer	Bi-Custom	BSS	per measure	5	6	7	8	9	10	11	12	12	12	13	12	12	12	11	11	11	11	11	11	
1785	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1786	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1787	Miscellaneous	High Efficiency Dryer	Bi-Custom	BSS	per measure	2	3	4	4	5	5	6	6	6	6	7	7	7	7	6	6	6	6	6	6	
1788	Miscellaneous	Miscellaneous Gator	Bi-Custom	BSS	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1789	Miscellaneous	Miscellaneous Gator	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1790	Miscellaneous	Charger V-Belt	Bi-BSS	BSS	per HP	21	31	34	37	41	51	62	72	80	84	84	88	72	62	51	56	55	50	46	44	
1791	Miscellaneous	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Custom	BSS	per kWh	42,057	52,607	63,739	74,166	82,298	86,272	86,972	82,298	74,166	63,739	52,607	42,057	32,724	32,724	26,942	26,942	20,113	15,456	10,784	5,604	
1792	Miscellaneous	Power Drive Systems	Bi-Custom	BSS	per measure	10	15	17	18	20	22	25	29	33	39	41	39	35	30	25	27	27	27	24	22	
1793	Miscellaneous	Switch Reluctance Motors	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1794	Miscellaneous	Escalators Motor Efficiency Controllers	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1795	Office, NonKC	Energy Star Printer/Copier/Fax	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1796	Office, NonKC	Smart Power Strip - Commercial Use	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1797	Office, NonKC	Plug Load Occupancy Sensor	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1798	Office, NonKC	Electrically Commutated Plug Fans in data centers	Bi-Custom	BSS	per measure	0	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1
1799	Office, NonKC	Energy Star Server	Bi-Custom	BSS	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1800	Office, NonKC	Server Virtualization	Bi-Custom	BSS	per kWh	2	5	9	13	17	23	29	37	45	54	63	71	79	86	91	95	97	99	100	100	
1801	Office, NonKC	High Efficiency CRAC unit	Bi-Custom	BSS	per measure	2	3	4	4	5	6	7	8	9	10	11	12	12	12	12	12	11	11	11	10	
1802	Office, NonKC	Computer Room Air Conditioner Economizer	Bi-Custom	BSS	per measure	23	34	38	44	56	67	78	87	92	87	78	67	56	61	60	55	50	48	48	48	
1803	Office, NonKC	Data Center Hot/Cold Aisle Configuration	Bi-Custom	BSS	per kWh	361	542	602	645	710	888	1,076	1,252	1,391	1,468	1,468	1,391	1,252	1,076	888	888	981	959	872	799	
1804	Office, NonKC	Energy Star Laptop	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1805	Office, NonKC	Energy Star Monitor	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1806	Office, NonKC	Strip Curtains	Bi-Custom	BSS	per sq ft	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1807	Office, NonKC	Bare Suction Line	Bi-Custom	BSS	per HP	10	15	16	17	19	24	29	34	38	40	40	38	34	29	24	27	26	24	22	21	
1808	Office, NonKC	Floating Head Pressure Controls	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1809	Office, NonKC	Saturated Suction Controls	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1810	Office, NonKC	Compressor Retrofit	Bi-Custom	BSS	per measure	2	2	3	3	3	4	5	6	6	6	6	6	6	5	4	4	4	4	4	3	
1811	Office, NonKC	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-BSS	BSS	per measure	2	3	3	3	3	4	5	6	7	7	7	7	7	6	5	4	4	4	4	4	
1812	Office, NonKC	Evaporator Fan Motor Controls	Bi-Custom	BSS	per HP	2	3	3	3	4	5	6	7	7	7	7	7	7	6	5	4	4	4	4	4	
1813	Office, NonKC	Variable Speed Condenser Fan	Bi-Custom	BSS	per kWh	341	512	569	610	671	840	1,017	1,184	1,315	1,388	1,444	1,699	1,611	1,475	1,344	1,201	1,285	1,286	1,285		
1814	Office, NonKC	Refrigeration Economizers	Bi-Custom	BSS	per floor	10	14	16	17	19	23	28	33	37	39	46	47	45	41	37	36	36	36	36	35	
1815	Office, NonKC	Display Case Door Retrofit, Medium Temp	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1816	Office, NonKC	Anti-Sweat Heater Controls MT	Bi-BSS	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1817	Office, NonKC	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1818	Office, NonKC	Cyclic Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1819	Office, NonKC	Energy Star Reach-In Refrigerator, Solid Doors	Bi-BSS	BSS	per floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1820	Office, NonKC	Anti-Sweat Heater Controls LT	Bi-BSS	BSS	per floor	1	1	1	1	1	2	2	3	3	3	3	4	4	4	4	3	3	3	3	3	
1821	Office, NonKC	Display Case Door Retrofit, Low Temp	Bi-Custom	BSS	per floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1822	Office, NonKC	Energy Star Reach-In Freezer, Glass Doors	Bi-BSS	BSS	per floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1823	Office, NonKC	Energy Star Reach-In Freezer, Solid Doors	Bi-BSS	BSS	per floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1824	Office, NonKC	Refrigeration - Custom	Bi-Custom	BSS	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1825	Office, NonKC	Refrigeration - Custom	Bi-Custom	BSS	per kWh	4,885	7,327	8,141	8,723	9,605	15,665	20,052	23,044	25,360	27,066	33,626	33,626	33,626	33,626	33,626	33,626	33,626	33,626	33,626	33,626	
1826	Office, NonKC	Retro-Commissioning, Refrigerator Optimization	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1827	Office, NonKC	Energy Star Ice Machine	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1828	Office, NonKC	ESTAR Refrigerated Vending Machine	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1829	Office, NonKC	Vending Machine Controller - Refrigerated	Bi-Custom	BSS	per measure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1830	Office, NonKC	LED Refrigerated Display Case Lighting Controls	Bi-Custom	BSS	per linear ft	50	75	84	89	99	123	149	174	193	241	260	256	241	223	216	211	207	203	225	228	
1831	Office, NonKC	LED Refrigerated Display Case Lighting Controls	Bi-Custom	BSS	per measure	12	18	20	21	23	29	35	41	46	48	57	59	56	51	47	45	45	45	45	44	
1832	Office, NonKC	Demand Controlled Ventilation	Bi-BSS	BSS	per measure	67	100	111	119	131	164	199	231	257	271	271	257	231	199	164	181	177	161	148	142	
1833	Office, NonKC	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-BSS	BSS	per HP	44	67	74	79	87	109	132	154	171	180	180	171	154	132	109	121	118	107	98	94	
1834	Office, NonKC	High Volume Low Speed Fan, 20	Bi-BSS	BSS	per measure																					

Appendix C: Business Incremental Annual Program Realistic Achievable Potential (Participants)

Measure #	End-Use	Measure Name	Program	Building Type	Unit Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1853	HVAC	Efficient HVAC O&M	Bi-Custom	Industrial	per kWh	315,639	333,013	334,481	557,329	545,133	503,243	629,265	576,290	511,782	579,568	515,992	448,932	447,263	396,264	342,726	337,985	300,306	259,811	256,970	228,510	228,510	
1854	Lighting	Efficient Lighting Equipment	Bi-Standard	Industrial	per kWh	2,086,497	2,610,259	3,174,776	3,712,537	4,158,058	4,395,238	4,408,349	4,194,080	3,812,340	3,287,513	2,733,951	2,283,712	1,786,718	1,336,505	998,073	2,478,500	2,121,635	2,577,177	3,015,331	3,389,416	3,389,416	
1855	Lighting	Efficient Lighting O&M	Bi-Custom	Industrial	per kWh	283,446	314,772	333,707	549,864	560,545	542,669	666,468	630,579	580,511	638,651	638,282	519,352	549,577	447,172	396,486	415,300	338,886	300,566	315,533	257,867	257,867	
1856	Machine Drive	Efficient MechDr Equipment	Bi-Custom	Industrial	per kWh	2,337,049	2,796,370	3,269,053	3,724,636	4,153,416	4,502,558	4,800,320	5,049,337	5,277,273	5,432,212	5,573,836	5,773,699	5,785,518	5,802,597	5,187,639	5,089,108	4,960,487	4,888,200	4,888,200	4,888,200	4,888,200	4,888,200
1857	Machine Drive	Efficient MechDr O&M	Bi-Custom	Industrial	per kWh	1,548,488	1,633,721	1,640,924	2,734,190	2,664,546	2,468,849	3,087,001	2,827,211	2,520,553	2,443,293	2,531,398	2,202,406	2,194,221	1,944,025	1,681,373	1,658,113	1,473,266	1,274,603	1,260,666	1,121,045	1,121,045	1,121,045
1858	Process Heat	Efficient ProHeat Equipment	Bi-Custom	Industrial	per kWh	361,488	432,377	505,645	576,113	642,435	696,439	742,465	781,013	816,269	840,234	862,139	881,740	893,054	894,944	897,524	802,405	802,405	787,164	770,363	756,200	348,947	348,947
1859	Process Heat	Efficient ProHeat O&M	Bi-Custom	Industrial	per kWh	481,166	507,651	509,889	849,602	827,961	767,152	959,263	878,507	783,238	883,504	786,588	684,359	684,359	604,072	522,457	515,230	457,932	457,932	396,061	391,730	348,947	348,947
1860	Process Refrig	Efficient ProRefrig Equipment	Bi-Custom	Industrial	per kWh	320,312	383,129	448,051	510,492	569,260	617,113	657,896	692,054	723,294	744,530	763,039	781,308	793,338	793,008	795,294	711,009	697,505	670,617	670,617	670,617	670,617	670,617
1861	Process Refrig	Efficient ProRefrig O&M	Bi-Custom	Industrial	per kWh	255,653	269,725	270,914	451,411	438,913	407,603	509,676	466,768	416,140	469,423	417,090	363,614	362,263	320,956	277,592	275,752	243,234	210,435	210,435	208,134	185,083	185,083
1862	Other Process	Efficient Other Facility Process Equipment	Bi-Custom	Industrial	per kWh	682,561	794,375	904,560	1,005,575	1,087,332	1,168,086	1,226,977	1,275,698	1,321,350	1,350,928	1,370,134	1,211,107	1,196,652	1,170,707	1,148,376	1,129,150	1,116,408	1,095,232	1,099,775	1,099,775	1,099,775	1,099,775
1863	Other Process	Efficient Other Facility Process O&M	Bi-Custom	Industrial	per kWh	538,555	568,199	570,304	543,302	489,085	424,868	351,497	282,081	221,609	169,481	128,044	52,378	456,063	457,038	434,344	391,854	388,447	380,388	225,257	176,933	176,933	176,933
1864	WholeBuilding	Power Distribution (Transformers)	Bi-Custom	Industrial	per kWh	4,263,731	4,269,885	4,264,656	6,893,496	6,429,533	5,713,446	7,343,210	6,510,909	5,655,146	4,800,895	4,300,895	3,833,184	3,323,807	3,313,714	2,488,893	2,986,866	2,621,488	2,621,488	2,621,488	2,621,488	2,621,488	2,621,488
1865	WholeBuilding	Strategic Energy Management	Bi-Custom-SEM	Industrial	per kWh	9,494	114,497	133,842	153,851	175,693	192,336	203,111	215,760	225,500	232,820	238,172	243,524	246,712	247,234	247,947	221,670	217,459	212,808	206,905	206,905	206,905	206,905
1866	Motors	Efficient Motor Pmp Equipment - OI Cost	Bi-Agriculture	Agriculture	per kWh	47,247	57,248	67,671	77,926	87,817	96,138	102,555	107,880	112,750	116,660	121,793	123,356	123,617	123,974	110,835	108,330	106,409	104,433	102,760	102,760	102,760	102,760
1867	Motors	Efficient Motor Pmp Equipment - OI Cost	Bi-Agriculture	Agriculture	per kWh	18,939	22,899	27,068	31,170	35,127	38,479	41,022	43,152	45,100	46,424	47,634	48,717	49,842	49,447	49,389	44,334	43,492	42,564	41,781	41,781	41,781	41,781
1868	Motors	Efficient Motor Pmp O&M	Bi-Agriculture	Agriculture	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1869	Motors	Efficient Motor Pmp O&M	Bi-Agriculture	Agriculture	per kWh	42,546	51,444	60,820	70,024	78,913	86,444	92,157	96,942	101,318	104,992	107,011	109,444	110,848	111,083	111,403	99,597	97,705	95,620	93,862	92,441	92,441	92,441
1870	Refrigeration	Efficient Refrigeration Equipment	Bi-Agriculture	Agriculture	per kWh	1,167,483	1,245,145	1,264,117	1,216,480	1,115,594	970,162	803,570	644,875	506,627	387,457	292,727	218,945	0	0	0	995,288	1,055,753	1,059,118	1,008,939	913,420	913,420	913,420
1871	Lighting	Efficient Lighting	Bi-Agriculture	Agriculture	per kWh	2,824,532	2,356,922	1,911,842	1,511,003	1,173,294	890,801	662,400	0	0	0	0	0	0	0	0	2,407,887	1,998,424	1,601,801	1,253,213	960,741	960,741	960,741
1872	Lighting	Grow Lighting	Bi-Agriculture	Agriculture	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1873	Ventilation	Efficient Ventilation	Bi-Agriculture	Agriculture	per kWh	13,333	16,121	19,056	21,944	24,779	27,089	28,880	30,379	31,750	32,683	33,535	34,297	34,737	34,811	34,737	30,618	31,221	30,618	29,955	29,414	29,414	29,414
1874	HVAC	HVAC	Bi-Agriculture	Agriculture	per kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
1	Compressed Air	Retro-commissioning, Compressed Air Optimization	Bi-Custom R/CX	Assembly	Retro	30%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
2	Compressed Air	Compressed Air Leak Repair	Bi-Custom	Assembly	Retro	20%	20%	18%	16%	13%	11%	9%	6%	5%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
3	Compressed Air	Efficient Air Leak Control	Bi-Custom	Assembly	ROB	20%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
4	Compressed Air	AODD Pump Controls	Bi-Custom	Assembly	ROB	50%	20%	21%	17%	13%	10%	6%	6%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
5	Compressed Air	No Lost-Condensate Drain	Bi-Custom	Assembly	Retro	20%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
6	Compressed Air	Efficient Air Nozzles	Bi-Custom	Assembly	Retro	20%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
7	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Assembly	ROB	33%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
8	Cooking	Commercial Electric Connection Oven	Bi-Custom	Assembly	ROB	33%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
9	Cooking	Commercial Electric Griddle	Bi-Custom	Assembly	ROB	17%	19%	24%	29%	32%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
10	Cooking	Commercial Electric Cooker	Bi-Custom	Assembly	ROB	45%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
11	Cooking	Dishwasher (Low Temp Door Energy Star)	Bi-Custom	Assembly	ROB	61%	63%	66%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
12	Cooking	Dishwasher/High Temp Door (Energy Star)	Bi-Custom	Assembly	ROB	61%	63%	66%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
13	Cooking	Energy Efficient electric fryer	Bi-Custom	Assembly	ROB	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
14	Cooking	Insulated Hooding Cabinet (Full Size)	Bi-Custom	Assembly	ROB	16%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	
15	Cooking	Insulated Hooding Cabinet (Half Size)	Bi-Custom	Assembly	ROB	16%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	
16	Cooking	Insulated Hooding Cabinet (3/4 Size)	Bi-Custom	Assembly	ROB	16%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	
17	Cooking	AI Conditioner - 17 EER (5-20 Tons)	Bi-Custom/SBDI	Assembly	ROB	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
18	Cooking	AI Conditioner - 18 EER (5-20 Tons)	Bi-Custom/SBDI	Assembly	ROB	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
19	Cooking	AI Conditioner - 20 EER (5-20 Tons)	Bi-Custom/SBDI	Assembly	ROB	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
20	Cooking	AI Conditioner - 21 EER (5-20 Tons)	Bi-Custom/SBDI	Assembly	ROB	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
21	Cooking	AI Conditioner - 15 EER (20+ Tons)	Bi-Custom	Assembly	ROB	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	
22	Cooking	AI Conditioner - 16 EER (20+ Tons)	Bi-Custom	Assembly	ROB	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	
23	Cooking	AI Conditioner - 17 EER (20+ Tons)	Bi-Custom	Assembly	ROB	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	
24	Cooking	Air Side Economizer	Bi-Custom	Assembly	Retro	25%	20%	18%	16%	13%	11%	8%	6%	5%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
25	Cooking	Advanced RoofTop Controls	Bi-Custom	Assembly	Retro	25%	20%	18%	16%	13%	11%	8%	6%	5%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
26	Cooking	HVAC Occupancy Controls	Bi-Custom	Assembly	Retro	25%	20%	18%	16%	13%	11%	8%	6%	5%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
27	Cooking	Air Conditioner - 16 SEER (5 Tons)	Bi-Custom/SBDI	Assembly	ROB	20%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
28	Cooking	Air Conditioner - 17 SEER (5 Tons)	Bi-Custom/SBDI	Assembly	ROB	20%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
29	Cooking	Air Conditioner - 18 SEER (5 Tons)	Bi-Custom/SBDI	Assembly	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
30	Cooking	Air Conditioner - 19 SEER (5 Tons)	Bi-Custom/SBDI	Assembly	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
31	Cooking	Air Conditioner - 20 SEER (5 Tons)	Bi-Custom/SBDI	Assembly	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
32	Cooking	Smart Thermostat	Bi-Custom/SBDI	Assembly	ROB	63%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
33	Cooking	PTAC <7,000 Btu/h - loading	Bi-Custom	Assembly	ROB	20%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
34	Cooking	PTAC - 7,000 to 15,000 Btu/h - loading	Bi-Custom	Assembly	ROB	20%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
35	Cooking	PTAC >15,000 Btu/h - loading	Bi-Custom	Assembly	ROB	20%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
36	Cooking	AI Cooled Chiller	Bi-Custom	Assembly	ROB	10%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	
37	Cooking	Water Cooled Chiller	Bi-Custom	Assembly	ROB	10%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	
38	Cooking	Chiller Tune-Up	Bi-Custom	Assembly	Retro	50%	20%	18%	16%	13%	11%	8%	6%	5%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
39	Cooking	Window Film	Bi-Custom	Assembly	Retro	25%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
40	Cooking	Triple Pane Windows	Bi-Custom	Assembly	ROB	2%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	
41	Cooking	Energy Recovery Ventilator	Bi-Custom	Assembly	ROB	2%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	
42	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Incandescent or Exterior 12/17 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	69%	32%	25%	19%	14%	10%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
43	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Incandescent or Exterior 12/17 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	69%	32%	25%	19%	14%	10%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
44	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Incandescent or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	69%	32%	25%	19%	14%	10%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
45	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Incandescent or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	69%	32%	25%	19%	14%	10%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
46	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Incandescent or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	69%	32%	25%	19%	14%	10%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
47	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Incandescent or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	69%	32%	25%	19%	14%	10%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
48	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Incandescent or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	69%	32%	25%	19%	14%	10%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
49	Heating	Bi-Level Lighting Fixture - Garages	Bi-Custom	Assembly	Retro	35%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
50	Heating	Heat Pump - 16 SEER (5 Tons)	Bi-Custom																										

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
76	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Incandescent/ CFL Light Sign	Bi-Standard/SBDI	Assembly	Retro	40%	26%	21%	17%	13%	10%	8%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
77	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Bi-Standard/SBDI	Assembly	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
78	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 175-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Assembly	Retro	40%	12%	13%	12%	11%	10%	10%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
79	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Bi-Standard	Assembly	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
80	Interior Lighting	LED <=225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi-Standard/SBDI	Assembly	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
81	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Assembly	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
82	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Assembly	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
83	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Bi-Standard/SBDI	Assembly	Retro	40%	12%	13%	12%	11%	10%	10%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
84	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Assembly	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
85	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Assembly	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
86	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Bi-Standard/SBDI	Assembly	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
87	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type D)	Bi-Standard/SBDI	Assembly	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
88	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Standard/SBDI	Assembly	Retro	40%	12%	13%	12%	11%	10%	10%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
89	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Assembly	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
90	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Assembly	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
91	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A)	Bi-Standard/SBDI	Assembly	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
92	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Standard	Assembly	Retro	40%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
93	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling >60 Watts	Bi-Standard/SBDI	Assembly	Retro	27%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
94	Interior Lighting	Remote Mounted Occupancy Sensor Controlling >150 Watts	Bi-Standard/SBDI	Assembly	Retro	27%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
95	Interior Lighting	Lighting Power Density	Bi-Custom	Assembly	Retro	20%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%
96	Interior Lighting	LED Lighting Redesign/Custom	Bi-Standard	Assembly	Retro	20%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	0%	0%	0%
97	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Bi-Standard/SBDI	Assembly	Retro	80%	57%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
98	Miscellaneous	Vending Machine Controller - Non Refrigerated	Bi-Custom	Assembly	Retro	30%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
99	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Assembly	ROB	10%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
100	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Assembly	ROB	10%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
101	Miscellaneous	Ozone Commercial Laundry	Bi-Custom	Assembly	ROB	70%	72%	75%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
102	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Bi-Custom	Assembly	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%
103	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Assembly	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%
104	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Assembly	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%
105	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	Assembly	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%
106	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Assembly	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%
107	Miscellaneous	High Efficiency Dryer	Bi-Custom	Assembly	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%
108	Miscellaneous	Miscellaneous Custom	Bi-Custom	Assembly	Retro	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%
109	Motors	Caged V-belt	Bi-Custom	Assembly	Retro	10%	3%	4%	4%	4%	5%	5%	5%	5%	5%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%
110	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Standard	Assembly	Retro	10%	3%	4%	4%	4%	5%	5%	5%	5%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%
111	Motors	Power Drive Systems	Bi-Custom	Assembly	Retro	10%	3%	4%	4%	4%	5%	5%	5%	5%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%
112	Motors	Switch Reluctance Motors	Bi-Custom	Assembly	Retro	10%	3%	4%	4%	4%	5%	5%	5%	5%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%
113	Motors	Escalator Motor Efficiency Controllers	Bi-Custom	Assembly	Retro	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%
114	Office, NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Assembly	ROB	90%	90%	92%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
115	Office, NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Assembly	Retro	15%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	4%	4%	3%	2%	0%	0%	0%	0%	0%
116	Office, NonPC	Plug Load Occupancy Sensor	Bi-Custom	Assembly	Retro	15%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	4%	4%	3%	2%	0%	0%	0%	0%	0%
117	Office, PC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Assembly	Retro	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
118	Office, PC	Energy Star Server	Bi-Custom	Assembly	ROB	25%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
119	Office, PC	Server Virtualization	Bi-Custom	Assembly	ROB	25%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
120	Office, PC	High Efficiency Chiller	Bi-Custom	Assembly	ROB	20%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
121	Office, PC	Server Virtualization	Bi-Custom	Assembly	ROB	20%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
122	Office, PC	Data Center/Cold Aisle Configuration	Bi-Custom	Assembly	Retro	20%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
123	Office, PC	Energy Star Laptop	Bi-Custom	Assembly	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
124	Office, PC	Energy Star Monitor	Bi-Custom	Assembly	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
125	Refrigeration	Strip Curtains	Bi-Custom	Assembly	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
126	Refrigeration	Base Suction Line	Bi-Custom	Assembly	Retro	50%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
127	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Assembly	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
128	Refrigeration	Saturated Suction Controls	Bi-Custom	Assembly	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
129	Refrigeration	Compressor Retrofit	Bi-Custom	Assembly	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
130	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Assembly	Retro	80%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
131	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Assembly	Retro</																					

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
153	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Assembly	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
154	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Assembly	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
155	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Assembly	Retro	30%	4%	4%	4%	5%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
156	WholeBldg HVAC	HVAC Energy Management System	Bi-Standard	Assembly	Retro	20%	4%	4%	4%	5%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
157	WholeBldg HVAC	Cool Roof	Bi-Custom	Assembly	Retro	33%	2%	3%	3%	4%	11%	10%	10%	8%	7%	5%	4%	3%	2%	2%	2%	2%	2%	0%	0%	0%	
158	WholeBldg HVAC	Retro-commissioning_BldOptimization	Bi-Custom	Assembly	Retro	0%	2%	3%	3%	4%	11%	10%	10%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	1%	1%	
159	Wholebuilding	WholeBldg - Com RET	Bi-Custom	Assembly	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
160	Wholebuilding	WholeBldg - Custom (Other)	Bi-Custom	Assembly	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
161	Wholebuilding	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Assembly	Retro	20%	15%	13%	14%	13%	11%	11%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	
162	WholeBldg_NC	WholeBldg - Com NC	Bi-Custom	Assembly	HC	60%	63%	66%	68%	70%	71%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	
163	Behavioral	COM Competitions	Bi-Custom	Assembly	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
164	Behavioral	Business Energy Reports	Bi-Custom	Assembly	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
165	Behavioral	Building Benchmarking	Bi-Custom	Assembly	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
166	Behavioral	Strategic Energy Management	Bi-Custom	Assembly	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
167	Behavioral	BEINS	Bi-Custom	Assembly	Retro	2%	3%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
168	Behavioral	Building Operator Certification	Bi-Custom	Assembly	Retro	2%	3%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
169	Behavioral	Retro-commissioning/Compressed Air Optimization	Bi-Custom	Assembly	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
170	CompressedAir	Compressed Air Leak Repair	Bi-Custom	Education	Retro	39%	20%	18%	16%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
171	CompressedAir	Efficient A/C Compressors (VSD)	Bi-Standard	Education	Retro	50%	26%	21%	17%	13%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	1%	0%		
172	CompressedAir	A/COD Pump Controls	Bi-Standard	Education	Retro	50%	26%	21%	17%	13%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	1%	0%		
173	CompressedAir	No Loss Condensate Drain	Bi-Standard	Education	Retro	3%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
174	Compressor	Efficient A/C Units	Bi-Standard	Education	Retro	20%	2%	2%	3%	3%	8%	10%	10%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	0%	0%	0%	
175	Compressor	Compressed Air - Custom	Bi-Custom	Education	Retro	20%	2%	2%	3%	3%	8%	10%	10%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	0%	0%	0%	
176	Cooking	Commercial Convection Oven (Electric)	Bi-Custom	Education	Retro	53%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
177	Cooking	Commercial Convection Oven (Gas)	Bi-Custom	Education	Retro	53%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
178	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Education	Retro	17%	19%	21%	24%	26%	28%	30%	33%	35%	38%	41%	46%	51%	56%	62%	67%	73%	78%	83%	88%	93%	
179	Cooking	Commercial Electric Steam Cooker	Bi-Standard	Education	Retro	45%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
180	Cooking	Dishwasher (Low Temp Door Energy Star)	Bi-Custom	Education	Retro	61%	63%	66%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
181	Cooking	Dishwasher (High Temp Door Energy Star)	Bi-Custom	Education	Retro	61%	63%	66%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
182	Cooking	Energy Efficient electric fryer	Bi-Custom	Education	Retro	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
183	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Education	Retro	16%	15%	15%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%		
184	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Education	Retro	16%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%		
185	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Education	Retro	16%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%		
186	Cooking	A/C Conditioner - 17.1EER (5-20 Tons)	Bi-Standard/SBDI	Education	Retro	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%		
187	Cooking	A/C Conditioner - 18.1EER (5-20 Tons)	Bi-Standard/SBDI	Education	Retro	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%		
188	Cooking	A/C Conditioner - 21.1EER (5-20 Tons)	Bi-Standard/SBDI	Education	Retro	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%		
189	Cooking	A/C Conditioner - 14.3 EER (20+ Tons)	Bi-Standard	Education	Retro	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%		
190	Cooking	A/C Conditioner - 13.1 EER (20+ Tons)	Bi-Standard	Education	Retro	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%		
191	Cooking	A/C Conditioner - 17.1EER (20+ Tons)	Bi-Standard	Education	Retro	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%		
192	Cooking	Comprehensive Rooftop Unit Quality Maintenance (ACTUE-up)	Bi-Custom	Education	Retro	25%	20%	18%	16%	13%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	0%	0%	0%		
193	Cooking	Air Side Economizer	Bi-Custom	Education	Retro	20%	18%	16%	13%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	0%	0%	0%		
194	Cooking	Advanced Rooftop Controls	Bi-Custom	Education	Retro	20%	18%	16%	13%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	0%	0%	0%		
195	Cooking	HVAC Occupancy Controls	Bi-Custom	Education	Retro	20%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%		
196	Cooking	A/C Conditioner - 16.5EER (5 Tons)	Bi-Standard/SBDI	Education	Retro	10%	17%	21%	26%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%		
197	Cooking	A/C Conditioner - 17.5EER (5 Tons)	Bi-Standard/SBDI	Education	Retro	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%		
198	Cooking	A/C Conditioner - 18.5EER (5 Tons)	Bi-Standard/SBDI	Education	Retro	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%		
199	Cooking	A/C Conditioner - 21.5EER (5 Tons)	Bi-Standard/SBDI	Education	Retro	10%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%		
200	Cooking	Smart Thermostat	Bi-Standard/SBDI	Education	Retro	30%	33%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	
201	Cooking	PTAC - 7.000 Btu/h - Heating	Bi-Custom	Education	Retro	20%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%		
202	Cooking	PTAC - 7.000 Btu/h - Heating	Bi-Custom	Education	Retro	20%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%		
203	Cooking	PTAC - 15.000 Btu/h - Heating	Bi-Custom	Education	Retro	20%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%		
204	Cooking	Air Cooled Chiller	Bi-Standard	Education	Retro	10%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%		
205	Cooking	Water Cooled Chiller	Bi-Standard	Education	Retro	10%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%		
206	Cooking	Chiller Tune-up	Bi-Custom	Education	Retro	50%	20%	18%	16%	13%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	0%	0%	0%		
207	Cooking	Window Film	Bi-Custom	Education	Retro	25%	12%	13%	13%	12%	11%	10%	10%	8%	6%	5%	4%	3%	2%	2%	2%	2%	2%	0%	0%		
208	Cooking	Triple Pane Windows	Bi-Custom	Education	Retro	2%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%		
209	Cooking	Energy Recovery Ventilator	Bi-Custom	Education	Retro	2%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
210	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Education	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
211	Exterior Lighting	LED <80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Education	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
212	Exterior Lighting	LED62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Education	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
213	Exterior Lighting	LED62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Education	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
214	Exterior Lighting	LED62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Education	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
215	Exterior Lighting	LED85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Education	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
216	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Bi-Custom																								

Appendix C. Business MAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
230	Heating	PTIP - < 2000 Btu/h - building	Bi-Custom	Education	ROB	20%	35%	41%	46%	51%	56%	62%	67%	64%	69%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
231	Heating	PTIP - 2000 to 15,000 Btu/h - building	Bi-Custom	Education	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%
232	HotWater	PTIP - > 15,000 Btu/h - building	Bi-Custom	Education	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%
233	HotWater	Rec-Used Heat Pump/Water Heater	Bi-Custom	Education	ROB	23%	11%	15%	19%	24%	29%	35%	41%	46%	51%	59%	64%	69%	72%	64%	69%	68%	68%	68%	68%	68%	68%
234	HotWater	Commercial-Size HP/WH	Bi-Custom	Education	ROB	23%	11%	15%	19%	24%	29%	35%	41%	46%	51%	59%	64%	69%	72%	64%	69%	68%	68%	68%	68%	68%	68%
235	HotWater	Hot Water Pipe Insulation	Bi-Custom	Education	Retro	85%	36%	36%	28%	21%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
236	HotWater	Facet Aerator	Bi-Custom	Education	Retro	85%	36%	36%	28%	21%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
237	HotWater	Low Flow Pre-Rinse Sprayers	Bi-Custom	Education	Retro	85%	36%	36%	28%	21%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
238	HotWater	ENERGY STAR Commercial Washing Machines	Bi-Custom	Education	ROB	83%	46%	46%	37%	28%	20%	14%	10%	6%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
239	HotWater	ENERGY STAR Commercial Washing Machines	Bi-Custom	Education	ROB	43%	23%	20%	18%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
240	Intercooling	LED < 11 Watt Lamp Replacing Interior Halogen A 28.52 Watt Lamp	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
241	Intercooling	LED 7-20 Watt Lamp Replacing Interior Halogen S3-70 Watt Lamp	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
242	Intercooling	LED < 14 Watt Lamp Replacing Interior Halogen BR/F 45-65 Watt Lamp	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
243	Intercooling	LED < 13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Bi-Standard/SBD	Education	Retro	40%	26%	21%	17%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
244	Intercooling	LED < 20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Bi-Standard/SBD	Education	Retro	40%	26%	21%	17%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
245	Intercooling	LED < 30 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
246	Intercooling	LED < 150 Watt Lamp or Fixture Replacing Interior HID 175-300 Watt Lamp or Fixture	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
247	Intercooling	LED < 150 Watt Lamp or Fixture Replacing Interior HID 175-300 Watt Lamp or Fixture	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
248	Intercooling	LED < 235 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
249	Intercooling	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Bi-Standard/SBD	Education	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
250	Intercooling	LED Replacing Interior T5 Fluorescent (Type B, RIs, and Fixtures)	Bi-Standard/SBD	Education	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
251	Intercooling	LED Replacing Interior T5 Fluorescent (Type C, RIs, and Fixtures)	Bi-Standard/SBD	Education	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
252	Intercooling	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Bi-Standard	Education	Retro	40%	12%	13%	13%	13%	11%	10%	8%	6%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
253	Intercooling	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
254	Intercooling	LED Replacing Interior T8 Fluorescent (Type B, RIs, and Fixtures)	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
255	Intercooling	LED Replacing Interior T8 Fluorescent (Type C)	Bi-Standard/SBD	Education	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
256	Intercooling	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Standard	Education	Retro	40%	18%	17%	15%	13%	11%	9%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
257	Intercooling	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Bi-Standard/SBD	Education	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
258	Intercooling	LED Replacing Interior T12 Fluorescent (Type B, RIs, and Fixtures)	Bi-Standard/SBD	Education	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
259	Intercooling	LED Replacing Interior T12 Fluorescent (Type C)	Bi-Standard/SBD	Education	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
260	Intercooling	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Standard	Education	Retro	40%	18%	17%	15%	13%	11%	9%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
261	Intercooling	Fixture Mounted Occupancy Sensor Controlling < 60 Watts	Bi-Standard/SBD	Education	Retro	2%	18%	17%	15%	13%	11%	9%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
262	Intercooling	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Bi-Standard/SBD	Education	Retro	2%	10%	11%	12%	12%	11%	10%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
263	Intercooling	Lighting Power Density	Bi-Custom	Education	Retro	20%	10%	11%	12%	12%	11%	10%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
264	Intercooling	LED Lighting Redesign/Cabin	Bi-Standard	Education	Retro	80%	5%	6%	7%	8%	9%	10%	10%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
265	Intercooling	LED or Electrochromic Replacing Interior Incandescent/CFL Exit Sign	Bi-Standard/SBD	Education	Retro	30%	57%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
266	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	Education	ROB	30%	18%	17%	15%	13%	11%	9%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
267	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Education	ROB	10%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%
268	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Education	Retro	2%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
269	Miscellaneous	On-site Commercial Laundry	Bi-Custom	Education	Retro	10%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
270	Miscellaneous	ENERGY STAR Interrupted Power Supply	Bi-Custom	Education	ROB	20%	72%	75%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
271	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Education	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
272	Miscellaneous	Pool Heater	Bi-Custom	Education	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
273	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	Education	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
274	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Education	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
275	Miscellaneous	High Efficiency Dryer	Bi-Custom	Education	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
276	Miscellaneous	Miscellaneous Custom	Bi-Custom	Education	Retro	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
277	Motors	Cogged V-Belt	Bi-Custom	Education	Retro	10%	8%	9%	10%	11%	12%	12%	11%	10%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
278	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Standard	Education	Retro	10%	8%	9%	10%	11%	12%	12%	11%	10%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
279	Motors	Power Drive Systems	Bi-Custom	Education	Retro	10%	8%	9%	10%	11%	12%	12%	11%	10%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
280	Motors	Switch Reluctance Motors	Bi-Custom	Education	Retro	10%	8%	9%	10%	11%	12%	12%	11%	10%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
281	Motors	Encoder Motors	Bi-Custom	Education	Retro	10%	8%	9%	10%	11%	12%	12%	11%	10%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
282	Office, NonPC	Encoder Motor Efficiency Controllers	Bi-Custom	Education	ROB	90%	90%	92%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
283	Office, NonPC	Soft Power Brick-Computer Use	Bi-Custom	Education	ROB	19%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
284	Office, NonPC	Plug Load Occupancy Sensor	Bi-Custom	Education	Retro	19%	10%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
285	Office, PC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Education	Retro	20%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
286	Office, PC	ENERGY STAR Server	Bi-Custom	Education	ROB	25%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
287	Office, PC	Server Virtualization	Bi-Custom	Education	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
288	Office, PC	High Efficiency CRAC Unit	Bi-Custom	Education	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
289	Office, PC	Computer Room Air Conditioner Economizer	Bi-Custom	Education	ROB	20%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
290	Office, PC	Data Center Heat/Cold Asile Configuration	Bi-Custom</																								

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
459	Office, P.C.	Data Center Heat/Cold Aisle Configuration	Bi-Custom	Food Sales	Retro	10%	25%	3%	3%	4%	4%	6%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
459	Office, P.C.	Office Star Latch	Bi-Custom	Food Sales	Retro	85%	25%	32%	30%	48%	51%	68%	73%	78%	82%	84%	82%	84%	87%	88%	90%	90%	90%	90%	90%	90%	90%	
460	Office, P.C.	Energy Star Monitor	Bi-Custom	Food Sales	Retro	85%	25%	32%	30%	48%	51%	68%	73%	78%	82%	84%	82%	84%	87%	88%	90%	90%	90%	90%	90%	90%	90%	
461	Refrigeration	Strip Curtains	Bi-Custom	Food Sales	Retro	50%	2%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
462	Refrigeration	Bare Suction Line	Bi-Custom	Food Sales	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
463	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Food Sales	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
464	Refrigeration	Saturated Suction Controls	Bi-Custom	Food Sales	Retro	10%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
465	Refrigeration	Compressor Retrofit	Bi-Custom	Food Sales	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
466	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Custom	Food Sales	Retro	80%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
467	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Food Sales	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
468	Refrigeration	Variable Speed Compressor Fan	Bi-Custom	Food Sales	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
469	Refrigeration	Refrigeration Condenser Fan	Bi-Custom	Food Sales	Retro	10%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
470	Refrigeration	Anti-Sweat Heater Controls M/T	Bi-Custom	Food Sales	Retro	75%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
471	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Food Sales	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
472	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	Food Sales	Retro	80%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
473	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Food Sales	Retro	2%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
474	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Custom	Food Sales	Retro	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
475	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Custom	Food Sales	Retro	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
476	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Custom	Food Sales	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
478	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Custom	Food Sales	Retro	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
479	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Custom	Food Sales	Retro	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
480	Refrigeration	Refrigeration - Controls	Bi-Custom	Food Sales	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
481	Refrigeration	Retro-Commissioning, Refrigerate Optimization	Bi-Custom	Food Sales	Retro	25%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
482	Refrigeration	ESR Refrigerator Variable Machine	Bi-Custom	Food Sales	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
483	Refrigeration	ESR Refrigerator Variable Machine	Bi-Custom	Food Sales	Retro	44%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
484	Refrigeration	Variable Machine Controller, Refrigerated	Bi-Custom	Food Sales	Retro	30%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
485	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Food Sales	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
486	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Food Sales	Retro	18%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
487	Ventilation	Demand Controlled Ventilation	Bi-Custom	Food Sales	Retro	14%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
488	Ventilation	Pump and Fan Variable Frequency Drive Controls (fans)	Bi-Custom	Food Sales	Retro	14%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
489	Ventilation	High Volume Low Speed Fan, 20	Bi-Custom	Food Sales	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
490	Ventilation	High Volume Low Speed Fan, 22	Bi-Custom	Food Sales	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
491	Ventilation	High Volume Low Speed Fan, 24	Bi-Custom	Food Sales	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
492	WholeBldg./HVAC	HVAC - Energy Management System	Bi-Custom	Food Sales	Retro	20%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
493	WholeBldg./HVAC	Cool Roof	Bi-Custom	Food Sales	Retro	33%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
494	WholeBldg./HVAC	Retro-commissioning, Bid Optimization	Bi-Custom	Food Sales	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
495	WholeBuilding	WholeBldg. - Com RET	Bi-Custom	Food Sales	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
496	WholeBuilding	WholeBldg. - Custom (Other)	Bi-Custom	Food Sales	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
497	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Food Sales	NC	60%	63%	66%	68%	70%	71%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	
498	Behavioral	WholeBldg./NC	Bi-Custom	Food Sales	NC	60%	63%	66%	68%	70%	71%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	
499	Behavioral	Business Energy Reports	Bi-Custom	Food Sales	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
500	Behavioral	Building Benchmarking	Bi-Custom	Food Sales	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
501	Behavioral	Strategic Energy Management	Bi-Custom	Food Sales	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
502	Behavioral	BEMS	Bi-Custom	Food Sales	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
504	Behavioral	Building Operator Certification	Bi-Custom	Food Sales	Retro	2%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
505	CompressedAir	Retro-commissioning, Compressed Air Optimization	Bi-Custom	Food Sales	Retro	2%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
507	CompressedAir	Efficient Air Leak Repairs (ALS)	Bi-Custom	Food Service	Retro	30%	20%	15%	17%	15%	13%	12%	10%	9%	8%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	
508	CompressedAir	AQSD Entry Controls	Bi-Custom	Food Service	Retro	50%	15%	24%	25%	32%	33%	32%	30%	28%	26%	24%	22%	20%	18%	16%	15%	14%	13%	12%	11%	10%	9%	
509	CompressedAir	No Leak Condensate Drain	Bi-Custom	Food Service	Retro	5%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
510	CompressedAir	Efficient Air-Curtains	Bi-Custom	Food Service	Retro	20%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	
511	CompressedAir	Compressed Air - Nozes	Bi-Custom	Food Service	Retro	20%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
512	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Food Service	Retro	20%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
513	Cooking	Commercial Electric Convection Oven	Bi-Custom	Food Service	Retro	53%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
514	Cooking	Commercial Electric Griddle	Bi-Custom	Food Service	Retro	17%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	
515	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Food Service	Retro	45%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
516	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Food Service	Retro	61%	63%	66%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
517	Cooking	Dishwasher - High Temp Door (Energy Star)	Bi-Custom	Food Service	Retro	61%	63%	66%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
518	Cooking	Energy Efficient electric Fryer	Bi-Custom	Food Service	Retro	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
519	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Custom	Food Service	Retro	16%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	
520	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Custom	Food Service	Retro	16%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	
521	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Custom	Food Service	Retro	16%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	
522	Cooking	Air Conditioner - 17.5 EER (20+ Tons)	Bi-Custom	Food Service	Retro	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	
523	Cooking	Air Conditioner - 18 EER (5-																										

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
539	Cooling	PTAC >15 000 Btuh - Boiling	Bi-Custom	Food Service	ROB	20%	22%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	
540	Cooling	Air Cooled Chiller	Bi-Standard	Food Service	ROB	10%	10%	13%	13%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	74%	76%	77%	77%	77%	
541	Cooling	Water Cooled Chiller	Bi-Standard	Food Service	ROB	10%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	
542	Cooling	Chiller Tune-Up	Bi-Custom	Food Service	Retro	50%	20%	18%	16%	13%	10%	10%	8%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
543	Cooling	Window Film	Bi-Custom	Food Service	Retro	25%	12%	13%	13%	13%	11%	10%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
544	Cooling	Triple Pane Windows	Bi-Custom	Food Service	ROB	2%	4%	7%	10%	12%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	
545	Cooling	Energy Recovery Ventilator	Bi-Custom	Food Service	Retro	2%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
546	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
547	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
548	Exterior Lighting	LED 62-130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
549	Exterior Lighting	LED 62-130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
550	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
551	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Bi-Custom	Food Service	Retro	35%	20%	18%	16%	13%	10%	8%	6%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
552	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Bi-Custom	Food Service	Retro	35%	20%	18%	16%	13%	10%	8%	6%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
553	Heating	Heat Pump - 165ER (5 Tons)	Bi-Standard	Food Service	ROB	10%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	
554	Heating	Heat Pump - 17.5ER (5 Tons)	Bi-Standard	Food Service	ROB	10%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	
555	Heating	Heat Pump - 21.5ER (6 Tons)	Bi-Standard	Food Service	ROB	10%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	
556	Heating	Heat Pump - 23.5ER (6 Tons)	Bi-Standard	Food Service	ROB	10%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	
557	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	Food Service	ROB	10%	6%	11%	12%	12%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	
558	Heating	Heat Pump - 15.0 EER COP 3 (8 @ 5000-134,000 Btu/h)	Bi-Standard	Food Service	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	
559	Heating	Heat Pump - 15.5 EER COP 3 (8 @ 5000-134,000 Btu/h)	Bi-Standard	Food Service	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	
560	Heating	Heat Pump - 15.5 EER COP 3 (7 @ 15,000-339,000 Btu/h)	Bi-Standard	Food Service	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	
561	Heating	Heat Pump - 15.5 EER COP 3 (7 @ 15,000-339,000 Btu/h)	Bi-Standard	Food Service	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	
562	Heating	Heat Pump - 12 EER 14 COP (238,000 Btu/h)	Bi-Standard	Food Service	ROB	10%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
563	Heating	Heat Pump - 13 EER 16 COP (238,000 Btu/h)	Bi-Standard	Food Service	ROB	10%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
564	Heating	Geothermal HP - 17 EER <=135kbtu	Bi-Custom	Food Service	ROB	20%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
565	Heating	Geothermal HP - 17 EER <=135kbtu	Bi-Custom	Food Service	ROB	20%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
566	Heating	PTHP - <7,000 Btuh - Boiling	Bi-Custom	Food Service	ROB	20%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
567	Heating	PTHP - 7,000 to 15,000 Btuh - Boiling	Bi-Custom	Food Service	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
568	Heating	PTHP - >15,000 Btuh - Boiling	Bi-Custom	Food Service	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
569	Hot Water	Res-Size Heat Water Heater	Bi-Standard	Food Service	ROB	33%	24%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	
570	Hot Water	Commercial-Size HPWH	Bi-Standard	Food Service	ROB	33%	24%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	
571	Hot Water	Hot Water Pipe Insulation	Bi-Custom	Food Service	Retro	80%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
572	Hot Water	Faucet Aerator	Bi-Custom	Food Service	Retro	85%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
573	Hot Water	Low Flow Pre-Rinse Sprayers	Bi-Custom	Food Service	ROB	85%	84%	87%	88%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
574	Hot Water	ENERGY STAR Commercial Washing Machines	Bi-Custom	Food Service	ROB	33%	40%	51%	56%	13%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
575	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A 28.5 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	40%	23%	20%	16%	13%	10%	8%	6%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
576	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen 3-70 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
577	Interior Lighting	LED Specialty Lamp	Bi-Standard/SBDI	Food Service	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
578	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen BR/A 45 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
579	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	40%	26%	21%	17%	13%	10%	8%	6%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
580	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp or Fixture	Bi-Standard/SBDI	Food Service	Retro	40%	26%	21%	17%	13%	10%	8%	6%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
581	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-115 Watt Lamp Lamp or Fixture	Bi-Standard/SBDI	Food Service	Retro	40%	23%	20%	16%	13%	10%	8%	6%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
582	Interior Lighting	LED 62-130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Food Service	Retro	40%	23%	20%	16%	13%	10%	8%	6%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
583	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Bi-Standard	Food Service	Retro	40%	12%	13%	13%	12%	11%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
584	Interior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	40%	23%	20%	16%	13%	10%	8%	6%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
585	Interior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
586	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
587	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
588	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type D)	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
589	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type E)	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
590	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A, Kits, and Fixtures)	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
591	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
592	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type C)	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
593	Interior Lighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Standard/SBDI	Food Service	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
594	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A, Kits, and Fixtures)	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
595	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Food Service	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
596	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Bi-Standard/SBDI	Food Service	Retro	40%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
597	Interior Lighting	Lighting Mounted Occupancy Sensor Controlling > 60 Watts	Bi-Standard/SBDI	Food Service	Retro																						

Measure #	End-Use	Measure Name	Program	Building Type	Replacement	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
611	Miscellaneous	High Efficiency Driver	Bi-Custom	Food Service	ROB	20%	20%	20%	20%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
612	Miscellaneous	Miscellaneous Custom	Bi-Custom	Food Service	Retro	10%	10%	10%	11%	12%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%	26%	27%	28%
613	Motors	Cogged V-belt	Bi-Custom	Food Service	Retro	10%	10%	8%	9%	10%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%
614	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Custom	Food Service	Retro	10%	10%	3%	4%	4%	5%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
615	Motors	Power Drive Systems	Bi-Custom	Food Service	Retro	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
616	Motors	Switch Reluctance Motors	Bi-Custom	Food Service	Retro	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
617	Motors	Excitator Motor Efficiency Controllers	Bi-Custom	Food Service	Retro	10%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%	26%	27%	28%	29%	30%
618	Office_NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Food Service	ROB	90%	90%	92%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
619	Office_NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Food Service	Retro	29%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
620	Office_NonPC	Plug Load Occupancy Sensor	Bi-Custom	Food Service	Retro	29%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
621	Office_PC	Electrically Commutated Blg Fans in data centers	Bi-Custom	Food Service	ROB	20%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
622	Office_PC	Energy Star Server	Bi-Custom	Food Service	ROB	25%	2%	3%	4%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
623	Office_PC	Server Virtualization	Bi-Custom	Food Service	ROB	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
624	Office_PC	High Efficiency CRAC Unit	Bi-Custom	Food Service	ROB	20%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
625	Office_PC	Computer Room Air Conditioner Economizer	Bi-Custom	Food Service	Retro	10%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
626	Office_PC	Data Center Heat/Cold Aisle Configuration	Bi-Custom	Food Service	Retro	10%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
627	Office_PC	Energy Star Laptop	Bi-Custom	Food Service	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
628	Office_PC	Energy Star Monitor	Bi-Custom	Food Service	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
629	Refrigeration	Strip Curtains	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
630	Refrigeration	Flashing Head Pressure Controls	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
631	Refrigeration	Saturated Suction Controls	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
632	Refrigeration	Compressor Retrofit	Bi-Custom	Food Service	Retro	10%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
633	Refrigeration	Compressor (EC) Walk-In Evaporator Fan Motor	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
634	Refrigeration	Variable Speed Compressor	Bi-Custom	Food Service	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
635	Refrigeration	Variable Speed Compressor Fan	Bi-Custom	Food Service	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
636	Refrigeration	Refrigeration Economizer	Bi-Custom	Food Service	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
637	Refrigeration	Anti-Sweat Heater Controls MIT	Bi-Custom	Food Service	Retro	10%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
638	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Food Service	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
639	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	Food Service	Retro	80%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
640	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Food Service	Retro	2%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
641	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Custom	Food Service	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
642	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Custom	Food Service	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
643	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Custom	Food Service	Retro	75%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
644	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Food Service	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
645	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Custom	Food Service	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
646	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Custom	Food Service	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
647	Refrigeration	Refrigeration - Custom	Bi-Custom	Food Service	ROB	25%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
648	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi-Custom	Food Service	Retro	25%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
649	Refrigeration	Energy Star Ice Machine	Bi-Custom	Food Service	ROB	44%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
650	Refrigeration	ESTAR Refrigerated Vending Machine	Bi-Custom	Food Service	ROB	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
651	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
652	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	Food Service	Retro	35%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
653	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Food Service	Retro	18%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
654	Ventilation	Demand Controlled Ventilation	Bi-Custom	Food Service	Retro	35%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
655	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
656	Ventilation	High Volume Low Speed Fan, 20	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
657	Ventilation	High Volume Low Speed Fan, 22	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
658	Ventilation	High Volume Low Speed Fan, 24	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
659	Ventilation	High Volume Low Speed Fan, 26	Bi-Custom	Food Service	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
660	WholeBldg_HVAC	High Volume Management System	Bi-Custom	Food Service	ROB	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
661	WholeBldg_HVAC	Cool Roof	Bi-Custom	Food Service	ROB	33%	6%	7%	9%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
662	WholeBldg_HVAC	Retro-commissioning, Bldg Optimization	Bi-Custom	Food Service	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
663	WholeBldg	WholeBldg - Com RET	Bi-Custom	Food Service	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
664	WholeBldg	WholeBldg - Custom (Other)	Bi-Custom	Food Service	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
665	WholeBldg	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Food Service	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
666	WholeBldg	WholeBldg - Com NC	Bi-Custom	Food Service	NC	60%	63%	66%	68%	70%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%
667	Behavioral	COM Competitions	Bi-Custom	Food Service	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
668	Behavioral	Business Energy Reports	Bi-Custom	Food Service	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
669	Behavioral	Building Benchmarking	Bi-Custom	Food Service	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
670	Behavioral	Strategic Energy Management	Bi-Custom SEM	Food Service	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%
671	Behavioral	BEIMS	Bi-Custom	Food Service	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%
672	Behavioral	Building Operator Certification	Bi-Custom	Food Service	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%
673	CompressedAir	Retro-commissioning, Compressed Air Optimization	Bi-Custom	Health	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%							

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
765	Interlighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Bi-Standard/SBDI	Health	Retro	27%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
766	Interlighting	Fixture Mounted Occupancy Sensor Controlling > 150 Watts	Bi-Standard/SBDI	Health	Retro	27%	27%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
767	Interlighting	Lighting Power Density	Bi-Custom	Health	Retro	20%	20%	10%	11%	12%	12%	10%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
768	Interlighting	LED Lighting Redesign/Custom	Bi-Standard	Health	Retro	20%	20%	6%	7%	8%	9%	10%	10%	9%	7%	6%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
769	Interlighting	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Bi-Standard/SBDI	Health	Retro	80%	57%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
770	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	Health	Retro	30%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
771	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Health	ROB	10%	4%	6%	8%	7%	8%	10%	10%	9%	8%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	
772	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Health	Retro	2%	4%	4%	4%	4%	5%	5%	5%	5%	5%	5%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	
773	Miscellaneous	Ozone Commercial Laundry	Bi-Custom	Health	Retro	2%	4%	4%	4%	4%	5%	5%	5%	5%	5%	5%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	
774	Miscellaneous	ENERGY STAR Interrupted Power Supply	Bi-Custom	Health	ROB	20%	72%	29%	35%	70%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	
775	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Health	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	65%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
776	Miscellaneous	Pool Pump Timer	Bi-Custom	Health	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	65%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
777	Miscellaneous	Pool Heater Heat Pump (Uncooled)	Bi-Custom	Health	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	65%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
778	Miscellaneous	Pool Heater Heat Pump (Cooled)	Bi-Custom	Health	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	65%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
779	Miscellaneous	High Efficiency Dryer	Bi-Custom	Health	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	65%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
780	Miscellaneous	High Efficiency Dryer	Bi-Custom	Health	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	65%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
781	Motors	Coiled V-belt	Bi-Custom	Health	Retro	10%	10%	10%	8%	9%	10%	11%	10%	9%	7%	6%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
782	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Standard	Health	Retro	10%	3%	4%	4%	4%	4%	5%	5%	5%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
783	Motors	Power Drive Systems	Bi-Custom	Health	Retro	10%	3%	4%	4%	4%	4%	5%	5%	5%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
784	Motors	Switch Reluctance Motors	Bi-Custom	Health	Retro	1%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
785	Motors	Exhaustor Motor Efficiency Controllers	Bi-Custom	Health	Retro	1%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
786	Office_NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Health	ROB	90%	90%	92%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	
787	Office_NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Health	Retro	19%	12%	13%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
788	Office_NonPC	Plug Load Occupancy Sensor	Bi-Custom	Health	Retro	20%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
789	Office_PC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Health	ROB	25%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
790	Office_PC	Energy Star Server	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	5%	5%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
791	Office_PC	Server Virtualization	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	5%	5%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
792	Office_PC	High Efficiency CRAC unit	Bi-Custom	Health	ROB	20%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
793	Office_PC	Computer Room Air Conditioner Economizer	Bi-Custom	Health	Retro	20%	2%	3%	3%	4%	4%	5%	5%	5%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
794	Office_PC	Data Center Heat/Cold Aisle Configuration	Bi-Custom	Health	Retro	10%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
795	Office_PC	Energy Star Laptop	Bi-Custom	Health	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	87%	88%	88%	90%	90%	90%	90%	90%	90%	90%	
796	Office_PC	Energy Star Monitor	Bi-Custom	Health	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	87%	88%	88%	90%	90%	90%	90%	90%	90%	90%	
797	Refrigeration	Strip Curtains Line	Bi-Custom	Health	Retro	50%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
798	Refrigeration	Sealing Head Pressure Controls	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
799	Refrigeration	Saturated Suction Controls	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
800	Refrigeration	Compressor Retrofit	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
801	Refrigeration	Electronically Commutated (EC) Walk-In Expansor Fan Motor	Bi-Standard	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
802	Refrigeration	Expositor Fan Motor Controls	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%
803	Refrigeration	Triple-Speed Condenser Fan	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%
804	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%
805	Refrigeration	Energy Star Condenser Fan	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%
806	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%
807	Refrigeration	Display Case Door Retrofit - Medium Temp	Bi-Standard	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
808	Refrigeration	Electronically Commutated (EC) Reach-In Expansor Fan Motor	Bi-Standard	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
809	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Expansor Fan Motor	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
810	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Expansor Fan Motor	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
811	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Health	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
812	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
813	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
814	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Health	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
815	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Health	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
816	Refrigeration	Refrigeration - Custom	Bi-Custom	Health	ROB	25%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
817	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi-Custom RCX	Health	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
818	Refrigeration	Energy Star Ice Machine	Bi-Custom	Health	ROB	44%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
819	Refrigeration	ESAR Refrigerated Vending Machine	Bi-Custom	Health	ROB	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
820	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Health	Retro	35%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
821	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	Health	Retro	18%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
822	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Health	Retro	18%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
823	Ventilation	Demand Controlled Ventilation	Bi-Custom	Health	Retro	39%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	
824	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Health	Retro	39%	3%	4%	4%	5%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	1%	
825	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Health	Retro	39%	3%	4%	4%	4%	5%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
826	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Health	Retro	39%	3%	4%	4%	4%	5%	5%	6%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
827	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Health	Retro	39%																						

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
920	Interior Lighting	LED B5 - 225 Watt Lamp or Fixture Replacing Interior HID 300-500 Watt Lamp or Fixture	Bi-Standard/SBDI	Lighting	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
921	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Lighting	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
922	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kts, and Fixtures)	Bi-Standard/SBDI	Lighting	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
923	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Bi-Standard/SBDI	Lighting	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
924	Interior Lighting	LED Fixture with Network Control Replacing Interior T5 Fluorescent	Bi-Standard	Lighting	Retro	40%	12%	13%	12%	11%	10%	8%	6%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
925	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Lighting	Retro	40%	20%	18%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
926	Interior Lighting	LED Replacing Interior T8 Fluorescent (Type B, Kts, and Fixtures)	Bi-Standard/SBDI	Lighting	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
927	Interior Lighting	LED Fixture with Network Control Replacing Interior T8 Fluorescent	Bi-Standard	Lighting	Retro	40%	18%	17%	15%	13%	11%	9%	7%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
928	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Lighting	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
929	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type B, Kts, and Fixtures)	Bi-Standard/SBDI	Lighting	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
930	Interior Lighting	LED Replacing Interior T12 Fluorescent (Type C)	Bi-Standard/SBDI	Lighting	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
931	Interior Lighting	LED Fixture with Network Control Replacing Interior T12 Fluorescent	Bi-Standard	Lighting	Retro	40%	18%	17%	15%	13%	11%	9%	7%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
932	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Bi-Standard/SBDI	Lighting	Retro	21%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
933	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Bi-Standard/SBDI	Lighting	Retro	21%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%
934	Interior Lighting	Lighting Power Density	Bi-Standard	Lighting	Retro	20%	10%	10%	11%	12%	10%	10%	9%	7%	6%	4%	3%	3%	3%	3%	2%	0%	0%	0%	0%	0%
935	Interior Lighting	LED Lighting Redesign/Custom	Bi-Standard	Lighting	Retro	20%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%
936	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent CFL Exit Sign	Bi-Standard/SBDI	Lighting	Retro	80%	57%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
938	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	Lighting	Retro	30%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
939	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Lighting	ROB	10%	10%	7%	5%	24%	23%	23%	23%	24%	23%	23%	41%	46%	51%	56%	62%	64%	66%	67%	68%	68%
940	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Lighting	Retro	10%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
941	Miscellaneous	Commercial Laundry	Bi-Custom	Lighting	ROB	2%	4%	4%	4%	5%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
942	Miscellaneous	ENERGY STAR Rated Receptacle Power Supply	Bi-Custom	Lighting	ROB	70%	72%	75%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
943	Miscellaneous	Pool Pump / Variable Frequency Drive	Bi-Custom	Lighting	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	59%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
944	Miscellaneous	Pool Pump Timer	Bi-Custom	Lighting	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	59%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
945	Miscellaneous	Pool Heater Heat Pump (Uncewed)	Bi-Custom	Lighting	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	59%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
946	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Lighting	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	59%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
947	Miscellaneous	High Efficiency ChAC Unit	Bi-Custom	Lighting	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	59%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
948	Motors	Cogged V-belt	Bi-Custom	Lighting	ROB	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%
949	Motors	Pump and Fan Variable Frequency Drive Controls (Pump)	Bi-Custom	Lighting	ROB	10%	6%	4%	4%	5%	10%	10%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
950	Motors	Power Drive Systems	Bi-Standard	Lighting	Retro	10%	3%	4%	4%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
951	Motors	Switch Reluctance Motors	Bi-Custom	Lighting	Retro	10%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
952	Motors	Escalator Motor Efficiency Controllers	Bi-Custom	Lighting	Retro	1%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
953	Office, NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Lighting	ROB	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
954	Office, NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Lighting	ROB	90%	50%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%
955	Office, NonPC	Plug Load Occupancy Sensor	Bi-Custom	Lighting	Retro	17%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
956	Office, PC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Lighting	Retro	20%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
957	Office, PC	Energy Star Server	Bi-Custom	Lighting	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
958	Office, PC	Sever Virtualization	Bi-Custom	Lighting	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
959	Office, PC	High Efficiency ChAC Unit	Bi-Custom	Lighting	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
960	Office, PC	Data Center Heat/Cold Alisk Configuration	Bi-Custom	Lighting	ROB	20%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
961	Office, PC	Computer Room Air Conditioner Economizer	Bi-Custom	Lighting	ROB	20%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
962	Office, PC	Energy Star Laptop	Bi-Custom	Lighting	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
963	Office, PC	Energy Star Monitor	Bi-Custom	Lighting	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
964	Office, PC	Strip Curtains	Bi-Custom	Lighting	Retro	50%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
965	Refrigeration	Ball-Bearing Fan	Bi-Custom	Lighting	Retro	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
966	Refrigeration	Saturated Suction Controls	Bi-Custom	Lighting	Retro	10%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
967	Refrigeration	Compressor Retrofits	Bi-Custom	Lighting	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
968	Refrigeration	Electrically Commutated (EC) Walk-In Refrigerator Fan Motor	Bi-Standard	Lighting	Retro	80%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
969	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Lighting	Retro	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
970	Refrigeration	Anti-Sweat Heater Controls	Bi-Custom	Lighting	Retro	10%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
971	Refrigeration	Refrigeration Economizer	Bi-Standard	Lighting	Retro	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
972	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	Lighting	Retro	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
973	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Lighting	Retro	80%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
974	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Standard	Lighting	Retro	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
975	Refrigeration	Energy Star Reach-In Refrigerator Glass Doors	Bi-Standard	Lighting	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%
976	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Lighting	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
977	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Lighting	Retro	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
978	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Lighting	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%
979	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Lighting	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%
980	Refrigeration	Refrigeration - Custom	Bi-Custom	Lighting	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
981	Refrigeration	Refrigeration - Custom	Bi-Custom	Lighting	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
982	Refrigeration	Refrigeration - Custom	Bi-Custom	Lighting	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
983	Refrigeration	Refrigeration - Custom	Bi-Custom	Lighting	ROB	25%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
984	Refrigeration	Refrigeration - Custom	Bi-Custom	Lighting	ROB	25%	2%	3%	3%	4%	4%	4														

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
999	Wholesale	Wholesale - Core RET	Bi-Custom	Lodging	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1000	Wholesale	Wholesale - Cutover (Other)	Bi-Custom	Lodging	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1001	Wholesale	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Lodging	Retro	0%	15%	15%	14%	13%	11%	7%	7%	6%	4%	3%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%	
1002	Wholesale	Wholesale - Core MC	Bi-Custom	Lodging	NC	60%	63%	60%	60%	70%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	
1003	Behavioral	COM Competitions	Bi-Custom	Lodging	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1004	Behavioral	Business Energy Reports	Bi-Custom	Lodging	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1005	Behavioral	Building Benchmarking	Bi-Custom	Lodging	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1006	Behavioral	Strategic Benchmarking	Bi-Custom SLEM	Lodging	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	1%	
1007	Behavioral	BEMS	Bi-Custom	Lodging	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	1%	
1008	Behavioral	Building Operator Certification	Bi-Custom	Lodging	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	1%	
1009	Compressed Air	Retro-commissioning/Compressed Air Optimization	Bi-Custom R&A	Retail	Retro	20%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1010	Compressed Air	Compressed Air Leak Repair	Bi-Custom	Retail	Retro	30%	20%	18%	16%	13%	10%	8%	5%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1011	Compressed Air	Efficient Air Compressors (VSD)	Bi-Standard	Retail	ROB	20%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	
1012	Compressed Air	AODD Pump Controls	Bi-Custom	Retail	Retro	50%	26%	21%	17%	13%	10%	8%	6%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1013	Compressed Air	No Loss Condensate Drain	Bi-Standard	Retail	Retro	5%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1014	Compressed Air	Efficient Air Nozzles	Bi-Standard	Retail	Retro	20%	10%	11%	12%	12%	11%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	
1015	Compressed Air	Efficient Air - Cutover	Bi-Custom	Retail	Retro	20%	10%	11%	12%	12%	11%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	
1016	Cooking	Commercial Combination Oven - (Electric)	Bi-Custom	Retail	ROB	53%	50%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
1017	Cooking	Commercial Electric Convection	Bi-Custom	Retail	ROB	17%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	
1018	Cooking	Commercial Electric Steam Cooker	Bi-Standard	Retail	ROB	45%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
1019	Cooking	Dishwasher (Low Temp Energy Star)	Bi-Custom	Retail	ROB	61%	63%	68%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
1020	Cooking	Dishwasher (High Temp Energy Star)	Bi-Custom	Retail	ROB	61%	63%	68%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
1021	Cooking	Energy Efficient Fryer	Bi-Custom	Retail	ROB	24%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	
1022	Cooking	Energy Efficient Cooktop (Gas)	Bi-Custom	Retail	ROB	24%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	
1023	Cooking	Energy Efficient Cabinet (J&S)	Bi-Standard	Retail	ROB	15%	15%	15%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	
1024	Cooking	Insulated Holding Cabinet (J&S)	Bi-Standard	Retail	ROB	16%	16%	16%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	
1025	Cooking	Isolated Holding Cabinet (H&S)	Bi-Standard	Retail	ROB	16%	16%	16%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	
1026	Cooking	Air Conditioner - 17.5ER (5-20 Tons)	Bi-Standard/SBDI	Retail	ROB	10%	21%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	
1027	Cooking	Air Conditioner - 18.5ER (5-20 Tons)	Bi-Standard/SBDI	Retail	ROB	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	
1028	Cooking	Air Conditioner - 21.5ER (20+ Tons)	Bi-Standard/SBDI	Retail	ROB	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	
1029	Cooking	Air Conditioner - 24.5ER (20+ Tons)	Bi-Standard/SBDI	Retail	ROB	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	
1030	Cooking	Air Conditioner - 17.5ER (20+ Tons)	Bi-Standard	Retail	ROB	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	
1031	Cooking	Air Conditioner - 17.5ER (20+ Tons)	Bi-Standard	Retail	ROB	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	
1032	Cooking	Comprehensive Roof Top Unit Quality Maintenance (ACT Line-up)	Bi-Custom	Retail	Retro	50%	20%	18%	16%	13%	11%	10%	9%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1033	Cooking	Air Side Economizer	Bi-Custom	Retail	Retro	20%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1034	Cooking	Advanced Roof Top Controls	Bi-Standard/SBDI	Retail	Retro	20%	15%	16%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1035	Cooking	HVAC Occupancy Controls	Bi-Custom	Retail	ROB	20%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1036	Cooking	Air Conditioner - 16.5ER (5 Tons)	Bi-Standard/SBDI	Retail	ROB	10%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	
1037	Cooking	Air Conditioner - 17.5ER (5 Tons)	Bi-Standard/SBDI	Retail	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
1038	Cooking	Air Conditioner - 18.5ER (5 Tons)	Bi-Standard/SBDI	Retail	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
1039	Cooking	Air Conditioner - 21.5ER (5 Tons)	Bi-Standard/SBDI	Retail	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
1040	Cooking	Smart Thermostat	Bi-Standard/SBDI	Retail	ROB	63%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1041	Cooking	PTAC - <7,000 Btu/h - heating	Bi-Custom	Retail	ROB	20%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1042	Cooking	PTAC - 7,000 to 15,000 Btu/h - heating	Bi-Custom	Retail	ROB	20%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1043	Cooking	PTAC - >15,000 Btu/h - heating	Bi-Custom	Retail	ROB	20%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1044	Cooking	Air-Cooled Chiller	Bi-Standard	Retail	ROB	10%	20%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	
1045	Cooking	Water Cooled Chiller	Bi-Standard	Retail	ROB	10%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	
1046	Cooking	Chiller Tune-up	Bi-Standard	Retail	ROB	10%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	
1047	Cooking	Water Treatment	Bi-Custom	Retail	Retro	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	
1048	Cooking	Water Filter	Bi-Custom	Retail	ROB	20%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1049	Cooking	Energy Recovery Ventilator	Bi-Custom	Retail	ROB	2%	4%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1050	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	69%	32%	25%	19%	14%	10%	7%	6%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1051	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	69%	32%	25%	19%	14%	10%	7%	6%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1052	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	69%	32%	25%	19%	14%	10%	7%	6%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1053	Exterior Lighting	LED 62 - 110 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	69%	32%	25%	19%	14%	10%	7%	6%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1054	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	69%	32%	25%	19%	14%	10%	7%	6%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1055	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	69%	32%	25%	19%	14%	10%	7%	6%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1056	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Bi-Custom	Retail	Retro	35%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1057	Heating	Heat Pump - 16.5ER (5 Tons)	Bi-Standard	Retail	ROB	10%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%</									

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1076	Hot Water	Electric Aerator	Bi-Custom	Retail	Retail	85%	36%	28%	21%	15%	10%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1077	Hot Water	Low Flow Be-Bios Sprayers	Bi-Custom	Retail	Retail	85%	84%	87%	88%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
1078	Hot Water	ENERGY STAR Commercial Washing Machines	Bi-Custom	Retail	Retail	30%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1079	Interior Lighting	LED <=11 Watt Lamp Replacing Interior Halogen A, 28.52 Watt Lamp	Bi-Custom/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1080	Interior Lighting	LED 7-20 Watt Lamp Replacing Interior Halogen B, 30.70 Watt Lamp	Bi-Standard/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1081	Interior Lighting	LED Specialty Lamp	Bi-Standard/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1082	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen B/W, 45.65 Watt Lamp	Bi-Standard/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1083	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen B/R, 45.50 Watt Lamp	Bi-Standard/SBDI	Retail	Retail	40%	26%	21%	17%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1084	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen A/R, 48.80 Watt Lamp or Fixture	Bi-Standard/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1085	Interior Lighting	LED <=10 Watt Lamp or Fixture Replacing Interior HID, 100-175 Watt Lamp or Fixture	Bi-Standard/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1086	Interior Lighting	LED <=10 Watt Lamp or Fixture Replacing Interior HID, 175-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Retail	Retail	40%	12%	13%	13%	12%	11%	10%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1087	Interior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Interior HID	Bi-Standard	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1088	Interior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Interior HID, 301-500 Watt Lamp or Fixture	Bi-Standard/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1089	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Retail	Retail	40%	20%	18%	16%	13%	10%	8%	6%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1090	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Retail	Retail	40%	20%	18%	16%	13%	10%	8%	6%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1091	Interior Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Bi-Standard/SBDI	Retail	Retail	40%	20%	18%	16%	13%	10%	8%	6%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1092	Interior Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Bi-Standard	Retail	Retail	40%	12%	13%	13%	12%	11%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1093	Interior Lighting	LED Replacing Interior R8 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1094	Interior Lighting	LED Replacing Interior R8 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1095	Interior Lighting	LED Replacing Interior R8 Fluorescent (Type C)	Bi-Standard/SBDI	Retail	Retail	40%	20%	18%	16%	13%	10%	8%	6%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1096	Interior Lighting	LED Replacing Interior T3 Fluorescent (High/Bid)	Bi-Standard	Retail	Retail	40%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1097	Interior Lighting	LED Replacing Interior T3 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Retail	Retail	40%	23%	20%	16%	13%	10%	8%	6%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1098	Interior Lighting	LED Replacing Interior T3 Fluorescent (Type C)	Bi-Standard/SBDI	Retail	Retail	40%	20%	18%	16%	13%	10%	8%	6%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1099	Interior Lighting	LED Replacing Interior T3 Fluorescent (Type C)	Bi-Standard/SBDI	Retail	Retail	40%	20%	18%	16%	13%	10%	8%	6%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1100	Interior Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Standard	Retail	Retail	40%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1101	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Bi-Standard/SBDI	Retail	Retail	15%	12%	13%	13%	12%	11%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1102	Interior Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Bi-Standard/SBDI	Retail	Retail	15%	10%	11%	11%	12%	11%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1103	Interior Lighting	Lighting Power Density	Bi-Custom	Retail	Retail	20%	10%	10%	9%	7%	8%	9%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1104	Interior Lighting	LED Lighting Redesign/Cutback	Bi-Standard	Retail	Retail	20%	5%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1105	Interior Lighting	LED or Electrochromic Replacing Interior Incandescent/CFL Exit Sign	Bi-Standard/SBDI	Retail	Retail	80%	57%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1106	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	Retail	Retail	30%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1107	Miscellaneous	Kitchen Exhaust Hood/Ventilation Control System	Bi-Standard	Retail	Retail	10%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%
1108	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Retail	Retail	10%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%
1109	Miscellaneous	Ozone Commercial Laundry	Bi-Custom	Retail	Retail	2%	4%	6%	4%	5%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1110	Miscellaneous	ENERGY STAR Universal Frequency Drive	Bi-Custom	Retail	Retail	70%	72%	75%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
1111	Miscellaneous	Pool Pump w/ Variable Frequency Supply	Bi-Custom	Retail	Retail	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1112	Miscellaneous	Pool Pump Timer	Bi-Custom	Retail	Retail	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1113	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	Retail	Retail	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1114	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Retail	Retail	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1115	Miscellaneous	High Efficiency Dryer	Bi-Custom	Retail	Retail	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1116	Miscellaneous	Miscellaneous Custom	Bi-Custom	Retail	Retail	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1117	Motors	Cogged V-Belt	Bi-Custom	Retail	Retail	10%	3%	4%	4%	4%	5%	5%	5%	4%	3%	3%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1118	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Standard	Retail	Retail	10%	3%	4%	4%	4%	5%	5%	5%	4%	3%	3%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1119	Motors	Power Drive Systems	Bi-Custom	Retail	Retail	10%	3%	4%	4%	4%	5%	5%	5%	4%	3%	3%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1120	Motors	Switch Reluctance Motors	Bi-Custom	Retail	Retail	1%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1121	Motors	Escalators Motor Efficiency Controllers	Bi-Custom	Retail	Retail	1%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1122	Motors	Escalators Motor Efficiency Controllers	Bi-Custom	Retail	Retail	90%	90%	92%	92%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
1123	Office, Non/PC	Energy Star Printer/Copier/Fax	Bi-Custom	Retail	Retail	24%	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
1124	Office, Non/PC	Smart Power Strip - Commercial Use	Bi-Custom	Retail	Retail	24%	15%	15%	14%	13%	11%	9%	7%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1125	Office, PC	Plug Load Occupancy Sensor	Bi-Custom	Retail	Retail	20%	15%	15%	14%	13%	11%	9%	7%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1126	Office, PC	Electrically Commutated Plug Fans in Data Centers	Bi-Custom	Retail	Retail	20%	15%	15%	14%	13%	11%	9%	7%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1127	Office, PC	Energy Star Server	Bi-Custom	Retail	Retail	20%	15%	15%	14%	13%	11%	9%	7%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1128	Office, PC	High Yield Multifunction	Bi-Custom	Retail	Retail	20%	15%	15%	14%	13%	11%	9%	7%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1129	Office, PC	High Yield Multifunction	Bi-Custom	Retail	Retail	20%	15%	15%	14%	13%	11%	9%	7%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1130	Office, PC	Compressor Air Conditioner	Bi-Custom	Retail	Retail	20%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%
1131	Office, PC	Data Center Heat/Cool/Ask Configuration	Bi-Custom	Retail	Retail	20%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1132	Office, PC	Energy Star Laptop	Bi-Custom	Retail	Retail	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
1133	Office, PC	Energy Star Monitor	Bi-Custom	Retail	Retail	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
1134	Refrigeration	Strip Curtains	Bi-Custom	Retail	Retail	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1135	Refrigeration	Base Curtains Line	Bi-Custom	Retail	Retail	50%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1136	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Retail	Retail	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%										

Appendix C. Business MAP Annual Penetration %

Amenex MidSouth 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1152	Refrigeration	Refrigeration - Custom	Bi-Custom	Retail	Retro	25%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
1153	Refrigeration	Refrigeration commissioning, Refrigerator Optimization	Bi-Custom/RCX	Retail	Retro	25%	2%	3%	3%	4%	4%	5%	5%	6%	7%	8%	8%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1154	Refrigeration	Energy Star Ice Machine	Bi-Custom	Retail	Retro	40%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
1155	Refrigeration	ESTAR Refrigerated Vending Machine	Bi-Custom	Retail	Retro	30%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%		
1156	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Retail	Retro	30%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1157	Refrigeration	LED Refrigerated Display Case Lighting Average (EW/LF)	Bi-Custom	Retail	Retro	18%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1158	Ventilation	Demand Controlled Ventilation	Bi-Standard	Retail	Retro	18%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1159	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Retail	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	1%	
1160	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Retail	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	1%	
1161	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Retail	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	1%	
1162	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Retail	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	1%	
1163	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Retail	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	1%	
1164	WholeBldg./HVAC	HVAC - Energy Management System	Bi-Custom	Retail	Retro	20%	4%	4%	4%	5%	7%	8%	9%	9%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	0%	0%	
1165	WholeBldg./HVAC	WholeBldg./HVAC - Cool Roof	Bi-Custom	Retail	Retro	33%	4%	4%	4%	5%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	2%	0%	0%	0%	0%	0%	
1166	WholeBldg./HVAC	Retro-commissioning, BID Optimization	Bi-Custom/RCX	Retail	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1167	WholeBldg.	WholeBldg. - Com RET	Bi-Custom	Retail	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1168	WholeBldg.	WholeBldg. - Custom (Other)	Bi-Custom	Retail	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1169	WholeBldg.	Power Distribution (Equipment Upgrades) (Transformers)	Bi-Custom	Retail	Retro	20%	15%	15%	14%	13%	11%	9%	7%	6%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	1%	1%	
1170	WholeBldg./HVAC	WholeBldg./HVAC - ComC	Bi-Custom	Retail	HC	60%	63%	66%	68%	70%	71%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	
1171	Behavioral	Behavioral	COM/Competitions	Retail	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1172	Behavioral	Business Energy Reports	Bi-Custom	Retail	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1173	Behavioral	Building Benchmarking	Bi-Custom	Retail	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1174	Behavioral	Strategic Energy Management	Bi-Custom/SEM	Retail	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1175	Behavioral	Behavioral	Bi-Custom	Retail	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	1%	
1176	Behavioral	Bldg. e-Operby Certification	Bi-Custom	Retail	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	1%	
1177	CompressedAir	Retro-commissioning, Compressed Air Optimization	Bi-Custom/RCX	Office	Retro	20%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1178	CompressedAir	Compressed Air Leak Repair	Bi-Custom	Office	Retro	30%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1179	CompressedAir	Efficient Air Compressors (VSD)	Bi-Standard	Office	Retro	50%	20%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	
1180	CompressedAir	AODD Pump Controls	Bi-Custom	Office	Retro	50%	20%	21%	17%	13%	10%	8%	6%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1181	CompressedAir	No Loss Condensate Drain	Bi-Standard	Office	Retro	5%	6%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%	1%	
1182	CompressedAir	Efficient Air Nozzles	Bi-Standard	Office	Retro	20%	5%	6%	7%	8%	9%	10%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%	
1183	CompressedAir	Compressed Air - Custom	Bi-Custom	Office	Retro	30%	5%	6%	6%	7%	8%	9%	10%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	
1184	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Office	ROB	53%	56%	59%	62%	64%	66%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
1185	Cooking	Commercial Electric Convection Oven	Bi-Custom	Office	ROB	33%	56%	59%	62%	64%	66%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1186	Cooking	Commercial Electric Griddle	Bi-Custom	Office	ROB	17%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1187	Cooking	Commercial Electric Steam Cooker	Bi-Standard	Office	ROB	45%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1188	Cooking	Dishwasher (Low Temp Door Energy Star)	Bi-Standard	Office	ROB	61%	63%	66%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
1189	Cooking	Dishwasher High Temp Door (Energy Star)	Bi-Custom	Office	ROB	61%	63%	66%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
1190	Cooking	EnergyEfficient electric fryer	Bi-Custom	Office	ROB	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1191	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Office	ROB	16%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	
1192	Cooking	Insulated Holding Cabinets (3/4 Size)	Bi-Standard	Office	ROB	16%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	
1193	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Office	ROB	16%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	
1194	Cooking	Air Conditioner - 17.0 EER (520 tons)	Bi-Standard/SBDI	Office	ROB	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	
1195	Cooking	Air Conditioner - 18.0 EER (520 tons)	Bi-Standard/SBDI	Office	ROB	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	
1196	Cooking	Air Conditioner - 21.0 EER (520 tons)	Bi-Standard/SBDI	Office	ROB	10%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	
1197	Cooking	Air Conditioner - 14.3 SEER (20+ tons)	Bi-Standard	Office	ROB	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	
1198	Cooking	Air Conditioner - 15.0 SEER (20+ tons)	Bi-Standard	Office	ROB	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	
1199	Cooking	Air Conditioner - 17.0 EER (20+ tons)	Bi-Standard	Office	ROB	10%	4%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	
1200	Cooking	Comprehensive hood top Unit Quality Maintenance (ACT Tune-up)	Bi-Standard	Office	ROB	55%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1201	Cooking	Advanced Refrigerating Controls	Bi-Custom	Office	Retro	20%	10%	11%	12%	12%	10%	9%	8%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1202	Cooking	HVAC Occupancy Controls	Bi-Standard/SBDI	Office	Retro	20%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1203	Cooking	Air Conditioner - 16.5 SEER (5 tons)	Bi-Standard/SBDI	Office	ROB	20%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
1204	Cooking	Air Conditioner - 17.5 SEER (5 tons)	Bi-Standard/SBDI	Office	ROB	10%	17%	21%	27%	33%	38%	43%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	
1205	Cooking	Air Conditioner - 18.5 SEER (5 tons)	Bi-Standard/SBDI	Office	ROB	10%	17%	21%	27%	33%	38%	43%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	
1206	Cooking	Air Conditioner - 21.5 SEER (5 tons)	Bi-Standard/SBDI	Office	ROB	10%	17%	21%	27%	33%	38%	43%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	
1207	Cooking	Smart Thermostat	Bi-Standard/SBDI	Office	ROB	63%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
1208	Cooking	PTAC < 7,000 Btu/h - building	Bi-Custom	Office	ROB	20%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
1209	Cooking	PTAC > 7,000 Btu/h - building	Bi-Custom	Office	ROB	20%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
1210	Cooking	PTAC - 7,000 to 15,000 Btu/h - building	Bi-Custom	Office	ROB	20%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	
1211	Cooking	PTAC > 15,000 Btu/h - building	Bi-Standard	Office	ROB	20%	21%	27%	33%	38%	43%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	
1212	Cook																											

Appendix C. Business MAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1305	Refrigeration	Compressor Controls	Bi-Standard	Office	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1306	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Office	Retro	80%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1307	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Office	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1308	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Office	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1309	Refrigeration	Refrigeration Economizer	Bi-Custom	Office	Retro	10%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1310	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	Office	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1311	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Office	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1312	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Office	Retro	80%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1313	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Standard	Office	Retro	2%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1314	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Office	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1315	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Standard	Office	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1316	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Office	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1317	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Office	Retro	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1318	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Office	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1319	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Office	ROB	54%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1320	Refrigeration	Refrigeration - Custom	Bi-Standard	Office	ROB	25%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1321	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi-Custom RCX	Office	ROB	44%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1322	Refrigeration	Energy Star Ice Machine	Bi-Custom	Office	ROB	30%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1323	Refrigeration	ESR Refrigerated Vending Machine	Bi-Custom	Office	ROB	30%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1324	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Office	Retro	35%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1325	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/ft	Bi-Custom	Office	Retro	35%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1326	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Office	Retro	35%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1327	Refrigeration	Demand Controlled Ventilation	Bi-Custom	Office	Retro	50%	6%	7%	9%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	
1328	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Office	Retro	50%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1329	Ventilation	High Volume Low Speed Fans	Bi-Standard	Office	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1330	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Office	Retro	30%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1331	WholeBldg./HVAC	HVAC - Energy Management System	Bi-Custom	Office	Retro	20%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1332	WholeBldg./HVAC	HVAC - Cool Roof	Bi-Custom	Office	Retro	33%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1333	WholeBldg./HVAC	Refrigeration - Bi-Optimization	Bi-Custom	Office	Retro	20%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1334	WholeBldg./HVAC	Refrigeration - Com RET	Bi-Custom RCX	Office	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1335	WholeBldg.	WholeBldg. - Com RET	Bi-Custom	Office	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1336	WholeBldg.	WholeBldg. - Custom (Other)	Bi-Custom	Office	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1337	WholeBldg.	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Office	NC	20%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1338	WholeBldg./NC	WholeBldg. - Com NC	Bi-Custom	Office	NC	60%	63%	66%	68%	70%	71%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	
1339	Behavioral	COM Competitions	Bi-Custom	Office	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1340	Behavioral	Business Energy Reports	Bi-Custom	Office	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1341	Behavioral	Building Benchmarking	Bi-Custom	Office	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1342	Behavioral	Strategic Energy Management	Bi-Custom SEM	Office	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1343	Behavioral	BEIMS	Bi-Custom	Office	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1344	Behavioral	Building Operator Certification	Bi-Custom	Office	Retro	2%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1345	CompressedAir	Retro-commissioning, Compressed Air Optimization	Bi-Custom RCX	Warehouse	Retro	20%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1346	CompressedAir	Compressed Air Leak Repair	Bi-Custom	Warehouse	Retro	39%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1347	CompressedAir	Efficient Air Compressors (VSD)	Bi-Standard	Warehouse	Retro	20%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	
1348	CompressedAir	AODD Pump Controls	Bi-Custom	Warehouse	Retro	50%	26%	21%	17%	13%	10%	8%	6%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1349	CompressedAir	No Loss Condensate Drain	Bi-Standard	Warehouse	Retro	3%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1350	CompressedAir	Efficient Air/Nozzles	Bi-Standard	Warehouse	Retro	20%	5%	6%	7%	8%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	
1351	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Warehouse	Retro	20%	15%	15%	12%	9%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1352	Cooking	Commercial Electric Convection Oven	Bi-Custom	Warehouse	Retro	50%	25%	20%	15%	10%	7%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1353	Cooking	Commercial Electric Steam Cooker	Bi-Standard	Warehouse	ROB	53%	60%	66%	70%	73%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	
1354	Cooking	Commercial Electric Steam Cooker	Bi-Standard	Warehouse	ROB	53%	60%	66%	70%	73%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	
1355	Cooking	Dishwasher (Low Temp Door Energy Star)	Bi-Standard	Warehouse	ROB	45%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
1356	Cooking	Dishwasher (High Temp Door Energy Star)	Bi-Custom	Warehouse	ROB	61%	63%	66%	69%	70%	72%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
1357	Cooking	EnergyEfficient electric fryer	Bi-Custom	Warehouse	ROB	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
1358	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Warehouse	ROB	16%	15%	15%	14%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1359	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Warehouse	ROB	16%	15%	15%	14%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1360	Cooking	Insulated Holding Cabinets (1/4 Size)	Bi-Standard	Warehouse	ROB	16%	15%	15%	14%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1361	Cooking	Air Conditioner - 17 IEER (5-20 Tons)	Bi-Standard	Warehouse	ROB	10%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	
1362	Cooking	Air Conditioner - 17.5 IEER (5-20 Tons)	Bi-Standard/SBDI	Warehouse	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	
1363	Cooking	Air Conditioner - 18 IEER (5-20 Tons)	Bi-Standard/SBDI	Warehouse	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	
1364	Cooking	Air Conditioner - 21 IEER (5-20 Tons)	Bi-Standard/SBDI	Warehouse	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%	
1365	Cooking	Air Conditioner - 14.3 IEER (20+ Tons)	Bi-Standard	Warehouse	ROB	10%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	74%	74%	74%	74%	
1366	Cooking	Air Conditioner - 15 IEER (20+ Tons)	Bi-Standard	Warehouse	ROB	10%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	74%	74%	74%	74%	74%	
1367	Cooking	Air Conditioner - 17 IEER (20+ Tons)	Bi-Standard	Warehouse	ROB	10%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	74%	74%	74%	74%	74%	
1368	Cooking	Comprehensive Rooftop Unit Quality Maintenance (AC Tune																									

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1459	Office, NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Warehouse	ROB	90%	50%	92%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%		
1460	Office, NonPC	Smart Power Strip/Copier/Fax	Bi-Custom	Warehouse	Retro	24%	24%	15%	15%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
1461	Office, NonPC	Plug Load Occupancy Sensor	Bi-Custom	Warehouse	Retro	20%	20%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
1462	Office, PC	Electrically Commutated Plug Fans in Data centers	Bi-Custom	Warehouse	ROB	25%	25%	1%	4%	6%	8%	11%	15%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1463	Office, PC	Server Virtualization	Bi-Custom	Warehouse	ROB	25%	25%	1%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1464	Office, PC	High Efficiency ChAC Unit	Bi-Custom	Warehouse	ROB	20%	20%	1%	4%	6%	8%	11%	15%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1465	Office, PC	Computer Room Air Conditioner Economizer	Bi-Custom	Warehouse	ROB	20%	20%	1%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1466	Office, PC	Data Center Hot/Cold Aisle Configuration	Bi-Custom	Warehouse	ROB	10%	10%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1467	Office, PC	Energy Star Laptop	Bi-Custom	Warehouse	ROB	85%	25%	32%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	87%	88%	90%	90%	90%	90%	90%	90%	90%	
1468	Office, PC	Energy Star Monitor	Bi-Custom	Warehouse	ROB	85%	25%	32%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	87%	88%	90%	90%	90%	90%	90%	90%	90%	
1469	Refrigeration	Strip Curtains	Bi-Custom	Warehouse	Retro	50%	2%	3%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1470	Refrigeration	Base Section Line	Bi-Custom	Warehouse	Retro	50%	2%	3%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1471	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Warehouse	Retro	10%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1472	Refrigeration	Saturated Suction Controls	Bi-Custom	Warehouse	Retro	10%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1473	Refrigeration	Compressor Retrofit	Bi-Custom	Warehouse	Retro	80%	2%	3%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1474	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Warehouse	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1475	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Warehouse	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1476	Refrigeration	Variable-Speed Compressor Fan	Bi-Custom	Warehouse	Retro	10%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1477	Refrigeration	Refrigeration Evaporator	Bi-Custom	Warehouse	Retro	10%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1478	Refrigeration	Anti-Sweat Heater Controls MIT	Bi-Standard	Warehouse	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1479	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Warehouse	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1480	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Warehouse	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1481	Refrigeration	Q-Sync Motor on Walk-In Refrigerator Evaporator Fan Motor	Bi-Standard	Warehouse	Retro	5%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1482	Refrigeration	Refrigeration Condenser Coil Cleaners	Bi-Custom	Warehouse	ROB	54%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1483	Refrigeration	Energy Star Heat Exchangers	Bi-Standard	Warehouse	ROB	54%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1484	Refrigeration	Anti-Sweat Heater Controls I	Bi-Standard	Warehouse	ROB	54%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1485	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Warehouse	ROB	25%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1486	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Warehouse	ROB	54%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1487	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Warehouse	ROB	54%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1488	Refrigeration	Refrigeration - Custom	Bi-Custom	Warehouse	ROB	25%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1489	Refrigeration	Refrigeration - Custom	Bi-Custom	Warehouse	ROB	25%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1490	Refrigeration	Bi-Custom R/CX	Bi-Custom	Warehouse	ROB	44%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1491	Refrigeration	Energy Star Ice Machine	Bi-Custom	Warehouse	ROB	30%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1492	Refrigeration	STAR Refrigerated Vending Machine	Bi-Custom	Warehouse	ROB	30%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1493	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Warehouse	Retro	35%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1494	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/1F	Bi-Custom	Warehouse	Retro	18%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1495	Ventilation	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Warehouse	Retro	14%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1496	Ventilation	Demand Controlled Ventilation	Bi-Standard	Warehouse	Retro	14%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1497	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Warehouse	Retro	14%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1498	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Warehouse	Retro	30%	3%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1499	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Warehouse	Retro	30%	3%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1500	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Warehouse	Retro	20%	4%	4%	4%	4%	5%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1501	Wholesale/RVAC	Wholesale/RVAC Cool Roof	Bi-Custom	Warehouse	Retro	33%	8%	9%	10%	13%	11%	10%	9%	8%	7%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1502	Wholesale/RVAC	Refrigeration - Bi-Custom	Bi-Custom R/CX	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1503	Wholesale/RVAC	Wholesale/RVAC Cool Roof	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1504	Wholesale/RVAC	Wholesale/RVAC Cool Roof	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1505	Wholesale/RVAC	Wholesale/RVAC Cool Roof	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1506	Wholesale/RVAC	Wholesale/RVAC Cool Roof	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1507	Wholesale/RVAC	Wholesale/RVAC Cool Roof	Bi-Custom	Warehouse	Retro	60%	63%	66%	68%	70%	71%	72%	73%	74%	75%	76%	77%	78%	79%	80%	81%	82%	83%	84%	85%	86%	87%	88%
1508	Behavioral	Behavioral Energy Management	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1509	Behavioral	Behavioral Energy Management	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1510	Behavioral	Behavioral Energy Management	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1511	Behavioral	Behavioral Energy Management	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1512	Behavioral	Behavioral Energy Management	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1513	Behavioral	Behavioral Energy Management	Bi-Custom	Warehouse	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1514	Compressed Air	Compressed Air Leak Repair	Bi-Custom R/CX	Other	Retro	20%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1515	Compressed Air	Efficient Air Leak Repair	Bi-Standard	Other	ROB	20%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	
1516	Compressed Air	AODD Pump Controls	Bi-Custom	Other	Retro	5%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
1517	Compressed Air	No Leak Condensate Drain	Bi-Standard	Other	Retro	20%	5%	6%	7%	8%	9%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	
1518	Compressed Air	Efficient Air Nozzles	Bi-Custom	Other	Retro	20%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1519	Compressed Air	Compressed Air - Custom	Bi-Custom	Other	ROB	53%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
1520	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Other	ROB	17%	19%	24%	29%	33%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	
1521	Cooking	Commercial Electric Convection Oven	Bi-Custom	Other	ROB	17%	19%																					

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1539	Cooling	HVAC Occupancy Controls	Bi-Custom	Other	ROB	20%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1540	Cooling	HVAC Occupancy - 16 SEER (4.5 Tons)	Bi-Standard/SBDI	Other	ROB	10%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%
1541	Cooling	Air Conditioner - 17 SEER (4.5 Tons)	Bi-Standard/SBDI	Other	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1542	Cooling	Air Conditioner - 18 SEER (4.5 Tons)	Bi-Standard/SBDI	Other	ROB	10%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1543	Cooling	Air Conditioner - 21 SEER (4.5 Tons)	Bi-Standard/SBDI	Other	ROB	63%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1544	Cooling	Smart Thermostat	Bi-Custom	Other	ROB	20%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1545	Cooling	PTAC <7,000 Btu/h - cooling	Bi-Custom	Other	ROB	20%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1546	Cooling	PTAC 7,000 to 15,000 Btu/h - cooling	Bi-Custom	Other	ROB	20%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1547	Cooling	PTAC >15,000 Btu/h - cooling	Bi-Custom	Other	ROB	20%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1548	Cooling	Air Cooled Chiller - cooling	Bi-Standard	Other	ROB	10%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	77%	
1549	Cooling	Water Cooled Chiller	Bi-Standard	Other	ROB	10%	7%	10%	13%	17%	21%	27%	33%	40%	46%	53%	58%	63%	67%	70%	73%	74%	76%	77%	77%	77%	
1550	Cooling	Chiller Tune-up	Bi-Custom	Other	Retro	50%	20%	18%	16%	13%	10%	8%	5%	3%	4%	3%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	
1551	Cooling	Triple Pane Windows	Bi-Custom	Other	ROB	2%	4%	7%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1552	Cooling	Energy Recovery Ventilator	Bi-Custom	Other	ROB	2%	2%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	1%	1%	1%
1553	Cooling	LED <=80 Watt Lamp or Fixture Replacing Incandescent or Exterior 12/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1554	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1555	Exterior Lighting	LED <=130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1556	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Other	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1557	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Other	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1558	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Other	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1559	Exterior Lighting	LED 85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Other	Retro	69%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1560	Exterior Lighting	Heat Pump - 16 SEER (4.5 Tons)	Bi-Standard	Other	ROB	35%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1561	Heating	Heat Pump - 16 SEER (4.5 Tons)	Bi-Standard	Other	ROB	10%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
1562	Heating	Heat Pump - 17 SEER (4.5 Tons)	Bi-Standard	Other	ROB	10%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
1563	Heating	Heat Pump - 18 SEER (4.5 Tons)	Bi-Standard	Other	ROB	10%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
1564	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	Other	ROB	10%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%
1565	Heating	Heat Pump - 15.0 IEER COP 3.6 (6,500-134,000 Btu/hr)	Bi-Standard	Other	ROB	10%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%
1566	Heating	Heat Pump - 15.0 IEER COP 3.6 (6,500-134,000 Btu/hr)	Bi-Standard	Other	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%
1567	Heating	Heat Pump - 15.0 IEER COP 3.6 (6,500-134,000 Btu/hr)	Bi-Standard	Other	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%
1568	Heating	Heat Pump - 14.5 IEER COP 3.1 (135,000-339,000 Btu/hr)	Bi-Standard	Other	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%
1569	Heating	Heat Pump - 14.5 IEER COP 3.1 (135,000-339,000 Btu/hr)	Bi-Standard	Other	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%
1570	Heating	Heat Pump - 13 IEER 3.4 COP (129,000 Btu/hr)	Bi-Standard	Other	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%
1571	Heating	Heat Pump - 12 IEER 3.6 COP (129,000 Btu/hr)	Bi-Standard	Other	ROB	10%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%
1572	Heating	Geothermal HP - 17 IEER <138kbtu	Bi-Custom	Other	ROB	20%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1573	Heating	Geothermal HP - 19 IEER <138kbtu	Bi-Custom	Other	ROB	20%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1574	Heating	PTHP - <7,000 Btu/h - heating	Bi-Custom	Other	ROB	20%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1575	Heating	PTHP - 7,000 to 15,000 Btu/h - heating	Bi-Custom	Other	ROB	20%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1576	Heating	PTHP - >15,000 Btu/h - heating	Bi-Custom	Other	ROB	20%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
1577	Hot Water	Res-Styled Heat Pump Water Heater	Bi-Standard	Other	ROB	20%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
1578	Hot Water	Commercial-Styled HPWH	Bi-Standard	Other	ROB	20%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%
1579	Hot Water	Hot Water Pipe Insulation	Bi-Custom	Other	Retro	80%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1580	Hot Water	Facet Aerator	Bi-Custom	Other	ROB	85%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1581	Hot Water	Low flow Pre-Rinse Sprayers	Bi-Custom	Other	ROB	85%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1582	Hot Water	ENERGY STAR Compact Washing Machines	Bi-Custom	Other	ROB	50%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
1583	Interior Lighting	LED <=20 Watt Lamp or Fixture Replacing Interior Halogen >=35 Watt Lamp	Bi-Standard/SBDI	Other	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1584	Interior Lighting	LED <=20 Watt Lamp or Fixture Replacing Interior Halogen >=35 Watt Lamp	Bi-Standard/SBDI	Other	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1585	Interior Lighting	LED Specialty Lamp	Bi-Standard/SBDI	Other	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1586	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen BRV4 4.5-6.5 Watt Lamp	Bi-Standard/SBDI	Other	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1587	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen BRV4 3.5-5.0 Watt Lamp	Bi-Standard/SBDI	Other	Retro	40%	26%	21%	17%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1588	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR48-90 Watt Lamp	Bi-Standard/SBDI	Other	Retro	40%	26%	21%	17%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1589	Interior Lighting	LED <=20 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Bi-Standard/SBDI	Other	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1590	Interior Lighting	LED <=20 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Bi-Standard/SBDI	Other	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1591	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Bi-Standard	Other	Retro	40%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1592	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID 300-500 Watt Lamp or Fixture	Bi-Standard/SBDI	Other	Retro	40%	23%	20%	16%	13%	10%	8%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1593	Interior Lighting	LED Replacing Interior 15 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Other	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
1594	Interior Lighting	LED Replacing Interior 15 Fluorescent (Type B, kits, and fixtures)	Bi-Standard/SBDI	Other	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
1595	Interior Lighting	LED Replacing Interior 15 Fluorescent (Type C)	Bi-Standard/SBDI	Other	Retro	40%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%								

Appendix C. Business MAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1611	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Other	ROB	10%	10%	4%	6%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%		
1612	Miscellaneous	High Efficiency Hood Fans	Bi-Custom	Other	Retro	10%	10%	4%	4%	12%	12%	11%	10%	9%	7%	6%	6%	3%	3%	2%	0%	0%	0%	0%	0%	0%		
1613	Miscellaneous	Onco Commercial Laundry	Bi-Custom	Other	ROB	70%	70%	72%	75%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	
1614	Miscellaneous	Energy Star Programmable Power Supply	Bi-Custom	Other	ROB	20%	24%	24%	29%	35%	41%	50%	59%	62%	62%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	
1615	Miscellaneous	Pool Pump / Variable Frequency Drive	Bi-Custom	Other	ROB	20%	24%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	
1616	Miscellaneous	Pool Heater - Heat Pump (Uncovered)	Bi-Custom	Other	ROB	20%	24%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	
1617	Miscellaneous	Pool Heater - Heat Pump (Covered)	Bi-Custom	Other	ROB	20%	24%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	
1618	Miscellaneous	High Efficiency Dryer	Bi-Custom	Other	ROB	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1619	Miscellaneous	Miscellaneous Custom	Bi-Custom	Other	Retro	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1620	Motors	Cogged V-belt	Bi-Custom	Other	Retro	10%	10%	3%	4%	4%	5%	5%	6%	6%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1621	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Standard	Other	Retro	10%	10%	3%	4%	4%	5%	5%	6%	6%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1622	Motors	Power Drive Systems	Bi-Custom	Other	Retro	13%	2%	3%	3%	4%	4%	5%	5%	6%	6%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	
1623	Motors	Switch Reluctance Motors	Bi-Custom	Other	Retro	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1624	Motors	Escalator Motor (Efficiency Controls)	Bi-Custom	Other	Retro	10%	10%	9%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	
1625	Office_NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Other	ROB	90%	90%	92%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	
1626	Office_NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Other	Retro	15%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	
1627	Office_NonPC	Plug Load Occupancy Sensor	Bi-Custom	Other	Retro	20%	2%	3%	3%	4%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1628	Office_JC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Other	ROB	25%	1%	4%	6%	6%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	
1629	Office_JC	Energy Star Server	Bi-Custom	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1630	Office_JC	Server Virtualization	Bi-Custom	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1631	Office_JC	High Efficiency ChAC Unit	Bi-Custom	Other	ROB	20%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1632	Office_JC	Computer Room Air Conditioner Economizer	Bi-Custom	Other	Retro	20%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1633	Office_JC	Dual Tier Hot/Cold Aisle Configuration	Bi-Custom	Other	Retro	20%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1634	Office_JC	Energy Star Peripherals	Bi-Custom	Other	ROB	85%	25%	32%	32%	30%	46%	61%	68%	73%	78%	82%	84%	87%	88%	90%	90%	90%	90%	90%	90%	90%	90%	
1635	Office_JC	Energy Star Monitor	Bi-Custom	Other	ROB	85%	25%	32%	32%	30%	46%	61%	68%	73%	78%	82%	84%	87%	88%	90%	90%	90%	90%	90%	90%	90%	90%	90%
1636	Refrigeration	Strap Curtains	Bi-Custom	Other	Retro	30%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1637	Refrigeration	Base Surtain Line	Bi-Custom	Other	Retro	30%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1638	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1639	Refrigeration	Saturated Suction Controls	Bi-Custom	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1640	Refrigeration	Compressor Retrofit	Bi-Custom	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1641	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Custom	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1642	Refrigeration	Evaporator Fan Motor Controls	Bi-Standard	Other	Retro	80%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1643	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1644	Refrigeration	Refrigeration Economizer	Bi-Custom	Other	Retro	10%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1645	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1646	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Standard	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1647	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1648	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Standard	Other	Retro	2%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1649	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Other	Retro	54%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1650	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Other	ROB	54%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1651	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1652	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1653	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Other	Retro	25%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1654	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Other	ROB	54%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1655	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Other	ROB	54%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1656	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Other	ROB	54%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1657	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi-Custom	Other	Retro	25%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1658	Refrigeration	Energy Star Ice Machine	Bi-Custom	Other	Retro	25%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1659	Refrigeration	Lighting Related Venting Modifiers	Bi-Custom	Other	Retro	25%	1%	4%	6%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	
1660	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Custom	Other	ROB	30%	2%	3%	3%	4%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1661	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Other	Retro	30%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1662	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Other	Retro	30%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1663	Ventilation	Demand Controlled Ventilation	Bi-Custom	Other	Retro	18%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1664	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Other	Retro	17%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	
1665	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Other	Retro	30%	3%	4%	4%	4%	5%	5%	6%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	
1666	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Other	Retro	30%	3%	4%	4%	4%	5%	5%	6%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	
1667	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Other	Retro	30%	3%	4%	4%	4%	5%	5%	6%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	
1668	WholeBldg HVAC	HVAC - Energy Management System	Bi-Custom	Other	Retro	20%	4%	4%	4%	4%	5%	7%	8%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	0%	0%	
1669	WholeBldg HVAC	WholeBldg HVAC - Cool Roof	Bi-Custom	Other	Retro	33%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%	
1670	WholeBldg HVAC	Retro-commissioning, Bld Optimization	Bi-Custom	Other	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1671	WholeBuilding	WholeBuilding - Com RET	Bi-Custom	Other	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1672	WholeBuilding	WholeBuilding - Custom (Other)	Bi-Custom	Other	Retro	0%	2%	3%	3%	3%	4%	4%	4%	4%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1673	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Other	Retro	2																						

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1765	Interlighting	LED Replacing Interior T8 Fluorescent (Type A, Hybrid)	Bi-Custom	BSS	Retro	40%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%
1766	Interlighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Bi-Custom	BSS	Retro	40%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%
1767	Interlighting	LED Replacing Interior T8 Fluorescent (Type C, Kits, and Fixtures)	Bi-Custom	BSS	Retro	40%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%
1768	Interlighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Custom	BSS	Retro	40%	15%	15%	14%	13%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1769	Interlighting	LED Replacing Interior T12 Fluorescent (Type A, Hybrid)	Bi-Custom	BSS	Retro	40%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%
1770	Interlighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Bi-Custom	BSS	Retro	40%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	0%	0%	0%	0%	0%	0%
1771	Interlighting	LED Replacing Interior T12 Fluorescent (Type C)	Bi-Custom	BSS	Retro	40%	12%	13%	13%	12%	11%	10%	9%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1772	Interlighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Custom	BSS	Retro	40%	12%	13%	13%	12%	11%	10%	9%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1773	Interlighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Bi-Custom	BSS	Retro	28%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	0%	0%	0%
1774	Interlighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Bi-Custom	BSS	Retro	28%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	0%	0%	0%
1775	Interlighting	Lighting Power Density	Bi-Custom	BSS	Retro	20%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1776	Interlighting	LED Lighting Redesign/Cabling	Bi-Custom	BSS	Retro	20%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%
1777	Miscellaneous	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Bi-Custom	BSS	Retro	80%	26%	21%	17%	13%	10%	8%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1778	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	BSS	ROB	10%	1%	4%	6%	9%	13%	19%	26%	35%	44%	50%	53%	41%	46%	51%	56%	59%	62%	64%	66%	67%
1779	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Custom	BSS	ROB	10%	1%	4%	6%	9%	13%	19%	26%	35%	44%	50%	53%	41%	46%	51%	56%	59%	62%	64%	66%	
1780	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	BSS	Retro	2%	4%	4%	4%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1781	Miscellaneous	Ozone Commercial Laundry	Bi-Custom	BSS	Retro	2%	4%	4%	4%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1782	Miscellaneous	ENERGY STAR Interrupted Power Supply	Bi-Custom	BSS	ROB	70%	72%	75%	76%	78%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
1783	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	BSS	ROB	20%	24%	29%	35%	41%	46%	51%	56%	61%	64%	66%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%
1784	Miscellaneous	Pool Pump Timer	Bi-Custom	BSS	ROB	20%	24%	29%	35%	41%	46%	51%	56%	61%	64%	66%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%
1785	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	BSS	ROB	20%	24%	29%	35%	41%	46%	51%	56%	61%	64%	66%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%
1786	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	BSS	ROB	20%	24%	29%	35%	41%	46%	51%	56%	61%	64%	66%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%
1787	Miscellaneous	High Efficiency Dryer	Bi-Custom	BSS	ROB	20%	24%	29%	35%	41%	46%	51%	56%	61%	64%	66%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%
1788	Miscellaneous	Miscellaneous Custom	Bi-Custom	BSS	Retro	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1789	Motors	Cogged V-belt	Bi-Custom	BSS	Retro	10%	10%	9%	10%	11%	10%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1790	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Custom	BSS	Retro	10%	2%	3%	3%	3%	3%	3%	3%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1791	Motors	Power Drive Systems	Bi-Custom	BSS	Retro	10%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	6%	5%	4%	3%	2%	2%	0%	0%	0%
1792	Motors	Switch Reluctance Motors	Bi-Custom	BSS	Retro	1%	2%	3%	3%	3%	3%	3%	3%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1793	Motors	Excitation Motor Efficiency Controllers	Bi-Custom	BSS	Retro	10%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1794	Office, Non-PC	Energy Star Printer/Copier/Fax	Bi-Custom	BSS	ROB	15%	15%	16%	17%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%
1795	Office, Non-PC	Smart Power Strip - Commercial Use	Bi-Custom	BSS	ROB	15%	15%	16%	17%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%
1796	Office, Non-PC	Highly Configurable Plug-Ins in Data centers	Bi-Custom	BSS	ROB	15%	15%	16%	17%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%
1797	Office, PC	Energy Star Server	Bi-Custom	BSS	ROB	20%	2%	3%	3%	4%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1798	Office, PC	Server Virtualization	Bi-Custom	BSS	ROB	20%	2%	3%	3%	4%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1799	Office, PC	Energy Star Server	Bi-Custom	BSS	ROB	20%	2%	3%	3%	4%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1800	Office, PC	High Efficiency ChA/C Unit	Bi-Custom	BSS	ROB	20%	2%	3%	3%	4%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1801	Office, PC	Computer Room Air Conditioner Economizer	Bi-Custom	BSS	ROB	20%	2%	3%	3%	4%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1802	Office, PC	Data Center Hot/Air Aisle Configuration	Bi-Custom	BSS	ROB	20%	2%	3%	3%	4%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1803	Office, PC	Energy Star Laptop	Bi-Custom	BSS	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	87%	88%	88%	90%	90%	90%	90%	90%	90%
1804	Office, PC	Energy Star Monitor	Bi-Custom	BSS	ROB	85%	25%	32%	39%	46%	54%	61%	68%	73%	78%	82%	84%	87%	88%	88%	90%	90%	90%	90%	90%	90%
1805	Refrigeration	Strip Curtains	Bi-Custom	BSS	Retro	50%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1806	Refrigeration	Ballast Shut-off	Bi-Custom	BSS	Retro	50%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1807	Refrigeration	Floating Head Pressure Controls	Bi-Custom	BSS	Retro	25%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1808	Refrigeration	Saturated Suction Controls	Bi-Custom	BSS	Retro	10%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1809	Refrigeration	Compressor Retrofit	Bi-Custom	BSS	Retro	25%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1810	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Custom	BSS	Retro	25%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1811	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	BSS	Retro	25%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1812	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	BSS	Retro	10%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1813	Refrigeration	Refrigeration Economizer	Bi-Custom	BSS	Retro	10%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1814	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	BSS	Retro	25%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1815	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	BSS	Retro	25%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1816	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	BSS	Retro	80%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1817	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	BSS	Retro	2%	2%	3%	3%	4%	4%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1818	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Custom	BSS	ROB	54%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
1819	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Custom	BSS	ROB	54%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
1820	Refrigeration	Anti-Sweat Heater Control LT Temp	Bi-Custom	BSS	ROB	25%	2%	3%																		

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1845	Behavioral	Building Benchmarking	Bi-Custom	BSS	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1846	Behavioral	Strategic Energy Management	Bi-Custom SEM	BSS	Retro	0%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	
1847	Behavioral	BEFMS	Bi-Custom	BSS	Retro	2%	3%	4%	4%	5%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
1848	Behavioral	Building Operator Certification	Bi-Custom	BSS	Retro	2%	3%	4%	4%	5%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
1849	Water/Wastewater	Water Supply & Wastewater treatment pumps and process efficiency	Bi-Custom	Industrial	Retro	25%	15%	15%	14%	13%	11%	9%	7%	6%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1850	Compressed Air	Efficient Air Compressor Equipment	Bi-Custom	Industrial	ROB	25%	35%	41%	40%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1851	Compressed Air	Efficient Air Compressor Controls	Bi-Custom	Industrial	Retro	25%	12%	13%	13%	12%	11%	10%	8%	6%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1852	HVAC	Efficient HVAC Equipment	Bi-Custom	Industrial	ROB	25%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1853	HVAC	Efficient HVAC O&M	Bi-Custom	Industrial	Retro	25%	5%	6%	7%	8%	9%	10%	10%	9%	8%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%
1854	Lighting	Efficient Lighting Equipment	Bi-Custom	Industrial	Retro	25%	10%	11%	12%	12%	11%	10%	9%	7%	6%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1855	Lighting	Efficient Lighting O&M	Bi-Custom	Industrial	Retro	25%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1856	Machine Drive	Efficient Motor O&M	Bi-Custom	Industrial	ROB	25%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1857	Machine Drive	Efficient Motor O&M	Bi-Custom	Industrial	Retro	25%	12%	13%	13%	12%	11%	10%	8%	6%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1858	Process Heat	Efficient Prochick Equipment	Bi-Custom	Industrial	ROB	25%	25%	32%	38%	42%	46%	49%	51%	52%	53%	54%	55%	56%	57%	58%	59%	60%	61%	62%	63%	64%	65%
1859	Process Heat	Efficient Prochick O&M	Bi-Custom	Industrial	Retro	25%	12%	13%	13%	12%	11%	10%	8%	6%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1860	Process Heat	Efficient Prochick Equipment	Bi-Custom	Industrial	ROB	25%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1861	Process Heat	Efficient Prochick O&M	Bi-Custom	Industrial	Retro	25%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1862	Other Process	Efficient Other Facility Process Equipment	Bi-Custom	Industrial	ROB	25%	12%	13%	13%	12%	11%	10%	8%	6%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1863	Other Process	Efficient Other Facility Process O&M	Bi-Custom	Industrial	Retro	25%	12%	13%	13%	12%	11%	10%	8%	6%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1864	Wholebuilding	Power Distribution (Transformers)	Bi-Custom	Industrial	Retro	25%	18%	17%	15%	13%	11%	10%	9%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1865	Wholebuilding	Strategic Energy Management	Bi-Custom SEM	Industrial	Retro	25%	15%	15%	14%	13%	11%	9%	7%	6%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1866	Motors	Efficient Motor Pmp Equipment - Q1 Cost	Bi-Agriculture	Agriculture	ROB	20%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1867	Motors	Efficient Motor Pmp Equipment - Q2 Cost	Bi-Agriculture	Agriculture	ROB	20%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1868	Motors	Efficient Motor Pmp Equipment - Q3 Cost	Bi-Agriculture	Agriculture	ROB	20%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1869	Motors	Efficient Motor Pmp O&M	Bi-Agriculture	Agriculture	Retro	20%	12%	13%	13%	12%	11%	10%	8%	6%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1870	Refrigeration	Efficient Refrigeration Equipment	Bi-Agriculture	Agriculture	ROB	20%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1871	Lighting	Efficient Lighting	Bi-Agriculture	Agriculture	Retro	20%	12%	13%	13%	12%	11%	10%	8%	6%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1872	Lighting	Grow Lighting	Bi-Agriculture	Agriculture	Retro	40%	26%	21%	17%	13%	10%	8%	6%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1873	Ventilation	Efficient Ventilation	Bi-Agriculture	Agriculture	Retro	20%	12%	13%	13%	12%	11%	10%	8%	6%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1874	HVAC	HVAC	Bi-Agriculture	Agriculture	ROB	20%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1	Compressed Air	Retro-commissioning Compressed Air Optimization	Bi-Custom RCX	Assembly	Retro	68%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
2	Compressed Air	Compressed Air Leak Repair	Bi-Custom	Assembly	Retro	68%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
3	Compressed Air	Efficient Air Control (VSD)	Bi-Standard	Assembly	ROB	68%	20%	13%	16%	13%	22%	25%	27%	30%	32%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
4	Compressed Air	AODD Pump Controls	Bi-Custom	Assembly	ROB	68%	20%	21%	17%	10%	10%	6%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
5	Compressed Air	No Lost Condensate Drain	Bi-Standard	Assembly	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
6	Compressed Air	Efficient Air Nozzles	Bi-Custom	Assembly	Retro	68%	10%	11%	12%	12%	11%	10%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
7	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Assembly	ROB	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	
8	Cooking	Commercial Electric Convection	Bi-Custom	Assembly	ROB	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	
9	Cooking	Commercial Electric Stand Cooker	Bi-Standard	Assembly	ROB	68%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	
11	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Assembly	ROB	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	
13	Cooking	Dishwasher/High Temp Door (Energy Star)	Bi-Custom	Assembly	ROB	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	
14	Cooking	Energy Efficient Electric Fryer	Bi-Custom	Assembly	ROB	68%	23%	27%	31%	36%	39%	43%	45%	47%	49%	50%	51%	52%	52%	52%	52%	52%	52%	52%	52%	52%	52%	
15	Cooking	Insulated Holding Cabinet (Full Size)	Bi-Standard	Assembly	ROB	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	28%	30%	31%	32%	32%	32%	33%	33%	33%	33%	33%	33%	
16	Cooking	Insulated Holding Cabinet (Half Size)	Bi-Standard	Assembly	ROB	68%	7%	9%	11%	14%	17%	20%	24%	27%	30%	32%	34%	36%	37%	38%	39%	39%	39%	39%	39%	39%	39%	
17	Cooking	AI Conditioner - 17 SEER (5-Tons)	Bi-Standard/SBDI	Assembly	ROB	68%	6%	8%	10%	13%	16%	20%	24%	28%	32%	35%	38%	40%	42%	44%	45%	46%	46%	46%	46%	46%		
18	Cooking	AI Conditioner - 18 SEER (5-Tons)	Bi-Standard/SBDI	Assembly	ROB	77%	10%	13%	16%	19%	22%	25%	28%	32%	36%	40%	44%	48%	51%	53%	55%	56%	56%	56%	56%	56%	56%	
19	Cooking	AI Conditioner - 24 SEER (5-Tons)	Bi-Standard/SBDI	Assembly	ROB	77%	10%	13%	16%	19%	22%	25%	28%	32%	36%	40%	44%	48%	51%	53%	55%	56%	56%	56%	56%	56%	56%	
20	Cooking	AI Conditioner - 24 SEER (5-Tons)	Bi-Standard/SBDI	Assembly	ROB	77%	10%	13%	16%	19%	22%	25%	28%	32%	36%	40%	44%	48%	51%	53%	55%	56%	56%	56%	56%	56%	56%	
21	Cooking	AI Conditioner - 15 SEER (2-Tons)	Bi-Standard	Assembly	ROB	77%	3%	5%	7%	9%	12%	15%	18%	21%	23%	26%	28%	30%	32%	34%	36%	37%	37%	37%	37%	37%	37%	
22	Cooking	AI Conditioner - 15 SEER (2-Tons)	Bi-Standard	Assembly	ROB	77%	3%	5%	7%	9%	12%	15%	18%	21%	23%	26%	28%	30%	32%	34%	36%	37%	37%	37%	37%	37%	37%	
23	Cooking	AI Conditioner - 17 SEER (2-Tons)	Bi-Standard	Assembly	ROB	77%	3%	5%	7%	9%	12%	15%	18%	21%	23%	26%	28%	30%	32%	34%	36%	37%	37%	37%	37%	37%	37%	
24	Cooking	AI Conditioner - 17 SEER (2-Tons)	Bi-Standard	Assembly	ROB	77%	3%	5%	7%	9%	12%	15%	18%	21%	23%	26%	28%	30%	32%	34%	36%	37%	37%	37%	37%	37%	37%	
25	Cooking	Air Side Economizer	Bi-Custom	Assembly	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
26	Cooking	Advanced RoofTop Controls	Bi-Custom	Assembly	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
27	Cooking	HVAC Occupancy Controls	Bi-Custom	Assembly	Retro	77%	7%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
28	Cooking	AI Conditioner - 16 SEER (5-Tons)	Bi-Standard/SBDI	Assembly	ROB	77%	15%	22%	25%	27%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
29	Cooking	AI Conditioner - 17 SEER (5-Tons)	Bi-Standard/SBDI	Assembly	ROB	77%	11%	14%	17%	21%	25%	29%	33%	37%	40%	43%	45%	46%	47%	48%	49%	49%	49%	49%	49%	49%		
30	Cooking	AI Conditioner - 18 SEER (5-Tons)	Bi-Standard/SBDI	Assembly	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	28%	29%	30%	31%	32%	32%	32%	32%	32%	32%	32%	32%	32%	
31	Cooking	AI Conditioner - 18 SEER (5-Tons)	Bi-Standard/SBDI	Assembly	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	28%	29%	30%	31%	32%	32%	32%	32%	32%	32%	32%	32%	32%	
32	Cooking	AI Conditioner - 21 SEER (5-Tons)	Bi-Standard/SBDI	Assembly	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	28%	29%	30%	31%	32%	32%	32%	32%	32%	32%	32%	32%	32%	
33	Cooking	Smart Thermostat	Bi-Custom	Assembly	ROB	77%	64%	66%	68%	69%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	
34	Cooking	PTAC - <7,000 Btu/h - loading	Bi-Custom	Assembly	ROB	77%	18%	21%	25%	28%	31%	34%	36%	37%	39%	40%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	
35	Cooking	PTAC - 7,000 to 15,000 Btu/h - loading	Bi-Custom	Assembly	ROB	77%	17%	20%	24%	27%	30%	32%	34%	36%	37%	39%	40%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	
36	Cooking	PTAC - >15,000 Btu/h - loading	Bi-Custom	Assembly	ROB	77%	17%	20%	24%	27%	30%	32%	34%	36%	37%	39%	40%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	
37	Cooking	AI Cooled Chiller	Bi-Standard	Assembly	ROB	77%	4%	6%	7%	8%	9%	10%	11%	12%	14%	16%	18%	19%	20%	20%	20%	20%	20%	20%	20%	20%	20%	
38	Cooking	Water Cooled Chiller	Bi-Standard	Assembly	ROB	77%	4%	6%	7%	8%	9%	10%	11%	12%	14%	16%	18%	19%	20%	20%	20%	20%	20%	20%	20%	20%		
39	Cooking	Chiller Tune-up	Bi-Custom	Assembly	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
40	Cooking	Chiller Tune-up	Bi-Custom	Assembly	Retro	77%	1%	2%	3%	4%	5%	7%	9%	11%	13%	15%	17%	19%	20%	21%	22%	23%	24%	24%	25%	25%		
41	Cooking	Energy Recovery Ventilator	Bi-Custom	Assembly	ROB	77%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	0%	
42	Exterior Lighting	LED <=130 Watt Lamp or Fixture Replacing Incandescent or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
43	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Incandescent or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
44	Exterior Lighting	LED62 - 130 Watt Lamp or Fixture Replacing Incandescent or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
45	Exterior Lighting	LED85 - 225 Watt Lamp or Fixture Replacing Incandescent or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
46	Exterior Lighting	LED85 - 225 Watt Lamp or Fixture Replacing Incandescent or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
47	Exterior Lighting	LED85 - 225 Watt Lamp or Fixture Replacing Incandescent or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Assembly	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
48	Heating	Bi-Level Lighting Fixture - Garages	Bi-Custom	Assembly	Retro	68%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
49	Heating	Heat Pump - 16 SEER (5-Tons)	Bi-Standard	Assembly	ROB	68%	5%	6%	8%	10%	12%	15%	17%	19%	21%	23%	24%	26%	26%	26%	27%	28%	28%	28%	28%	28%	28%	
50	Heating	Heat Pump - 17 SEER (5-Tons)	Bi-Standard	Assembly	ROB	68%	5%	6%	8%	10%	12%	15%	17%	19%	21%	23%	24%	26%	26%	26%	27%	28%	28%	28%	28%	28%	28%	
51	Heating	Heat Pump - 18 SEER (5-Tons)	Bi-Standard	Assembly	ROB	68%	5%	6%	8%	10%	12%	15%	17%	19%	21%	23%	24%	26%	26%	26%	27%	28%	28%	28%	28%	28%	28%	
52	Heating	Heat Pump - 21 SEER (5-Tons)	Bi-Standard	Assembly	ROB	68%	4%	5%	7%	9%	11%	14%	17%	19%	21%	23%	24%	26%	26%	26%	27%	28%	28%	28%	28%	28%	28%	
53	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	Assembly	ROB	68%	4%	5%	7%	9%	11%	14%	17%	19%	21%	23%	24%	26%	26%	26%	27%	28%	28%	28%	28%	28%	28%	
54	Heating	Heat Pump - 16.0 IEER COP 3.6 (6,500-134,000 Btu/h)	Bi-Standard	Assembly	ROB																							

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
76	Inter Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR48-80 Watt Lamp or Fixture	Bi-Standard/SBDI	Assembly	Retro	77%	26%	21%	17%	13%	10%	8%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
77	Inter Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Bi-Standard/SBDI	Assembly	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
78	Inter Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 175-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Assembly	Retro	77%	12%	13%	12%	11%	10%	10%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
79	Inter Lighting	LED <=225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi-Standard/SBDI	Assembly	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
80	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Assembly	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
81	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Assembly	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
82	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Bi-Standard/SBDI	Assembly	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
83	Inter Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Bi-Standard/SBDI	Assembly	Retro	77%	12%	13%	12%	11%	10%	10%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
84	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Assembly	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
85	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Assembly	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
86	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Bi-Standard/SBDI	Assembly	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
87	Inter Lighting	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Bi-Standard/SBDI	Assembly	Retro	77%	12%	13%	12%	11%	10%	10%	10%	8%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
88	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Assembly	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
89	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Assembly	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
90	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type C)	Bi-Standard/SBDI	Assembly	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
91	Inter Lighting	LED Replacing Interior T5 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Assembly	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
92	Inter Lighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Standard	Assembly	Retro	77%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
93	Inter Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Bi-Standard/SBDI	Assembly	Retro	77%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
94	Inter Lighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Bi-Standard/SBDI	Assembly	Retro	77%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%
95	Inter Lighting	Lighting Power Density	Bi-Custom	Assembly	Retro	77%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	0%	0%	0%
96	Inter Lighting	LED Lighting Redesign/Custom	Bi-Standard	Assembly	Retro	86%	57%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
97	Inter Lighting	LED or Electroluminescent Replacing Interior Incandescent/ CFL Exit Sign	Bi-Standard/SBDI	Assembly	Retro	68%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
98	Miscellaneous	Vending Machine Controller - Non Refrigerated	Bi-Custom	Assembly	ROB	68%	10%	11%	12%	11%	10%	10%	10%	9%	8%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%
99	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Assembly	ROB	68%	3%	4%	6%	6%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
100	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Assembly	ROB	68%	10%	11%	12%	12%	11%	10%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%
101	Miscellaneous	Ozone Commercial Laundry	Bi-Custom	Assembly	ROB	79%	69%	72%	74%	75%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%
102	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Bi-Custom	Assembly	ROB	68%	19%	23%	28%	32%	36%	40%	44%	46%	49%	50%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%
103	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Assembly	ROB	68%	19%	23%	27%	32%	37%	41%	43%	46%	48%	49%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%
104	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Assembly	ROB	68%	19%	23%	27%	32%	36%	40%	43%	46%	48%	49%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%
105	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	Assembly	ROB	68%	19%	23%	27%	32%	36%	40%	43%	46%	48%	49%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%
106	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Assembly	ROB	68%	19%	23%	27%	32%	36%	40%	43%	46%	48%	49%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%
107	Miscellaneous	High Efficiency Dryer	Bi-Custom	Assembly	ROB	68%	18%	21%	27%	31%	35%	39%	42%	45%	47%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%
108	Miscellaneous	Miscellaneous Custom	Bi-Custom	Assembly	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%
109	Motors	Caged V-belt	Bi-Custom	Assembly	Retro	68%	3%	4%	4%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
110	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Standard	Assembly	Retro	68%	3%	4%	4%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
111	Motors	Power Drive Systems	Bi-Custom	Assembly	Retro	68%	3%	4%	4%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
112	Motors	Switch Reluctance Motors	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
113	Motors	Exhaust Blowers	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
114	Office, NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Assembly	Retro	93%	89%	91%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
115	Office, NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Assembly	Retro	68%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
116	Office, NonPC	Plug Load Occupancy Sensor	Bi-Custom	Assembly	Retro	68%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
117	Office, PC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
118	Office, PC	Energy Star Server	Bi-Custom	Assembly	ROB	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
119	Office, PC	Server Virtualization	Bi-Custom	Assembly	ROB	68%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
120	Office, PC	High Efficiency Computer	Bi-Custom	Assembly	ROB	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
121	Office, PC	Energy Star Desktop	Bi-Custom	Assembly	Retro	68%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
122	Office, PC	Data Center/Cold Aisle Configuration	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
123	Office, PC	Energy Star Laptop	Bi-Custom	Assembly	ROB	90%	25%	31%	36%	40%	45%	50%	55%	60%	67%	72%	77%	80%	83%	85%	87%	88%	88%	88%	88%	88%
124	Office, PC	Energy Star Monitor	Bi-Custom	Assembly	ROB	90%	25%	31%	36%	40%	45%	50%	55%	60%	67%	72%	77%	80%	83%	85%	87%	88%	88%	88%	88%	88%
125	Refrigeration	Strip Curtains	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
126	Refrigeration	Base Suction Line	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
127	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
128	Refrigeration	Saturated Suction Controls	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
129	Refrigeration	Compressor Retrofit	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
130	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Assembly	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
131	Refrigeration	Evaporator Fan Motor																								

Appendix C. Business Program RAP Annual Penetration %

Ameren Missour 2023 DSM Market Potential Study

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
153	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Assembly	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
154	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Assembly	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
155	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Assembly	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
156	WholeBldg HVAC	HVAC Energy Management System	Bi-Standard	Assembly	Retro	68%	4%	4%	4%	5%	7%	10%	10%	9%	9%	9%	8%	7%	6%	5%	4%	3%	3%	2%	1%	0%	
157	WholeBldg HVAC	Cool Roof	Bi-Custom	Assembly	Retro	68%	4%	4%	4%	5%	7%	10%	10%	9%	9%	9%	8%	7%	6%	5%	4%	3%	3%	2%	1%	0%	
158	WholeBldg HVAC	Retro-commissioning, Bld Optimization	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
159	Wholebuilding	WholeBldg - Com RET	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
160	Wholebuilding	WholeBldg - Custom (Other)	Bi-Custom	Assembly	Retro	68%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
161	Wholebuilding	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Assembly	Retro	68%	15%	13%	14%	13%	11%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
162	WholeBldg HVAC	WholeBldg - Com NC	Bi-Custom	Assembly	NC	72%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
163	Behavioral	COM Competitions	Bi-Custom	Assembly	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%
164	Behavioral	Business Energy Reports	Bi-Custom	Assembly	Retro	50%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%
165	Behavioral	Building Benchmarking	Bi-Custom	Assembly	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%
166	Behavioral	Strategic Energy Management	Bi-Custom	Assembly	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%
167	Behavioral	BEHS	Bi-Custom	Assembly	Retro	38%	3%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%
168	Behavioral	Building Operator Certification	Bi-Custom	Assembly	Retro	38%	3%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%
169	Behavioral	Retro-commissioning, Compressed Air Optimization	Bi-Custom	Assembly	Retro	38%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
170	Compressor	Compressed Air Leak Repair	Bi-Custom	Education	Retro	68%	20%	18%	16%	13%	11%	9%	7%	5%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
171	Compressor	Efficient A/C Compressors (VSD)	Bi-Standard	Education	Retro	68%	10%	13%	16%	19%	22%	25%	27%	30%	32%	33%	34%	33%	30%	26%	22%	18%	16%	16%	16%	16%	16%
172	Compressor	ACOD Pump Controls	Bi-Standard	Education	Retro	68%	26%	21%	17%	13%	10%	8%	6%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
173	Compressor	No Loss Condensate Drain	Bi-Standard	Education	Retro	68%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
174	Compressor	Compressor - Full-Custom	Bi-Standard	Education	Retro	68%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
175	Compressor	Compressed Air - Custom	Bi-Custom	Education	Retro	68%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
176	Compressor	Commercial Compressor (Other)	Bi-Custom	Education	Retro	68%	15%	12%	11%	10%	9%	8%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
177	Cooking	Commercial Range Hood	Bi-Custom	Education	Retro	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
178	Cooking	Commercial Electric Griddle	Bi-Custom	Education	Retro	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
179	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Education	Retro	68%	15%	19%	23%	28%	33%	37%	41%	44%	47%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%
180	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Education	Retro	68%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
181	Cooking	Dishwasher - Low Temp Door Energy Star	Bi-Custom	Education	Retro	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%
182	Cooking	Energy Efficient electric fryer	Bi-Custom	Education	Retro	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%
183	Cooking	Energy Efficient electric fryer	Bi-Custom	Education	Retro	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%
184	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Education	Retro	68%	7%	9%	11%	14%	17%	20%	22%	24%	27%	29%	30%	31%	32%	32%	32%	32%	32%	32%	32%	32%	32%
185	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Education	Retro	68%	7%	9%	11%	14%	17%	20%	22%	24%	27%	29%	30%	31%	32%	32%	32%	32%	32%	32%	32%	32%	32%
186	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Education	Retro	68%	6%	8%	10%	13%	16%	20%	24%	28%	32%	36%	38%	40%	42%	44%	45%	46%	46%	46%	46%	46%	46%
187	Cooking	A/C Conditioner - 17.1ER (5-20 Tons)	Bi-Standard/SBDI	Education	Retro	77%	10%	13%	16%	19%	22%	25%	28%	31%	32%	34%	35%	36%	36%	37%	37%	37%	37%	37%	37%	37%	37%
188	Cooking	A/C Conditioner - 18.1ER (5-20 Tons)	Bi-Standard/SBDI	Education	Retro	77%	10%	13%	16%	19%	22%	25%	28%	31%	32%	34%	35%	36%	36%	37%	37%	37%	37%	37%	37%	37%	37%
189	Cooking	A/C Conditioner - 21.1ER (5-20 Tons)	Bi-Standard/SBDI	Education	Retro	77%	10%	13%	16%	19%	22%	25%	28%	31%	32%	34%	35%	36%	36%	37%	37%	37%	37%	37%	37%	37%	37%
190	Cooking	A/C Conditioner - 14.3 BEER (20+ Tons)	Bi-Standard	Education	Retro	77%	3%	5%	7%	9%	12%	15%	19%	23%	28%	32%	36%	36%	40%	44%	46%	49%	50%	52%	53%	53%	53%
191	Cooking	A/C Conditioner - 15.1ER (20+ Tons)	Bi-Standard	Education	Retro	77%	3%	5%	7%	9%	12%	15%	19%	23%	28%	32%	36%	36%	40%	44%	46%	49%	50%	52%	53%	53%	53%
192	Cooking	A/C Conditioner - 17.1ER (20+ Tons)	Bi-Standard	Education	Retro	77%	3%	4%	6%	8%	11%	14%	18%	22%	27%	31%	36%	34%	38%	41%	44%	46%	47%	49%	49%	50%	50%
193	Cooking	Comprehensive Rooftop Unit Quality Maintenance (ACTune-up)	Bi-Custom	Education	Retro	77%	20%	18%	16%	12%	10%	8%	6%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
194	Cooking	Air Side Economizer	Bi-Custom	Education	Retro	77%	20%	18%	16%	12%	10%	8%	6%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
195	Cooking	Advanced Rooftop Controls	Bi-Standard/SBDI	Education	Retro	77%	18%	17%	15%	12%	11%	10%	9%	7%	5%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
196	Cooking	HVAC Occupancy Controls	Bi-Standard/SBDI	Education	Retro	77%	18%	17%	15%	12%	11%	10%	9%	7%	5%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
197	Cooking	A/C Conditioner - 16.5ER (5 Tons)	Bi-Standard/SBDI	Education	Retro	77%	11%	14%	17%	21%	25%	29%	33%	37%	40%	42%	44%	46%	47%	48%	49%	49%	49%	49%	49%	49%	
198	Cooking	A/C Conditioner - 17.5ER (5 Tons)	Bi-Standard/SBDI	Education	Retro	77%	11%	14%	17%	21%	25%	29%	33%	37%	40%	42%	44%	46%	47%	48%	49%	49%	49%	49%	49%	49%	
199	Cooking	A/C Conditioner - 18.5ER (5 Tons)	Bi-Standard/SBDI	Education	Retro	77%	12%	15%	17%	19%	21%	23%	24%	26%	28%	29%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
200	Cooking	A/C Conditioner - 21.5ER (5 Tons)	Bi-Standard/SBDI	Education	Retro	77%	12%	15%	17%	19%	21%	23%	24%	26%	28%	29%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
201	Cooking	Smart Thermostat	Bi-Standard/SBDI	Education	Retro	77%	22%	25%	28%	31%	32%	33%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%
202	Cooking	Smart Thermostat	Bi-Standard/SBDI	Education	Retro	77%	18%	21%	24%	28%	31%	32%	33%	35%	37%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
203	Cooking	PTAC - 17.000 Btu/h - In-bldg	Bi-Custom	Education	Retro	77%	20%	21%	22%	23%	24%	25%	26%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
204	Cooking	PTAC - 15.000 Btu/h - In-bldg	Bi-Custom	Education	Retro	77%	18%	22%	26%	30%	34%	38%	41%	44%	46%	47%	49%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
205	Cooking	Air Cooled Chiller	Bi-Standard	Education	Retro	77%	4%	6%	7%	9%	12%	14%	17%	20%	23%	26%	29%	31%	33%	34%	34%	34%	34%	34%	34%	34%	
206	Cooking	Water Cooled Chiller	Bi-																								

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
230	Heating	PTIP <=2000 Btu/h - Heating	Bi-Custom	Education	ROB	68%	19%	23%	26%	28%	31%	34%	34%	35%	36%	37%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
231	Heating	PTIP - 2000 to 15,000 Btu/h - Heating	Bi-Custom	Education	ROB	68%	19%	21%	20%	30%	34%	37%	40%	43%	45%	47%	48%	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%
232	Heating	PTIP - 15,000 Btu/h - Heating	Bi-Custom	Education	ROB	68%	11%	14%	18%	22%	26%	30%	34%	38%	41%	44%	46%	47%	49%	51%	52%	53%	54%	54%	54%	54%	54%
233	Hot Water	Rec-Stand Pump/Water Heater	Bi-Custom	Education	ROB	68%	9%	12%	15%	19%	23%	28%	33%	37%	41%	44%	47%	49%	51%	52%	53%	54%	54%	54%	54%	54%	54%
234	Hot Water	Commercial-Size HP/WH	Bi-Custom	Education	ROB	68%	36%	28%	21%	15%	10%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
235	Hot Water	Hot Water Pipe Insulation	Bi-Custom	Education	ROB	68%	36%	28%	21%	15%	10%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
236	Hot Water	Facet Aerator	Bi-Custom	Education	ROB	68%	36%	28%	21%	15%	10%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
237	Hot Water	Low Flow Pre-Rinse Sprayers	Bi-Custom	Education	ROB	90%	83%	85%	87%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
238	Hot Water	ENERGY STAR Commercial Washing Machines	Bi-Custom	Education	ROB	90%	83%	85%	87%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
239	Intercooling	LED <=11 Watt Lamp Replacing Interior Halogen A, 28-52 Watt Lamp	Bi-Custom	Education	ROB	77%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
240	Intercooling	LED 7-20 Watt Lamp Replacing Interior Halogen B, 30-70 Watt Lamp	Bi-Custom	Education	ROB	77%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
241	Intercooling	LED Specialty Lamp	Bi-Custom	Education	ROB	77%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
242	Intercooling	LED <=14 Watt Lamp Replacing Interior Halogen BR/4, 45-65 Watt Lamp	Bi-Custom	Education	ROB	77%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
243	Intercooling	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	Bi-Custom	Education	ROB	77%	26%	21%	17%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
244	Intercooling	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	Bi-Custom	Education	ROB	77%	26%	21%	17%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
245	Intercooling	LED <=30 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Bi-Custom	Education	ROB	77%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
246	Intercooling	LED <=21 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi-Custom	Education	ROB	77%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
247	Intercooling	LED <=22 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	Bi-Custom	Education	ROB	77%	12%	13%	13%	12%	11%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
248	Intercooling	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID	Bi-Custom	Education	ROB	77%	20%	18%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
249	Intercooling	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	Bi-Custom	Education	ROB	77%	20%	18%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
250	Intercooling	LED Replacing Interior T5 Fluorescent (Type B, RIs, and Fixtures)	Bi-Custom	Education	ROB	77%	20%	18%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
251	Intercooling	LED Replacing Interior T5 Fluorescent (Type C, RIs, and Fixtures)	Bi-Custom	Education	ROB	77%	20%	18%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
252	Intercooling	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	Bi-Custom	Education	ROB	77%	12%	13%	13%	12%	11%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
253	Intercooling	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	Bi-Custom	Education	ROB	77%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
254	Intercooling	LED Replacing Interior T8 Fluorescent (Type B, RIs, and Fixtures)	Bi-Custom	Education	ROB	77%	20%	18%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
255	Intercooling	LED Replacing Interior T8 Fluorescent (Type C)	Bi-Custom	Education	ROB	77%	20%	18%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
256	Intercooling	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Custom	Education	ROB	77%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
257	Intercooling	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Custom	Education	ROB	77%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
258	Intercooling	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	Bi-Custom	Education	ROB	77%	23%	20%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
259	Intercooling	LED Replacing Interior T12 Fluorescent (Type B, RIs, and Fixtures)	Bi-Custom	Education	ROB	77%	20%	18%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
260	Intercooling	LED Replacing Interior T12 Fluorescent (Type C)	Bi-Custom	Education	ROB	77%	20%	18%	16%	13%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
261	Intercooling	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Custom	Education	ROB	77%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
262	Intercooling	Fixture Mounted Occupancy Sensor Controlling <=60 Watts	Bi-Custom	Education	ROB	77%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
263	Intercooling	Remote Mounted Occupancy Sensor Controlling >150 Watts	Bi-Custom	Education	ROB	77%	10%	11%	12%	12%	11%	10%	9%	7%	5%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%
264	Intercooling	LED Lighting Redesign/Cabin	Bi-Custom	Education	ROB	77%	5%	6%	7%	8%	9%	10%	10%	9%	7%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%
265	Intercooling	LED or Electrochromic Replacing Interior Incandescent/CFL Exit Sign	Bi-Custom	Education	ROB	86%	57%	43%	30%	20%	14%	10%	8%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
266	Miscellaneous	Vending Machine Controller - Non-Refilligated	Bi-Custom	Education	ROB	68%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
267	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Custom	Education	ROB	68%	3%	4%	6%	8%	11%	14%	18%	22%	26%	30%	34%	38%	41%	44%	46%	48%	49%	50%	50%	50%	50%
268	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Education	ROB	68%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
269	Miscellaneous	Onsite Commercial Laundry	Bi-Custom	Education	ROB	68%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
270	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Bi-Custom	Education	ROB	79%	69%	19%	23%	28%	32%	36%	40%	44%	46%	49%	50%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%
271	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	Education	ROB	68%	19%	23%	27%	32%	36%	40%	43%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	
272	Miscellaneous	Pool Heater Pump (Uncovered)	Bi-Custom	Education	ROB	68%	19%	23%	27%	32%	36%	40%	43%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	
273	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Education	ROB	68%	19%	23%	27%	32%	36%	40%	43%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	
274	Miscellaneous	High Efficiency Drive	Bi-Custom	Education	ROB	68%	18%	22%	27%	31%	35%	39%	42%	45%	47%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%
275	Miscellaneous	Miscellaneous Custom	Bi-Custom	Education	ROB	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	
276	Miscellaneous	Cogged V-Belt	Bi-Custom	Education	ROB	68%	8%	9%	10%	11%	10%	9%	7%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
277	Notes	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Custom	Education	ROB	68%	8%	9%	10%	11%	10%	9%	7%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
278	Notes	Power Drive Systems	Bi-Custom	Education	ROB	68%	8%	9%	10%	11%	10%	9%	7%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
279	Notes	Switch Reluctance Motors	Bi-Custom	Education	ROB	68%	8%	9%	10%	11%	10%	9%	7%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
280	Notes	Exhaustor Motor Efficiency Controllers	Bi-Custom	Education	ROB	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%
281	Office, NonPC	Software Upgrade/Peripheral Use	Bi-Custom	Education	ROB	93%	89%	91%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
282	Office, NonPC	Software Upgrade/Peripheral Use	Bi-Custom	Education	ROB	93%																					

Appendix C. Business Program RAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
306	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Education	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	60%	61%	62%	63%
307	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Standard	Education	ROB	68%	2%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
308	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Custom	Education	Retro	83%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
309	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Education	Retro	68%	1%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
310	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Education	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	60%	61%	62%	63%
311	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Education	ROB	68%	1%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
312	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi-Custom	Education	ROB	68%	2%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
313	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi-Custom	Education	Retro	68%	2%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
314	Refrigeration	Energy Star Ice Machine	Bi-Custom	Education	ROB	68%	1%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
315	Refrigeration	STAR Refrigerated Vending Machine	Bi-Custom	Education	ROB	68%	1%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
316	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Education	ROB	68%	1%	3%	3%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
317	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Bi-Custom	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
318	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
319	Ventilation	Demand Controlled Ventilation	Bi-Standard	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
320	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
321	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Education	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
322	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Education	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
323	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Education	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
324	Wholesale HVAC	HVAC - Energy Management System	Bi-Custom	Education	Retro	68%	6%	7%	9%	10%	10%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%
325	Wholesale HVAC	Retro-commissioning, Bldg Optimization	Bi-Custom	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
326	Wholesale HVAC	Wholesaler - Conduit	Bi-Custom	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
327	Wholesale HVAC	Wholesaler - Conduit	Bi-Custom	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
328	Wholesale HVAC	Wholesaler - Conduit	Bi-Custom	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
329	Wholesale HVAC	Wholesaler - Conduit	Bi-Custom	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
330	Wholesale HVAC	Wholesaler - Conduit	Bi-Custom	Education	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
331	Behavioral	Business Energy Reports	Bi-Custom	Education	Retro	50%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
332	Behavioral	Business Energy Reports	Bi-Custom	Education	Retro	50%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
333	Behavioral	Building Benchmarking	Bi-Custom	Education	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
334	Behavioral	Strategic Energy Management	Bi-Custom	Education	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
335	Behavioral	BEMS	Bi-Custom	Education	Retro	38%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
336	Behavioral	Building Operator Certification	Bi-Custom	Education	Retro	38%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
337	Behavioral	BEAMS	Bi-Custom	Education	Retro	38%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
338	Compressed Air	Retro-commissioning, Compressed Air Optimization	Bi-Custom	Food Sales	Retro	68%	18%	17%	15%	13%	11%	9%	7%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
339	Compressed Air	Compressed Air Leak Repair	Bi-Custom	Food Sales	Retro	68%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
340	Compressed Air	Efficient Air Compressors (VSD)	Bi-Standard	Food Sales	ROB	68%	10%	13%	16%	19%	22%	25%	27%	30%	32%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%
341	Compressed Air	AODD Pump Controls	Bi-Custom	Food Sales	Retro	68%	28%	21%	17%	13%	10%	8%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
342	Compressed Air	No Loss Condensate Drain	Bi-Standard	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
343	Compressed Air	Efficient Air Nozzles	Bi-Standard	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
344	Compressed Air	Compressed Air - Custom	Bi-Custom	Food Sales	ROB	68%	11%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%
345	Compressed Air	Commercial Combination Oven (Electric)	Bi-Custom	Food Sales	ROB	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
346	Cooking	Commercial Electric Convection Oven	Bi-Custom	Food Sales	ROB	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
347	Cooking	Commercial Electric Convection Oven	Bi-Custom	Food Sales	Retro	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
348	Cooking	Commercial Electric Steam Cooker	Bi-Standard	Food Sales	ROB	68%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
349	Cooking	Dishwasher, Low Temp Door (Energy Star)	Bi-Custom	Food Sales	ROB	78%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%
350	Cooking	Energy Efficient Electric Fryer	Bi-Custom	Food Sales	ROB	68%	23%	27%	31%	36%	39%	43%	45%	47%	49%	49%	50%	51%	52%	52%	52%	52%	52%	52%	52%	52%
351	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Food Sales	ROB	68%	7%	9%	11%	14%	17%	20%	22%	23%	24%	25%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%
352	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Food Sales	ROB	68%	7%	9%	11%	14%	17%	20%	22%	23%	24%	25%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%
353	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Food Sales	ROB	68%	7%	9%	11%	14%	17%	20%	22%	23%	24%	25%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%
354	Cooking	Air Conditioner - 14 SEER (5-Tons)	Bi-Standard	Food Sales	ROB	68%	12%	15%	18%	20%	23%	26%	28%	30%	31%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
355	Cooking	Air Conditioner - 14 SEER (5-Tons)	Bi-Standard	Food Sales	ROB	77%	12%	15%	18%	21%	24%	26%	28%	30%	31%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
356	Cooking	Air Conditioner - 14 SEER (5-Tons)	Bi-Standard	Food Sales	ROB	77%	12%	15%	18%	21%	24%	26%	28%	30%	31%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
357	Cooking	Air Conditioner - 14 SEER (5-Tons)	Bi-Standard	Food Sales	ROB	77%	12%	15%	18%	21%	24%	26%	28%	30%	31%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
358	Cooking	Air Conditioner - 14 SEER (5-Tons)	Bi-Standard	Food Sales	ROB	77%	3%	4%	6%	8%	11%	14%	18%	22%	26%	31%	32%	33%	33%	34%	34%	34%	34%	34%	34%	34%
359	Cooking	Air Conditioner - 14 SEER (5-Tons)	Bi-Standard	Food Sales	ROB	77%	3%	4%	6%	8%	11%	14%	18%	22%	26%	31%	32%	33%	33%	34%	34%	34%	34%	34%	34%	34%
360	Cooking	Air Conditioner - 17 SEER (20-Tons)	Bi-Standard	Food Sales	ROB	77%	2%	4%	6%	8%	11%	14%	17%	21%	25%	29%	30%	30%	31%	31%	31%	31%	31%	31%	31%	31%
361	Cooking	Air Conditioner - 17 SEER (20-Tons)	Bi-Standard	Food Sales	ROB	77%	2%	4%	6%	8%	11%</															

Appendix C. Business Program RAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
458	Office, P.C.	Data Center Hot/Cold Aisle Configuration	Bi-Custom	Food Sales	Retro	68%	25%	31%	36%	40%	43%	50%	6%	6%	7%	8%	8%	8%	8%	6%	6%	5%	4%	3%	2%	1%	
459	Office, P.C.	Energy Star Laptop	Bi-Custom	Food Sales	Retro	90%	25%	31%	36%	40%	53%	60%	67%	72%	77%	80%	83%	83%	83%	83%	80%	88%	88%	88%	88%	88%	
460	Office, P.C.	Energy Star Monitor	Bi-Custom	Food Sales	Retro	90%	25%	31%	36%	40%	53%	60%	67%	72%	77%	80%	83%	83%	83%	80%	88%	88%	88%	88%	88%	88%	
461	Refrigeration	Strip Curtains	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	5%	6%	6%	7%	8%	8%	9%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
462	Refrigeration	Bare Suction Line	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
463	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
464	Refrigeration	Saturated Suction Controls	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
465	Refrigeration	Compressor Retrofit	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
466	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Custom	Food Sales	Retro	85%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
467	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
468	Refrigeration	Variable Speed Compressor Fan	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
469	Refrigeration	Refrigeration Evaporator Fan	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
470	Refrigeration	Anti-Sweat Heater Controls M/T	Bi-Custom	Food Sales	Retro	83%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
471	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
472	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	Food Sales	Retro	86%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
473	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
474	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Custom	Food Sales	Retro	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	57%	60%	61%	62%	63%	63%	
475	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Custom	Food Sales	Retro	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	57%	60%	61%	62%	63%	63%	
476	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
477	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
478	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Custom	Food Sales	Retro	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	57%	60%	61%	62%	63%	63%	
479	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Custom	Food Sales	Retro	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	57%	60%	61%	62%	63%	63%	
480	Refrigeration	Refrigeration - Combus	Bi-Custom	Food Sales	Retro	68%	1%	2%	3%	3%	4%	4%	5%	5%	6%	6%	7%	7%	7%	7%	6%	6%	4%	3%	2%	1%	
481	Refrigeration	Retro-Commissioning, Refrigerant Optimization	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
482	Refrigeration	ESR Refrigerant Vending Machine	Bi-Custom	Food Sales	Retro	68%	1%	3%	5%	7%	9%	12%	15%	18%	24%	29%	33%	38%	42%	45%	48%	50%	52%	54%	55%	55%	
483	Refrigeration	ESR Refrigerant Vending Machine	Bi-Custom	Food Sales	Retro	68%	1%	2%	4%	5%	7%	10%	12%	15%	19%	23%	26%	30%	33%	36%	38%	40%	41%	42%	43%	44%	
484	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
485	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
486	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
487	Ventilation	Demand Controlled Ventilation	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
488	Ventilation	Pump and Fan Variable Frequency Drive Controls (fans)	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
489	Ventilation	High Volume Low Speed Fan, 20	Bi-Custom	Food Sales	Retro	68%	3%	4%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
490	Ventilation	High Volume Low Speed Fan, 20	Bi-Custom	Food Sales	Retro	68%	3%	4%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
491	Ventilation	High Volume Low Speed Fan, 24	Bi-Custom	Food Sales	Retro	68%	3%	4%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
492	WholeBldg./HVAC	HVAC - Energy Management System	Bi-Custom	Food Sales	Retro	68%	4%	4%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
493	WholeBldg./HVAC	Cool Roof	Bi-Custom	Food Sales	Retro	68%	8%	9%	10%	11%	11%	12%	13%	14%	15%	16%	16%	17%	17%	18%	18%	19%	19%	20%	20%	20%	
494	WholeBldg./HVAC	Retro-commissioning, Bid Optimization	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
495	WholeBuilding	Wholesale - Com RET	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
496	WholeBuilding	Wholesale - Custom (Other)	Bi-Custom	Food Sales	Retro	68%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	7%	6%	6%	4%	3%	2%	1%	
497	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Food Sales	NC	72%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
498	Behavioral	COM Competitions	Bi-Custom	Food Sales	Retro	38%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%
499	Behavioral	Business Energy Reports	Bi-Custom	Food Sales	Retro	50%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%
500	Behavioral	Building Benchmarking	Bi-Custom	Food Sales	Retro	38%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%
501	Behavioral	Strategic Energy Management	Bi-Custom	Food Sales	Retro	38%	2%	3%	3%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%
502	Behavioral	BEMS	Bi-Custom	Food Sales	Retro	38%	3%	4%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
503	Behavioral	Building Operator Certification	Bi-Custom	Food Sales	Retro	38%	3%	4%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
504	Behavioral	Compressor	Bi-Custom	Food Sales	Retro	38%	3%	4%	4%	4%	5%	6%	6%	7%	8%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	
505	CompressedAir	Retro-commissioning, Compressed Air Optimization	Bi-Custom	Food Service	Retro	68%	20%	18%	17%	15%	14%	13%	12%	11%	10%	9%	8%	8%	8%	7%	6%	6%	5%	4%	3%	2%	
506	CompressedAir	Efficient Air Leaks Repairs (ALS)	Bi-Custom	Food Service	Retro	68%	20%	18%	17%	15%	14%	13%	12%	11%	10%	9%	8%	8%	8%	7%	6%	6%	5%	4%	3%	2%	
507	CompressedAir	AQSD Energy Controls	Bi-Custom	Food Service	Retro	68%	10%	13%	16%	18%	22%	25%	27%	30%	32%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	
508	CompressedAir	No Leak Condensate Drain	Bi-Custom	Food Service	Retro	68%	26%	21%	17%	13%	10%	8%	6%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
509	CompressedAir	Efficient Air Nozzles	Bi-Custom	Food Service	Retro	68%	5%	6%	7%	8%	9%	10%	10%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
510	CompressedAir	Compressed Air - Custom	Bi-Custom	Food Service	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
511	Cooking	Commercial Combination Oven (Electric)	Bi-Custom	Food Service	Retro	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	
512	Cooking	Commercial Electric Convection Oven	Bi-Custom	Food Service	Retro	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	
513	Cooking	Commercial Electric Griddle	Bi-Custom	Food Service	Retro	68%	15%	19%	23%	28%	33%	37%	41%	44%	47%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	
514	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Food Service	Retro	68%	29%	34%	38%	42%	46%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%	54%	54%	54%	
515	Cooking	Dishwasher - Low Temp Door (Energy Star)	Bi-Custom	Food Service	Retro	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	
516	Cooking	Dishwasher - High Temp Door (Energy Star)	Bi-Custom	Food Service	Retro	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	
517	Cooking	Energy Efficient electric fryer	Bi-Custom	Food Service	Retro	68%	23%	27%	31%	36%	39%	43%	45%	47%	49%	50%	51%	52%	52%	52%	52%	52%	52%	52%	52%	52%	
518	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Custom	Food Service	Retro	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	28%	30%	31%	32%	32%	32%	33%	33%	33%	33%	33%	
519	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Custom	Food Service	Retro	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	28%	30%	31%	32%	32%	32%	33%	33%	33%	33%	33%	
520	Cooking	Insulated Holding Cabinets (EAM Size)	Bi-Custom	Food Service	Retro	68%	6%	8%	10%	13%	16%	20%	24%	27%	30%	32%	34%	36%	37%	38%	39%	39%	39%	39%	39%	39%	
521	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Custom	Food Service	Retro	68%	6%	8%	10%	13%	16%	20%	24%	27%	30%	32%	34%	36%	37%	38%	39%	39%	39%	39%			

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
539	Cooling	PTAC >15,000 Btu/h - bagging	Bi-Custom	Food Service	ROB	77%	18%	22%	27%	31%	35%	39%	42%	45%	47%	48%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%	51%
540	Cooling	Air-Cooled Chiller	Bi-Standard	Food Service	ROB	77%	7%	6%	6%	7%	8%	12%	15%	18%	20%	23%	23%	24%	25%	26%	28%	28%	28%	28%	28%	28%	28%
541	Cooling	Water Cooled Chiller	Bi-Standard	Food Service	ROB	77%	7%	2%	5%	8%	11%	14%	17%	20%	23%	27%	29%	32%	34%	35%	37%	38%	38%	39%	39%	39%	39%
542	Cooling	Chiller Tune-Up	Bi-Custom	Food Service	ROB	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%	0%
543	Cooling	Window Film	Bi-Custom	Food Service	ROB	77%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
544	Cooling	Triple Pane Windows	Bi-Custom	Food Service	ROB	77%	1%	2%	3%	4%	5%	7%	9%	11%	13%	15%	17%	19%	20%	21%	22%	23%	24%	24%	24%	25%	25%
545	Cooling	Energy Recovery Ventilator	Bi-Custom	Food Service	ROB	77%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
546	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
547	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
548	Exterior Lighting	LED62-130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
549	Exterior Lighting	LED62-130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
550	Exterior Lighting	LED85-225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
551	Exterior Lighting	LED85-225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture	Bi-Custom	Food Service	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
552	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Bi-Custom	Food Service	Retro	68%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
553	Heating	Heat Pump - 165ER (CS Tons)	Bi-Standard	Food Service	ROB	68%	5%	6%	8%	10%	12%	14%	17%	19%	21%	23%	24%	24%	25%	26%	28%	28%	28%	28%	28%	28%	28%
554	Heating	Heat Pump - 173ER (CS Tons)	Bi-Standard	Food Service	ROB	68%	5%	6%	8%	10%	12%	14%	17%	19%	21%	23%	24%	24%	25%	26%	28%	28%	28%	28%	28%	28%	28%
555	Heating	Heat Pump - 213ER (CS Tons)	Bi-Standard	Food Service	ROB	68%	5%	6%	8%	10%	12%	14%	17%	19%	21%	23%	24%	24%	25%	26%	28%	28%	28%	28%	28%	28%	28%
556	Heating	Heat Pump - 243ER (CS Tons)	Bi-Standard	Food Service	ROB	68%	5%	6%	8%	10%	12%	14%	17%	19%	21%	23%	24%	24%	25%	26%	28%	28%	28%	28%	28%	28%	28%
557	Heating	Variable Refrigerant Low Heat Pump	Bi-Standard	Food Service	ROB	68%	5%	6%	8%	10%	12%	14%	17%	19%	21%	23%	24%	24%	25%	26%	28%	28%	28%	28%	28%	28%	28%
558	Heating	Heat Pump - 15.0 EER COP3 (116,000 Btu/h)	Bi-Standard	Food Service	ROB	68%	4%	5%	7%	9%	11%	13%	15%	18%	20%	22%	24%	25%	26%	28%	28%	28%	28%	28%	28%	28%	28%
559	Heating	Heat Pump - 15.0 EER COP3 (140,000 Btu/h)	Bi-Standard	Food Service	ROB	68%	4%	5%	7%	9%	11%	13%	15%	18%	20%	22%	24%	25%	26%	28%	28%	28%	28%	28%	28%	28%	28%
560	Heating	Heat Pump - 15.5 EER COP3 (115,000 Btu/h)	Bi-Standard	Food Service	ROB	68%	4%	6%	7%	10%	13%	16%	20%	23%	27%	31%	34%	37%	39%	41%	43%	44%	45%	45%	45%	45%	45%
561	Heating	Heat Pump - 15.5 EER COP3 (140,000 Btu/h)	Bi-Standard	Food Service	ROB	68%	4%	6%	7%	10%	13%	16%	20%	23%	27%	31%	34%	37%	39%	41%	43%	44%	45%	45%	45%	45%	45%
562	Heating	Heat Pump - 12 EER 3.6 COP (238,000 Btu/h)	Bi-Standard	Food Service	ROB	68%	2%	4%	6%	7%	10%	13%	16%	20%	23%	27%	31%	34%	37%	39%	41%	43%	44%	45%	45%	45%	45%
563	Heating	Heat Pump - 13 EER 3.6 COP (238,000 Btu/h)	Bi-Standard	Food Service	ROB	68%	2%	4%	6%	7%	10%	13%	16%	20%	23%	27%	31%	34%	37%	39%	41%	43%	44%	45%	45%	45%	45%
564	Heating	Geothermal HP - 17 EER <135bbu	Bi-Custom	Food Service	ROB	68%	4%	6%	7%	10%	12%	16%	19%	23%	27%	30%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%
565	Heating	Geothermal HP - 19 EER <135bbu	Bi-Custom	Food Service	ROB	68%	19%	23%	26%	28%	31%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
566	Heating	PTHP - <7,000 to 15,000 Btu/h - bagging	Bi-Custom	Food Service	ROB	68%	18%	22%	26%	28%	31%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
567	Heating	PTHP - 7,000 to 15,000 Btu/h - bagging	Bi-Custom	Food Service	ROB	68%	18%	22%	26%	28%	31%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
568	Heating	PTHP >15,000 Btu/h - bagging	Bi-Custom	Food Service	ROB	68%	19%	23%	26%	28%	33%	37%	41%	44%	46%	49%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
569	Hot Water	Res-Size Hot Water Heater	Bi-Standard	Food Service	ROB	68%	18%	22%	26%	28%	33%	37%	41%	44%	47%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%
570	Hot Water	Commercial-Size HPWH	Bi-Standard	Food Service	ROB	68%	18%	22%	26%	28%	33%	37%	41%	44%	47%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%
571	Hot Water	Hot Water Pipe Insulation	Bi-Custom	Food Service	Retro	86%	36%	28%	21%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
572	Hot Water	Faucet Aerator	Bi-Custom	Food Service	Retro	90%	36%	28%	21%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
573	Hot Water	Low Flow Pre-Rinse Sprayers	Bi-Custom	Food Service	ROB	90%	36%	28%	21%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
574	Hot Water	ENERGY STAR Commercial Washing Machines	Bi-Custom	Food Service	ROB	68%	32%	35%	38%	40%	42%	44%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%
575	Interlocking	LED <=11 Watt Lamp Replacing Interior Halogen A 28.5 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
576	Interlocking	LED 7-20 Watt Lamp Replacing Interior Halogen 3-70 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
577	Interlocking	LED Specialty Lamp	Bi-Standard/SBDI	Food Service	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
578	Interlocking	LED <=14 Watt Lamp Replacing Interior Halogen (R/R) 4-5 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
579	Interlocking	LED <=13 Watt Lamp Replacing Interior Halogen (R/R) 4-5 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	77%	26%	21%	17%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
580	Interlocking	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp or Fixture	Bi-Standard/SBDI	Food Service	Retro	77%	26%	21%	17%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
581	Interlocking	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Bi-Standard/SBDI	Food Service	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
582	Interlocking	LED62-130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Food Service	Retro	77%	12%	13%	13%	12%	11%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
583	Interlocking	LED Fixture with Network Controls Replacing Interior HID	Bi-Standard	Food Service	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
584	Interlocking	LED85-225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
585	Interlocking	LED85-225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp	Bi-Standard/SBDI	Food Service	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
586	Interlocking	LED Replacing Interior T5 Fluorescent (Type A, Hybrid)	Bi-Standard/SBDI	Food Service	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
587	Interlocking	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Food Service	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
588	Interlocking	LED Replacing Interior T5 Fluorescent (Type C)	Bi-Standard/SBDI	Food Service	Retro	77%	12%	13%	13%	12%	11%	10%	8%	6%	4%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
589	Interlocking	LED Replacing Interior T5 Fluorescent Replacing Interior T5 Fluorescent	Bi-Standard/SBDI	Food Service	Retro	77%	23%	20%																			

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
692	Cooling	Air Conditioner - 21.1 EER (6-20 Tons)	Bi-Standard/SBDI	Health	ROB	77%	13%	17%	21%	26%	31%	36%	41%	45%	49%	52%	54%	56%	58%	59%	60%	60%	60%	60%	60%	60%		
693	Cooling	Air Conditioner - 14.3 EER (20+ Tons)	Bi-Standard	Health	ROB	77%	1%	3%	6%	8%	11%	14%	18%	23%	28%	34%	39%	44%	49%	53%	56%	59%	61%	63%	64%	65%		
694	Cooling	Air Conditioner - 15.1 EER (20+ Tons)	Bi-Standard	Health	ROB	77%	1%	3%	6%	8%	11%	14%	18%	23%	28%	34%	39%	44%	49%	53%	56%	59%	61%	63%	64%	65%		
695	Cooling	Air Conditioner - 17.1 EER (20+ Tons)	Bi-Standard	Health	ROB	77%	1%	3%	6%	8%	11%	14%	18%	23%	28%	33%	39%	44%	49%	53%	56%	58%	61%	62%	63%	64%		
696	Cooling	Comprehensive Rooftop Joint Quality Maintenance (AC Tune-up)	Bi-Custom	Health	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
697	Cooling	AI-548 Economizer	Bi-Custom	Health	Retro	77%	20%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%		
698	Cooling	Advanced Rooftop Controls	Bi-Standard/SBDI	Health	Retro	77%	15%	15%	15%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
699	Cooling	HVAC Occupancy Controls	Bi-Custom	Health	ROB	77%	19%	22%	25%	28%	32%	34%	35%	38%	44%	52%	55%	58%	60%	62%	63%	64%	64%	64%	64%	64%		
700	Cooling	Air Conditioner - 17.5 EER (4-5 Tons)	Bi-Standard/SBDI	Health	ROB	77%	11%	14%	18%	22%	28%	33%	38%	44%	52%	58%	64%	67%	70%	73%	74%	75%	75%	75%	75%	75%		
701	Cooling	Air Conditioner - 17.5 EER (4-5 Tons)	Bi-Standard/SBDI	Health	ROB	77%	10%	13%	16%	19%	22%	25%	28%	30%	34%	35%	36%	37%	37%	37%	37%	37%	37%	37%	37%	37%		
702	Cooling	Air Conditioner - 18.5 EER (4-5 Tons)	Bi-Standard/SBDI	Health	ROB	77%	12%	16%	19%	23%	27%	30%	34%	38%	39%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%		
703	Cooling	Air Conditioner - 21.5 EER (4-5 Tons)	Bi-Standard/SBDI	Health	ROB	77%	11%	14%	18%	22%	26%	31%	35%	38%	41%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%		
704	Cooling	Smart Thermostat	Bi-Standard/SBDI	Health	ROB	77%	64%	66%	68%	69%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%		
705	Cooling	PTAC - <7,000 Btu/h - loading	Bi-Custom	Health	ROB	77%	19%	23%	29%	34%	40%	45%	50%	54%	58%	60%	62%	64%	65%	66%	66%	66%	66%	66%	66%	66%		
706	Cooling	PTAC - 7,000 to 15,000 Btu/h - loading	Bi-Custom	Health	ROB	77%	18%	23%	29%	34%	40%	45%	50%	54%	57%	60%	62%	64%	65%	66%	66%	66%	66%	66%	66%	66%		
707	Cooling	PTAC - >15,000 Btu/h - loading	Bi-Custom	Health	ROB	77%	19%	24%	29%	35%	41%	46%	51%	56%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%		
708	Cooling	AI-Cooled Chiller	Bi-Standard	Health	ROB	77%	3%	5%	7%	9%	12%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%		
709	Cooling	Water Cooled Chiller	Bi-Standard	Health	ROB	77%	3%	5%	7%	9%	12%	16%	20%	24%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%		
710	Cooling	Chiller Tune-up	Bi-Custom	Health	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
711	Cooling	Window Film	Bi-Custom	Health	Retro	77%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
712	Cooling	Triple Pane Windows	Bi-Custom	Health	ROB	77%	1%	2%	3%	4%	5%	7%	9%	11%	13%	15%	17%	19%	20%	21%	22%	23%	24%	24%	25%	25%		
713	Cooling	Energy Recovery Ventilator	Bi-Custom	Health	Retro	77%	3%	4%	4%	4%	5%	6%	7%	8%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	0%	0%	
714	Exterior lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Health	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
715	Exterior lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Health	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
716	Exterior lighting	LED 92 - 180 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Health	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
717	Exterior lighting	LED 92 - 180 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Health	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
718	Exterior lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 300-500 Watt Lamp or Fixture	Bi-Custom	Health	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
719	Exterior lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 300-500 Watt Lamp or Fixture	Bi-Custom	Health	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
720	Exterior lighting	Bi-Directional LED Lighting Fixture - Garages	Bi-Custom	Health	Retro	68%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
721	Heating	Heat Pump - 16.5 EER (4-5 Tons)	Bi-Standard	Health	ROB	68%	4%	5%	7%	9%	11%	14%	18%	21%	24%	28%	31%	33%	36%	37%	39%	40%	40%	41%	41%	41%	41%	
722	Heating	Heat Pump - 17.5 EER (4-5 Tons)	Bi-Standard	Health	ROB	68%	4%	6%	8%	10%	12%	15%	18%	21%	24%	28%	29%	30%	32%	33%	34%	35%	35%	35%	35%	35%	35%	
723	Heating	Heat Pump - 18.5 EER (4-5 Tons)	Bi-Standard	Health	ROB	68%	4%	5%	7%	9%	11%	14%	17%	21%	24%	28%	30%	33%	35%	38%	37%	38%	39%	40%	40%	40%	40%	
724	Heating	Heat Pump - 21.5 EER (4-5 Tons)	Bi-Standard	Health	ROB	68%	2%	4%	6%	8%	10%	13%	16%	20%	24%	28%	32%	35%	38%	40%	42%	44%	45%	46%	46%	46%	46%	
725	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	Health	ROB	68%	9%	12%	15%	19%	23%	28%	32%	37%	41%	44%	47%	49%	51%	52%	53%	54%	54%	54%	54%	54%	54%	
726	Heating	Heat Pump - 16.0 EER/COP 3.6 (6,500-134,000 Btu/hr)	Bi-Standard	Health	ROB	68%	3%	4%	6%	9%	11%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	51%	51%	51%	
727	Heating	Heat Pump - 16.0 EER/COP 3.6 (6,500-134,000 Btu/hr)	Bi-Standard	Health	ROB	68%	3%	5%	6%	9%	11%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	51%	51%	51%	
728	Heating	Heat Pump - 14.5 EER/COP 3.1 (135,000-239,000 Btu/hr)	Bi-Standard	Health	ROB	68%	3%	5%	6%	9%	11%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	51%	51%	51%	
729	Heating	Heat Pump - 15.5 EER/COP 3.1 (135,000-239,000 Btu/hr)	Bi-Standard	Health	ROB	68%	3%	5%	6%	9%	11%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	51%	51%	51%	
730	Heating	Heat Pump - 12 EER 3.4 COP (29,000 Btu/hr)	Bi-Standard	Health	ROB	68%	3%	5%	6%	9%	11%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	51%	51%	51%	
731	Heating	Heat Pump - 13 EER 3.6 COP (29,000 Btu/hr)	Bi-Standard	Health	ROB	68%	3%	5%	6%	9%	11%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	51%	51%	51%	
732	Heating	Geothermal HP - 17 EER - 133kbtu	Bi-Custom	Health	ROB	68%	18%	22%	25%	29%	32%	34%	37%	38%	40%	41%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	
733	Heating	Geothermal HP - 19 EER - 133kbtu	Bi-Custom	Health	ROB	68%	19%	23%	27%	32%	36%	40%	45%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	
734	Heating	PTHP - <7,000 Btu/h - loading	Bi-Custom	Health	ROB	68%	19%	23%	28%	32%	36%	40%	44%	46%	49%	50%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	
735	Heating	PTHP - 7,000 to 15,000 Btu/h - loading	Bi-Custom	Health	ROB	68%	19%	23%	28%	32%	36%	40%	44%	46%	49%	50%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	
736	Heating	PTHP - >15,000 Btu/h - loading	Bi-Custom	Health	ROB	68%	19%	23%	28%	32%	36%	40%	44%	46%	49%	50%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	
737	HotWater	Residential Water Heater	Bi-Standard	Health	ROB	68%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	51%	52%	52%	52%	52%	52%	52%		
738	HotWater	Commercial Water Heater	Bi-Standard	Health	ROB	68%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	51%	52%	52%	52%	52%	52%	52%	52%	
739	HotWater	Commercial Water Heater	Bi-Standard	Health	ROB	68%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	51%	52%	52%	52%	52%	52%	52%	52%	
740	HotWater	Hot Water Pipe Insulation	Bi-Custom	Health	Retro	86%	15%	19%	23%	28%	33%	37%	41%	44%	47%	49%	51%	52%	53%	54%	54%	54%	54%	54%	54%	54%	54%	
741	HotWater	Faest Aerator	Bi-Custom	Health	Retro	86%	36%	28%	21%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
742	HotWater	Low Flow Pre-Rinse Sprayers	Bi-Custom	Health	ROB	90%	36%	28%	21%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
743	Interior lighting	ENERGY STAR Commercial Lighting Replaces	Bi-Custom	Health	ROB	68%	32%	35%	38%	40%	42%	44%	45%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	
744	Interior lighting	LED <=11 Watt Lamp Replacing Interior Halogen A, 28-52 Watt Lamp	Bi-Standard/SBDI	Health	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
745	Interior lighting	LED 7-20 Watt Lamp Replacing Interior Halogen B, 37-70 Watt Lamp	Bi-Standard/SBDI	Health	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
746	Interior lighting	LED <=14 Watt Lamp Replacing Interior Halogen B/R, 45-65 Watt Lamp	Bi-Standard/SBDI	Health	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
747	Interior lighting	LED <=13 Watt Lamp Replacing Interior Halogen MR-46 35-50 Watt Lamp	Bi-Standard/SBDI	Health	Retro	77%	26%	21%	17%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
748	Interior lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48 48-90 Watt Lamp	Bi-Standard/SBDI	Health	Retro	77%	26%	21%	17%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
749	Interior lighting	LED <=20 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp	Bi-Standard/SBDI	Health	Retro	77%	23%	20%	16%	13%	10%																	

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption Rate	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
920	Interior Lighting	LED 85+ - 225 Watt Lamp or Fixture Replacing Interior 80-150 Watt Lamp or Fixture	Bi-Standard/SBDI	Lodging	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
921	Interior Lighting	LED Replacing Interior 15 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Lodging	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
922	Interior Lighting	LED Replacing Interior 15 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Lodging	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
923	Interior Lighting	LED Replacing Interior 15 Fluorescent (Type C)	Bi-Standard/SBDI	Lodging	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
924	Interior Lighting	LED Fixture with Network Control Replacing Interior 15 Fluorescent	Bi-Standard	Lodging	Retro	77%	12%	13%	12%	11%	10%	8%	6%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
925	Interior Lighting	LED Replacing Interior 18 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Lodging	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
926	Interior Lighting	LED Replacing Interior 18 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Lodging	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
927	Interior Lighting	LED Fixture with Network Control Replacing Interior 18 Fluorescent	Bi-Standard	Lodging	Retro	77%	18%	17%	15%	13%	11%	9%	7%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
928	Interior Lighting	LED Replacing Interior 12 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Lodging	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
929	Interior Lighting	LED Replacing Interior 12 Fluorescent (Type B, Kits, and Fixtures)	Bi-Standard/SBDI	Lodging	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
930	Interior Lighting	LED Replacing Interior 12 Fluorescent (Type C)	Bi-Standard/SBDI	Lodging	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
931	Interior Lighting	LED Fixture with Network Control Replacing Interior 12 Fluorescent	Bi-Standard	Lodging	Retro	77%	18%	17%	15%	13%	11%	9%	7%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
932	Interior Lighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts Remote Mounted Occupancy Sensor Controlling > 150 Watts	Bi-Standard/SBDI	Lodging	Retro	77%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
933	Interior Lighting	Lighting Power Densify	Bi-Standard	Lodging	Retro	77%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%	
934	Interior Lighting	LED Lighting Redesign/Custom	Bi-Standard	Lodging	Retro	77%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	
937	Interior Lighting	LED or Electroluminescent Replacing Interior Incandescent CFL Exit Sign	Bi-Standard/SBDI	Lodging	Retro	86%	57%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
938	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	Lodging	Retro	68%	18%	17%	15%	13%	11%	9%	7%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
939	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Lodging	ROB	68%	18%	17%	15%	13%	11%	9%	7%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
940	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	Lodging	Retro	68%	20%	15%	12%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
941	Miscellaneous	Commercial Laundry	Bi-Custom	Lodging	Retro	68%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
942	Miscellaneous	ENERGY STAR Rated Receptacle Power Supply	Bi-Custom	Lodging	ROB	68%	69%	72%	76%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	
943	Miscellaneous	Pool Pump / Variable Frequency Drive	Bi-Custom	Lodging	ROB	68%	19%	23%	28%	32%	36%	40%	44%	48%	49%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%
944	Miscellaneous	Pool Pump Timer	Bi-Custom	Lodging	ROB	68%	19%	23%	27%	32%	36%	40%	43%	46%	48%	49%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%	53%
945	Miscellaneous	Pool Heater Heat Pump (Unceved)	Bi-Custom	Lodging	ROB	68%	19%	23%	27%	32%	36%	40%	43%	46%	48%	49%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%	53%
946	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Lodging	ROB	68%	19%	23%	27%	32%	36%	40%	43%	46%	48%	49%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%	53%
947	Miscellaneous	High Efficiency Duct	Bi-Custom	Lodging	ROB	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%
948	Motors	Cogged V-belt	Bi-Custom	Lodging	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%
949	Motors	Pump and Fan Variable Frequency Drive Controls (Pump)	Bi-Custom	Lodging	Retro	68%	6%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
950	Motors	Power Drive Systems	Bi-Standard	Lodging	Retro	68%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
951	Motors	Switch Reluctance Motors	Bi-Custom	Lodging	Retro	68%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%
952	Motors	Escalator Motor Efficiency Controllers	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
953	Office, NonPC	Escalator Star Printer/Copier/Fax	Bi-Custom	Lodging	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%
954	Office, NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Lodging	ROB	93%	89%	91%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
955	Office, NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Lodging	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%
956	Office, NonPC	Plug Load Occupancy Sensor	Bi-Custom	Lodging	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%
957	Office, PC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Lodging	Retro	68%	2%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
958	Office, PC	Energy Star Server	Bi-Custom	Lodging	ROB	68%	1%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
959	Office, PC	Server Virtualization	Bi-Custom	Lodging	ROB	68%	1%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
960	Office, PC	High Efficiency ChAC unit	Bi-Custom	Lodging	ROB	68%	1%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
961	Office, PC	Computer Room Air Conditioner Economizer	Bi-Custom	Lodging	ROB	68%	1%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
962	Office, PC	Data Center Heat/Cool Alisk Configuration	Bi-Custom	Lodging	ROB	68%	1%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
963	Office, PC	Energy Star Laptop	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
964	Office, PC	Energy Star Monitor	Bi-Custom	Lodging	ROB	50%	25%	31%	38%	46%	53%	60%	67%	72%	77%	80%	83%	83%	83%	83%	83%	83%	83%	83%	83%	83%	83%
965	Refrigeration	Strip Curtains	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
966	Refrigeration	Base Station Heats	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
967	Refrigeration	Variable Refrigerant Controls	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
968	Refrigeration	Saturated Solution Controls	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
969	Refrigeration	Compressor Retrofits	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
970	Refrigeration	Electrically Commutated (EC) Walk-In Refrigerator Fan Motor	Bi-Standard	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
971	Refrigeration	Evaporator Fan Motor Control	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
972	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
973	Refrigeration	Refrigeration Economizer	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
974	Refrigeration	Anti-Sweat Heater Control MT	Bi-Standard	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
975	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
976	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
977	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
978	Refrigeration	Energy Star Reach-In Refrigerator Glass Doors	Bi-Standard	Lodging	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	48%	48%	48%	48%	48%	48%	48%	48%
979	Refrigeration	Energy Star Reach-In Refrigerator Solid Doors	Bi-Standard	Lodging	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	48%	48%	48%	48%	48%	48%	48%	48%
980	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
981	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
982	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Lodging	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	48%	48%	48%	48%	48%	48%	48%	48%
983	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Lodging	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	48%	48%	48%	48%	48%	48%	48%	48%
984	Refrigeration	Refrigeration - Custom	Bi-Custom	Lodging	ROB	6																					

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
999	Wholesale	Wholesale - Core RET	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1000	Wholesale	Wholesale - Cutover (Other)	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1001	Wholesale	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Lodging	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1002	Wholesale	Wholesale - Core NC	Bi-Custom	Lodging	NC	72%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
1003	Behavioral	COM Competitions	Bi-Custom	Lodging	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1004	Behavioral	Business Energy Reports	Bi-Custom	Lodging	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1005	Behavioral	Building Benchmarking	Bi-Custom	Lodging	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1006	Behavioral	Strategic Benchmarking	Bi-Custom	Lodging	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1007	Behavioral	BEIMS	Bi-Custom	Lodging	Retro	38%	3%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1008	Behavioral	Building Operator Certification	Bi-Custom	Lodging	Retro	38%	3%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1009	Compressed Air	Retro-commissioning/Compressed Air Optimization	Bi-Custom	Retail	Retro	68%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
1010	Compressed Air	Compressed Air Leak Repair	Bi-Custom	Retail	Retro	68%	20%	18%	16%	13%	11%	9%	7%	5%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
1011	Compressed Air	Efficient Air Compressors (VSD)	Bi-Custom	Retail	ROB	68%	20%	18%	16%	13%	11%	9%	7%	5%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
1012	Compressed Air	AODD Pump Controls	Bi-Custom	Retail	Retro	68%	26%	23%	17%	13%	12%	25%	27%	30%	32%	32%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%
1013	Compressed Air	No Lost Condensate Drain	Bi-Custom	Retail	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	6%	5%	4%	3%	2%	1%
1014	Compressed Air	Efficient Air Nozzles	Bi-Custom	Retail	Retro	68%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
1015	Compressed Air	Compressed Air - Cutover	Bi-Custom	Retail	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
1016	Cooking	Commercial Combination Oven - (Electric)	Bi-Custom	Retail	ROB	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
1017	Cooking	Commercial Electric Convection	Bi-Custom	Retail	ROB	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
1018	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Retail	ROB	68%	15%	19%	23%	28%	33%	37%	41%	44%	47%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%
1019	Cooking	Dishwasher (Low Temp Energy Star)	Bi-Custom	Retail	ROB	68%	29%	34%	38%	42%	46%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%	54%	54%	54%
1020	Cooking	Dishwasher (High Temp Energy Star)	Bi-Custom	Retail	ROB	68%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
1021	Cooking	Energy Efficient Fryer	Bi-Custom	Retail	ROB	68%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
1022	Cooking	Commercial Electric Fryer	Bi-Custom	Retail	ROB	68%	22%	23%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%
1023	Cooking	Commercial Electric Cooktop (Gas)	Bi-Custom	Retail	ROB	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
1024	Cooking	Isolated Holding Cabinet (J&S)	Bi-Custom	Retail	ROB	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
1025	Cooking	Isolated Holding Cabinet (Half Size)	Bi-Custom	Retail	ROB	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
1026	Cooking	Air Conditioner - 17.5ER (5-20 Tons)	Bi-Custom/SBDI	Retail	ROB	77%	10%	13%	16%	19%	22%	25%	27%	29%	30%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%
1027	Cooking	Air Conditioner - 18.5ER (5-20 Tons)	Bi-Custom/SBDI	Retail	ROB	77%	10%	13%	16%	19%	22%	25%	27%	29%	30%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%
1028	Cooking	Air Conditioner - 21.5ER (20+ Tons)	Bi-Custom/SBDI	Retail	ROB	77%	10%	13%	16%	19%	22%	25%	27%	29%	30%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%
1029	Cooking	Air Conditioner - 24.5ER (20+ Tons)	Bi-Custom/SBDI	Retail	ROB	77%	10%	13%	16%	19%	22%	25%	27%	29%	30%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%
1030	Cooking	Air Conditioner - 17.5ER (20+ Tons)	Bi-Custom	Retail	ROB	77%	3%	5%	6%	8%	11%	15%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	52%	52%
1031	Cooking	Air Conditioner - 17.5ER (20+ Tons)	Bi-Custom	Retail	ROB	77%	3%	5%	6%	8%	11%	15%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	52%	52%
1032	Cooking	Comprehensive Rooftop Unit Quality Maintenance (ACT Tune-up)	Bi-Custom	Retail	Retro	77%	20%	18%	16%	13%	11%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%
1033	Cooking	Air Side Economizer	Bi-Custom	Retail	Retro	77%	10%	11%	12%	12%	11%	10%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
1034	Cooking	Advanced Rooftop Controls	Bi-Custom/SBDI	Retail	Retro	77%	15%	15%	15%	14%	13%	11%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
1035	Cooking	HVAC Occupancy Controls	Bi-Custom/SBDI	Retail	ROB	77%	19%	22%	25%	27%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1036	Cooking	Air Conditioner - 16.5ER (5 Tons)	Bi-Custom/SBDI	Retail	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	28%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%
1037	Cooking	Air Conditioner - 17.5ER (5 Tons)	Bi-Custom/SBDI	Retail	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	28%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%
1038	Cooking	Air Conditioner - 18.5ER (5 Tons)	Bi-Custom/SBDI	Retail	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	28%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%
1039	Cooking	Air Conditioner - 21.5ER (5 Tons)	Bi-Custom/SBDI	Retail	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	28%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%
1040	Cooking	Smart Thermostat	Bi-Custom/SBDI	Retail	ROB	77%	64%	66%	68%	69%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
1041	Cooking	PTAC - <7,000 Btu/h - cooling	Bi-Custom	Retail	ROB	77%	20%	23%	26%	29%	31%	33%	35%	36%	37%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
1042	Cooking	PTAC - 7,000 to 15,000 Btu/h - cooling	Bi-Custom	Retail	ROB	77%	19%	22%	25%	28%	30%	32%	34%	35%	36%	36%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%
1043	Cooking	PTAC - >15,000 Btu/h - cooling	Bi-Custom	Retail	ROB	77%	17%	21%	25%	29%	33%	37%	40%	42%	44%	46%	48%	49%	49%	49%	49%	49%	49%	49%	49%	49%
1044	Cooking	Air-Cooled Chiller	Bi-Custom	Retail	ROB	77%	4%	5%	7%	9%	11%	14%	17%	19%	22%	26%	30%	33%	36%	39%	41%	43%	44%	45%	46%	46%
1045	Cooking	Water-Cooled Chiller	Bi-Custom	Retail	ROB	77%	4%	5%	7%	9%	11%	14%	17%	19%	22%	26%	30%	33%	36%	39%	41%	43%	44%	45%	46%	46%
1046	Cooking	Chiller Tune-up	Bi-Custom	Retail	Retro	77%	20%	18%	16%	13%	11%	10%	9%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
1047	Cooking	Variable Refrigerant Flow	Bi-Custom	Retail	ROB	77%	13%	15%	18%	21%	24%	28%	32%	36%	40%	44%	48%	51%	53%	54%	54%	54%	54%	54%	54%	54%
1048	Cooking	Variable Refrigerant Flow	Bi-Custom	Retail	ROB	77%	13%	15%	18%	21%	24%	28%	32%	36%	40%	44%	48%	51%	53%	54%	54%	54%	54%	54%	54%	54%
1049	Cooking	Energy Recovery Ventilator	Bi-Custom	Retail	Retro	77%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1050	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	78%	32%	25%	19%	14%	10%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1051	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	78%	32%	25%	19%	14%	10%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1052	Exterior Lighting	LED 62 - 110 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	78%	32%	25%	19%	14%	10%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1053	Exterior Lighting	LED 62 - 110 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	78%	32%	25%	19%	14%	10%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1054	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	78%	32%	25%	19%	14%	10%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1055	Exterior Lighting	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 176-300 Watt Lamp or Fixture	Bi-Custom	Retail	Retro	78%	32%	25%	19%	14%	10%	7%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
1056	Exterior Lighting	Bi-Level Lighting Fixture - Garages	Bi-Custom	Retail	Retro	68%	20%	18%	16%	13%	10%	8%	6%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
1057	Heating	Heat Pump - 16.5ER (5 Tons)	Bi-Custom	Retail	ROB	68%	5%	6%	8%	10%	12%	15%	17%	19%	21%	23%	24%	25%	26%	26%	27%	27%	28%	28%	28%	28%
1058	Heating	Heat Pump - 18.5ER (5 Tons)	Bi-Custom	Retail	ROB	68%	5%	6%	8%	10%	12%	15%	17%	19%	21%	23%	24%	25%	26%	26%	27%	27%	28%	28%	28%	28%
1059	Heating	Heat Pump - 21.5ER (5 Tons)	Bi-Custom	Retail	ROB	68%	5%	6%	8%	10%	12%	15%	17%	19%	21%	23%	24%	25%	26%	26%	27%	27%	28%	28%	28%	28%
1060	Heating	Heat Pump - 24.5																								

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1152	Refrigeration	Refrigeration - Custom	Bi-Custom	Retail	ROB	68%	1%	2%	3%	5%	7%	11%	14%	17%	17%	21%	24%	27%	30%	33%	35%	36%	38%	39%	40%	40%
1153	Refrigeration	Refrigeration commissioning, Refrigerator Optimization	Bi-Custom	Retail	ROB	68%	1%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1154	Refrigeration	Energy Star Ice Machine	Bi-Custom	Retail	ROB	68%	1%	3%	5%	7%	9%	12%	15%	19%	24%	29%	33%	38%	43%	45%	48%	50%	52%	53%	54%	55%
1155	Refrigeration	ESTAR Refrigerated Vending Machine	Bi-Custom	Retail	ROB	68%	1%	2%	4%	5%	7%	10%	12%	15%	20%	23%	26%	30%	33%	36%	38%	40%	41%	42%	43%	44%
1156	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Retail	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1157	Refrigeration	LED Refrigerated Display Case Lighting Average (W/LF)	Bi-Custom	Retail	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1158	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Retail	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1159	Ventilation	Demand Controlled Ventilation	Bi-Standard	Retail	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1160	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Retail	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1161	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Retail	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1162	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Retail	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1163	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Retail	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1164	WholeBldg./HVAC	HVAC - Energy Management System	Bi-Custom	Retail	Retro	68%	4%	4%	4%	5%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1165	WholeBldg./HVAC	WholeBldg./HVAC - Energy Management System	Bi-Custom	Retail	Retro	68%	4%	4%	4%	5%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1166	WholeBldg./HVAC	Retro-commissioning, Bid Optimization	Bi-Custom	Retail	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1167	WholeBldg./HVAC	WholeBldg./HVAC - Com RET	Bi-Custom	Retail	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1168	WholeBldg./HVAC	WholeBldg./HVAC (Other)	Bi-Custom	Retail	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1169	WholeBldg./HVAC	Power Distribution (Equipment Upgrades) (Transformers)	Bi-Custom	Retail	Retro	68%	15%	15%	14%	13%	11%	9%	7%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1170	WholeBldg./HVAC	WholeBldg./HVAC - ComVIC	Bi-Custom	Retail	NC	72%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1171	Behavioral	COM Competitions	Bi-Custom	Retail	Retro	38%	2%	3%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1172	Behavioral	Business Energy Reports	Bi-Custom	Retail	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1173	Behavioral	Building Benchmarking	Bi-Custom	Retail	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1174	Behavioral	Strategic Energy Management	Bi-Custom/SEM	Retail	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1175	Behavioral	Behavioral Energy Audits	Bi-Custom	Retail	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1176	Behavioral	Behavioral Energy Audits	Bi-Custom	Retail	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1177	CompressedAir	Retro-commissioning, Compressed Air Optimization	Bi-Custom	Office	Retro	68%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1178	CompressedAir	Compressed Air Leak Repair	Bi-Custom	Office	Retro	68%	20%	18%	16%	13%	11%	9%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1179	CompressedAir	Efficient Air Compressors (VSD)	Bi-Standard	Office	ROB	68%	20%	18%	16%	13%	11%	9%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1180	CompressedAir	AODD Pump Controls	Bi-Custom	Office	Retro	68%	20%	18%	16%	13%	11%	9%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1181	CompressedAir	No Loss Condensate Drain	Bi-Standard	Office	Retro	68%	20%	18%	16%	13%	11%	9%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1182	CompressedAir	Efficient Air Nozzles	Bi-Standard	Office	Retro	68%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	2%	2%	2%	2%	2%	2%
1183	CompressedAir	Compressed Air - Custom	Bi-Custom	Office	Retro	68%	11%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1184	Cooking	Commercial Convection Oven (Electric)	Bi-Custom	Office	ROB	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
1185	Cooking	Commercial Electric Convection Oven	Bi-Custom	Office	ROB	68%	51%	54%	57%	59%	60%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
1186	Cooking	Commercial Electric Griddle	Bi-Custom	Office	ROB	68%	15%	19%	23%	28%	33%	41%	44%	47%	49%	51%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%
1187	Cooking	Commercial Electric Steam Cooker	Bi-Standard	Office	ROB	68%	29%	34%	38%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
1188	Cooking	Dishwasher - Low Temp Door Energy Star	Bi-Custom	Office	ROB	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%
1189	Cooking	Dishwasher High Temp Door Energy Star	Bi-Custom	Office	ROB	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%
1190	Cooking	EnergyEfficient electric fryer	Bi-Custom	Office	ROB	68%	23%	27%	31%	36%	43%	49%	53%	58%	63%	69%	73%	76%	78%	79%	79%	79%	79%	79%	79%	79%
1191	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Office	ROB	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	27%	28%	30%	31%	32%	33%	33%	33%	33%	33%	
1192	Cooking	Insulated Holding Cabinets (3/4 Size)	Bi-Standard	Office	ROB	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	27%	28%	30%	31%	32%	33%	33%	33%	33%	33%	
1193	Cooking	Insulated Holding Cabinets (1/2 Size)	Bi-Standard	Office	ROB	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	27%	28%	30%	31%	32%	33%	33%	33%	33%	33%	
1194	Cooking	Air Conditioner - 17.0 EER (520 Tons)	Bi-Standard/SBDI	Office	ROB	77%	13%	16%	20%	23%	27%	31%	34%	37%	39%	41%	43%	44%	45%	45%	45%	45%	45%	45%	45%	
1195	Cooking	Air Conditioner - 18.0 EER (520 Tons)	Bi-Standard/SBDI	Office	ROB	77%	13%	16%	20%	23%	27%	31%	34%	37%	39%	41%	43%	44%	45%	45%	45%	45%	45%	45%	45%	
1196	Cooking	Air Conditioner - 21.0 EER (520 Tons)	Bi-Standard/SBDI	Office	ROB	77%	13%	16%	20%	23%	27%	31%	34%	37%	39%	41%	43%	44%	45%	45%	45%	45%	45%	45%	45%	
1197	Cooking	Air Conditioner - 14.3 EER (20+ Tons)	Bi-Standard	Office	ROB	77%	3%	5%	7%	10%	13%	17%	21%	26%	31%	36%	41%	45%	48%	52%	54%	56%	58%	60%	60%	
1198	Cooking	Air Conditioner - 15.0 EER (20+ Tons)	Bi-Standard	Office	ROB	77%	3%	5%	7%	10%	13%	17%	21%	26%	31%	36%	41%	45%	48%	52%	54%	56%	58%	60%	60%	
1199	Cooking	Air Conditioner - 17.0 EER (20+ Tons)	Bi-Standard	Office	ROB	77%	3%	5%	7%	10%	13%	17%	21%	26%	31%	36%	41%	45%	48%	52%	54%	56%	58%	60%	60%	
1200	Cooking	Comprehensive Hood Unit Quality Maintenance (ACT Tune-up)	Bi-Standard	Office	ROB	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1201	Cooking	Advanced Refrigeration Controls	Bi-Custom	Office	Retro	77%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	
1202	Cooking	HVAC Occupancy Controls	Bi-Standard/SBDI	Office	Retro	77%	15%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	
1203	Cooking	Air Conditioner - 16.0 EER (5 Tons)	Bi-Standard/SBDI	Office	ROB	77%	12%	15%	19%	24%	28%	33%	38%	42%	46%	49%	51%	52%	52%	52%	52%	52%	52%	52%	52%	
1204	Cooking	Air Conditioner - 17.0 EER (5 Tons)	Bi-Standard/SBDI	Office	ROB	77%	12%	15%	19%	24%	28%	33%	38%	42%	46%	49%	51%	52%	52%	52%	52%	52%	52%	52%	52%	
1205	Cooking	Air Conditioner - 18.0 EER (5 Tons)	Bi-Standard/SBDI	Office	ROB	77%	12%	15%	19%	24%	28%	33%	38%	42%	46%	49%	51%	52%	52%	52%	52%	52%	52%	52%	52%	
1206	Cooking	Air Conditioner - 21.0 SEER (5 Tons)	Bi-Standard/SBDI	Office	ROB	77%	12%	15%	18%	21%	24%	26%	28%	30%	31%	33%	33%	34%	34%	34%	34					

Appendix C. Business Program RAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1305	Refrigeration	Compressor Controls	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1306	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1307	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1308	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1309	Refrigeration	Refrigeration Economizer	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1310	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1311	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1312	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1313	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Standard	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1314	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Office	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	57%	57%	60%	61%	62%	63%		
1315	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Standard	Office	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	57%	57%	60%	61%	62%	63%		
1316	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1317	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1318	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Office	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	57%	57%	60%	61%	62%	63%		
1319	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Office	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	57%	57%	60%	61%	62%	63%		
1320	Refrigeration	Refrigeration - Custom	Bi-Standard	Office	ROB	68%	1%	3%	3%	5%	7%	11%	14%	17%	21%	21%	24%	27%	30%	33%	35%	36%	38%	39%	39%	40%		
1321	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi-Custom RCX	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1322	Refrigeration	Energy Star Ice Machine	Bi-Custom	Office	ROB	68%	1%	2%	4%	5%	7%	9%	12%	15%	19%	24%	29%	33%	38%	42%	45%	48%	50%	52%	54%	55%		
1323	Refrigeration	ESR Refrigerated Vending Machine	Bi-Custom	Office	ROB	68%	1%	2%	4%	5%	7%	10%	12%	15%	19%	23%	28%	30%	33%	36%	38%	40%	41%	42%	43%	44%		
1324	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1325	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/ft	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1326	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1327	Refrigeration	Demand Controlled Ventilation	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1328	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%		
1329	Ventilation	High Volume Low Speed Fans	Bi-Standard	Office	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%		
1330	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Office	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	0%	
1331	Ventilation	High Volume Low Speed Fan, 32	Bi-Standard	Office	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	0%	
1332	WholeBldg. HVAC	HVAC - Energy Management System	Bi-Custom	Office	Retro	68%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	0%	
1333	WholeBldg. HVAC	HVAC - Cool Roof	Bi-Custom	Office	Retro	68%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	0%	
1334	WholeBldg. HVAC	Retro-commissioning_Bld Optimization	Bi-Custom RCX	Office	Retro	68%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	0%	
1335	WholeBldg. HVAC	WholeBldg - Com RET	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1336	WholeBldg. HVAC	WholeBldg - Custom (Other)	Bi-Custom	Office	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1337	WholeBldg. HVAC	Power Distribution Equipment Upgrades (Transformers)	Bi-Custom	Office	NC	72%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
1338	WholeBldg. HVAC	WholeBldg - Com NC	Bi-Custom	Office	NC	72%	59%	62%	64%	66%	67%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	
1339	Behavioral	COM Competitions	Bi-Custom	Office	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1340	Behavioral	Business Energy Reports	Bi-Custom	Office	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1341	Behavioral	Building Benchmarking	Bi-Custom	Office	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1342	Behavioral	Strategic Energy Management	Bi-Custom SEM	Office	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1343	Behavioral	BEIMS	Bi-Custom	Office	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1344	Behavioral	Building Operator Certification	Bi-Custom	Office	Retro	38%	3%	4%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	0%	
1345	CompressedAr	Retro-commissioning, Compressed Air Optimization	Bi-Custom RCX	Warehouse	Retro	68%	18%	17%	15%	13%	11%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1346	CompressedAr	Compressed Air Leak Repair	Bi-Custom	Warehouse	Retro	68%	20%	18%	16%	13%	10%	8%	6%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1347	CompressedAr	Efficient Air Compressors (VSD)	Bi-Standard	Warehouse	ROB	68%	10%	13%	16%	19%	22%	25%	27%	30%	32%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
1348	CompressedAr	AODD Pump Controls	Bi-Custom	Warehouse	Retro	68%	26%	21%	17%	13%	10%	8%	6%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1349	CompressedAr	No Loss Condensate Drain	Bi-Standard	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	2%	1%	1%	
1350	CompressedAr	Efficient Air/Nozzles	Bi-Standard	Warehouse	Retro	68%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1351	Cooking	Commercial Convection Oven (Electric)	Bi-Custom	Warehouse	Retro	68%	10%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1352	Cooking	Commercial Electric Convection Oven	Bi-Custom	Warehouse	Retro	68%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%
1353	Cooking	Commercial Electric Steam Cooker	Bi-Custom	Warehouse	ROB	68%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
1354	Cooking	Commercial Electric Steam Cooker	Bi-Standard	Warehouse	ROB	68%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
1355	Cooking	Dishwasher (Low Temp Door Energy Star)	Bi-Custom	Warehouse	ROB	68%	29%	34%	36%	42%	46%	49%	51%	53%	54%	55%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	
1356	Cooking	Dishwasher (High Temp Door Energy Star)	Bi-Custom	Warehouse	ROB	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%
1357	Cooking	EnergyEfficient electric fryer	Bi-Custom	Warehouse	ROB	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%
1358	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Standard	Warehouse	ROB	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	28%	30%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	
1359	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Standard	Warehouse	ROB	68%	7%	9%	11%	14%	17%	20%	22%	25%	27%	28%	30%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	
1360	Cooking	Insulated Holding Cabinets (3/4 Size)	Bi-Standard	Warehouse	ROB	68%	6%	8%	10%	13%	16%	20%	24%	28%	32%	35%	38%	40%	42%	44%	44%	45%	46%	46%	46%	46%	46%	
1361	Cooking	Air Conditioner - 17 IEER (5-20 Tons)	Bi-Standard	Warehouse	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	26%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
1362	Cooking	Air Conditioner - 18 IEER (5-20 Tons)	Bi-Standard/SBDI	Warehouse	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	26%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
1363	Cooking	Air Conditioner - 18 IEER (5-20 Tons)	Bi-Standard/SBDI	Warehouse	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	26%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
1364	Cooking	Air Conditioner - 21 IEER (20+ Tons)	Bi-Standard/SBDI	Warehouse	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	26%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
1365	Cooking	Air Conditioner - J43 IEER (20+ Tons)	Bi-Standard	Warehouse	ROB	77%	3%	4%	6%	8%	10%	13%	16%	19%	22%	25%	27%	29%	31%	32%	33%	34%	35%	35%	36%	36%	36%	
1366	Cooking	Air Conditioner - 15 IEER (20+ Tons)	Bi-Standard	Warehouse	ROB	77%	4%	6%	8%	10%	12%	15%	18%	21%	24%	27%	29											

Appendix C. Business Program RAP Annual Penetration %

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1459	Office, NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Warehouse	ROB	83%	85%	91%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	
1460	Office, NonPC	Smart Power Strip/Copier/Fax	Bi-Custom	Warehouse	Retro	68%	15%	15%	15%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1461	Office, NonPC	PLC Load Occupancy Sensor	Bi-Custom	Warehouse	Retro	68%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1462	Office, PC	Electrically Commutated Plug Fans in Data centers	Bi-Custom	Warehouse	ROB	68%	1%	3%	4%	3%	6%	11%	14%	17%	21%	25%	30%	34%	37%	40%	43%	45%	46%	48%	48%	49%	49%	
1463	Office, PC	Server Virtualization	Bi-Custom	Warehouse	ROB	68%	1%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1464	Office, PC	High Efficiency ChAC Unit	Bi-Custom	Warehouse	ROB	68%	1%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1465	Office, PC	Computer Room Air Conditioner Economizer	Bi-Custom	Warehouse	ROB	68%	1%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1466	Office, PC	Data Center Hot/Cold Aisle Configuration	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1467	Office, PC	Energy Star Laptop	Bi-Custom	Warehouse	ROB	90%	25%	31%	31%	38%	46%	53%	60%	67%	72%	77%	80%	83%	85%	87%	88%	88%	88%	88%	88%	88%	88%	
1468	Office, PC	Energy Star Monitor	Bi-Custom	Warehouse	ROB	90%	25%	31%	31%	38%	46%	53%	60%	67%	72%	77%	80%	83%	85%	87%	88%	88%	88%	88%	88%	88%	88%	
1469	Refrigeration	Strip Curtains	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1470	Refrigeration	Base Section Line	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1471	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1472	Refrigeration	Saturated Suction Controls	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1473	Refrigeration	Compressor Retrofit	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1474	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1475	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1476	Refrigeration	Variable Speed Compressor Fan	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1477	Refrigeration	Refrigeration Evaporator	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1478	Refrigeration	Anti-Sweat Heater Controls MIT	Bi-Standard	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1479	Refrigeration	Display Case Door Retrofit to Medium Temp	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1480	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1481	Refrigeration	Q-Sync Motor on Walk-In Refrigerator Evaporator Fan Motor	Bi-Standard	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1482	Refrigeration	Q-Sync Motor on Walk-In Refrigerator Evaporator Fan Motor	Bi-Standard	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1483	Refrigeration	Energy Star Reach-In Refrigerator Solid Doors	Bi-Standard	Warehouse	ROB	68%	1%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1484	Refrigeration	Anti-Sweat Heater Controls I	Bi-Standard	Warehouse	ROB	68%	1%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1485	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1486	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Standard	Warehouse	ROB	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1487	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Warehouse	ROB	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1488	Refrigeration	Refrigeration - Custom	Bi-Custom	Warehouse	ROB	68%	1%	2%	3%	3%	5%	7%	9%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	39%	39%	40%	
1489	Refrigeration	Refrigeration - Custom	Bi-Custom	Warehouse	ROB	68%	1%	2%	3%	3%	5%	7%	9%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	39%	39%		
1490	Refrigeration	Bi-Custom RCL	Bi-Custom	Warehouse	ROB	68%	1%	2%	3%	3%	5%	7%	9%	11%	14%	17%	21%	24%	27%	30%	33%	35%	36%	38%	39%	39%		
1491	Refrigeration	Energy Star Ice Machine	Bi-Custom	Warehouse	ROB	68%	1%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1492	Refrigeration	ESTAR Refrigerated Vending Machine	Bi-Custom	Warehouse	ROB	68%	1%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1493	Refrigeration	Vending Machine Controller - Refrigerated	Bi-Custom	Warehouse	ROB	68%	1%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1494	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/1F	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1495	Ventilation	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1496	Ventilation	Demand Controlled Ventilation	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1497	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1498	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Warehouse	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1499	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Warehouse	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1500	Ventilation	High Volume Low Speed Fan, 24	Bi-Standard	Warehouse	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1501	Wholesale/RVAC	HVAC - Energy Management System	Bi-Custom	Warehouse	Retro	68%	4%	4%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1502	Wholesale/RVAC	Wholesale/RVAC Cool Roof	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1503	Wholesale/RVAC	Wholesale/RVAC Retro-commissioning, Bld Optimization	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1504	Wholesale/RVAC	Wholesale/RVAC Wholesaling - Con/Kit	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1505	Wholesale/RVAC	Wholesale/RVAC Wholesaling - Custom (Other)	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1506	Wholesale/RVAC	Wholesale/RVAC Wholesaling - Power Distribution/Equipment Upgrades (Transformers)	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1507	Wholesale/RVAC	Wholesale/RVAC Wholesaling - Con/Kit	Bi-Custom	Warehouse	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1508	Behavioral	CO2 Monitoring	Bi-Custom	Warehouse	Retro	38%	2%	3%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
1509	Behavioral	Building Benchmarking	Bi-Custom	Warehouse	Retro	38%	2%	3%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
1510	Behavioral	Behavioral Strategic Energy Management	Bi-Custom	Warehouse	Retro	38%	2%	3%	3%	3%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
1511	Behavioral	BEEMS	Bi-Custom	Warehouse	Retro	38%	3%	4%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1512	Behavioral	Building Operator Certification	Bi-Custom	Warehouse	Retro	38%	3%	4%	4%	4%	5%	6%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
1513	CompressedAir	Retro-commissioning, Compressed Air Optimization	Bi-Custom	Warehouse	Retro	68%	18%	17%	15%	13%	11																	

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
1539	Cooling	HVAC Occupancy Controls	Bi-Custom	Other	ROB	77%	19%	22%	25%	27%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%		
1540	Cooling	HVAC Controller - 16SEER (6.5 Tons)	Bi-Standard/SBDI	Other	ROB	77%	11%	14%	17%	21%	25%	29%	33%	37%	40%	43%	45%	46%	47%	48%	49%	49%	49%	49%	49%	49%	49%		
1541	Cooling	Air Conditioner - 17SEER (6.5 Tons)	Bi-Standard/SBDI	Other	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	26%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	
1542	Cooling	Air Conditioner - 18SEER (6.5 Tons)	Bi-Standard/SBDI	Other	ROB	77%	12%	15%	17%	19%	21%	23%	24%	26%	26%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	
1543	Cooling	Air Conditioner - 21SEER (6.5 Tons)	Bi-Standard/SBDI	Other	ROB	77%	12%	15%	17%	19%	21%	23%	25%	26%	27%	27%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	
1544	Cooling	Smart Thermostat	Bi-Custom	Other	ROB	77%	64%	66%	68%	69%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%		
1545	Cooling	PTAC <7,000 Btu/h - loading	Bi-Custom	Other	ROB	77%	18%	21%	25%	28%	31%	34%	36%	37%	39%	40%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	
1546	Cooling	PTAC >7,000 to 15,000 Btu/h - loading	Bi-Custom	Other	ROB	77%	17%	18%	20%	22%	24%	26%	27%	28%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	
1547	Cooling	PTAC >15,000 Btu/h - loading	Bi-Custom	Other	ROB	77%	18%	22%	26%	31%	35%	38%	41%	44%	46%	48%	49%	50%	51%	51%	51%	51%	51%	51%	51%	51%	51%		
1548	Cooling	Air Cooled Chiller - loading	Bi-Custom	Other	ROB	77%	4%	6%	7%	9%	12%	15%	17%	20%	23%	25%	27%	29%	31%	32%	33%	34%	34%	34%	34%	34%	34%		
1549	Cooling	Water Cooled Chiller	Bi-Custom	Other	ROB	77%	3%	5%	6%	8%	11%	13%	15%	17%	20%	23%	26%	29%	31%	33%	35%	36%	37%	38%	38%	38%	38%		
1550	Cooling	Chiller Tune-up	Bi-Custom	Other	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
1551	Cooling	Window Film	Bi-Custom	Other	Retro	77%	12%	13%	13%	12%	11%	10%	8%	7%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1552	Cooling	Triple Pane Windows	Bi-Custom	Other	ROB	77%	2%	3%	3%	4%	5%	5%	6%	7%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	
1553	Cooling	Energy Recovery Ventilator	Bi-Custom	Other	ROB	77%	1%	2%	3%	4%	5%	7%	9%	11%	13%	15%	17%	19%	20%	21%	22%	23%	24%	24%	24%	25%	25%		
1554	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1555	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1556	Exterior Lighting	LED <=130 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1557	Exterior Lighting	LED <=225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1558	Exterior Lighting	LED <=225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1559	Exterior Lighting	LED <=225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1560	Exterior Lighting	LED <=225 Watt Lamp or Fixture Replacing Garage or Exterior 12/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	Other	Retro	68%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1561	Heating	Heat Pump - 16SEER (6.5 Tons)	Bi-Standard	Other	ROB	68%	5%	6%	8%	10%	12%	14%	17%	19%	21%	23%	24%	25%	26%	26%	27%	27%	28%	28%	28%	28%	28%	28%	
1562	Heating	Heat Pump - 18SEER (6.5 Tons)	Bi-Standard	Other	ROB	68%	5%	6%	8%	10%	12%	15%	17%	19%	21%	23%	24%	25%	26%	26%	27%	27%	28%	28%	28%	28%	28%	28%	
1563	Heating	Heat Pump - 21SEER (6.5 Tons)	Bi-Standard	Other	ROB	68%	4%	5%	6%	8%	10%	12%	15%	17%	20%	22%	23%	24%	25%	26%	26%	27%	27%	28%	28%	28%	28%	28%	
1564	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	Other	ROB	68%	9%	12%	15%	18%	22%	26%	29%	32%	35%	37%	39%	40%	41%	42%	42%	42%	42%	42%	42%	42%	42%	42%	
1565	Heating	Heat Pump - 15.0 IEER COP 3.6 (6,500-134,000 Btu/hr)	Bi-Standard	Other	ROB	68%	4%	5%	7%	9%	11%	14%	18%	21%	25%	28%	31%	33%	35%	37%	39%	40%	41%	42%	42%	42%	42%	42%	
1566	Heating	Heat Pump - 16.0 IEER COP 3.6 (6,500-134,000 Btu/hr)	Bi-Standard	Other	ROB	68%	4%	5%	7%	9%	12%	15%	19%	22%	26%	29%	32%	35%	37%	39%	40%	41%	42%	42%	42%	42%	42%	42%	
1567	Heating	Heat Pump - 14.5 IEER COP 3.6 (135,000-339,000 Btu/hr)	Bi-Standard	Other	ROB	68%	4%	5%	7%	9%	12%	15%	19%	22%	26%	29%	32%	35%	37%	39%	41%	42%	42%	42%	42%	42%	42%	42%	
1568	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-339,000 Btu/hr)	Bi-Standard	Other	ROB	68%	4%	5%	7%	9%	12%	15%	19%	22%	26%	29%	33%	35%	37%	39%	41%	42%	42%	42%	42%	42%	42%	42%	
1569	Heating	Heat Pump - 14 IEER COP 3.7 (135,000-339,000 Btu/hr)	Bi-Standard	Other	ROB	68%	4%	5%	7%	10%	12%	16%	19%	23%	27%	31%	34%	37%	39%	41%	42%	42%	42%	42%	42%	42%	42%	42%	
1570	Heating	Heat Pump - 13 IEER 3.6 COP (239,000 Btu/hr)	Bi-Standard	Other	ROB	68%	4%	5%	7%	9%	12%	15%	18%	22%	25%	29%	32%	34%	37%	38%	40%	41%	41%	41%	41%	41%	41%	41%	
1571	Heating	Geothermal HP - 17 IEER <138kbtu	Bi-Custom	Other	ROB	68%	19%	22%	25%	27%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
1572	Heating	Geothermal HP - 19 IEER <138kbtu	Bi-Custom	Other	ROB	68%	19%	22%	25%	27%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
1573	Heating	PTHP <7,000 Btu/h - loading	Bi-Custom	Other	ROB	68%	17%	21%	24%	27%	30%	33%	35%	36%	38%	39%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	
1574	Heating	PTHP >7,000 to 15,000 Btu/h - loading	Bi-Custom	Other	ROB	68%	18%	22%	26%	30%	34%	38%	41%	43%	45%	47%	48%	49%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
1575	Heating	PTHP >15,000 Btu/h - loading	Bi-Custom	Other	ROB	68%	19%	23%	28%	33%	37%	41%	44%	47%	49%	51%	52%	53%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%	
1576	Hotwater	Res-Styled Heat Pump Water Heater	Bi-Custom	Other	ROB	68%	9%	10%	13%	16%	20%	24%	28%	32%	35%	38%	40%	42%	44%	46%	48%	49%	50%	50%	50%	50%	50%	50%	
1577	Hotwater	Commercial-Styled HPWH	Bi-Custom	Other	Retro	68%	9%	12%	15%	19%	23%	28%	33%	37%	41%	44%	47%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	
1578	Hotwater	Hot Water Pipe Insulation	Bi-Custom	Other	Retro	68%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1579	Hotwater	Faucet Aerator	Bi-Custom	Other	ROB	68%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1580	Hotwater	Low flow Pre-Rinse Sprayers	Bi-Custom	Other	ROB	68%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1581	Hotwater	ENERGY STAR Compact Washing Machines	Bi-Custom	Other	ROB	68%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1582	Hotwater	ENERGY STAR Compact Dishwashers	Bi-Custom	Other	ROB	68%	36%	28%	21%	15%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1583	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen >30 Watt Lamp	Bi-Standard/SBDI	Other	ROB	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1584	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen >30 Watt Lamp	Bi-Standard/SBDI	Other	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1585	Interior Lighting	LED Specialty Lamp	Bi-Standard/SBDI	Other	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1586	Interior Lighting	LED <=14 Watt Lamp Replacing Interior Halogen BRV4 45-65 Watt Lamp	Bi-Standard/SBDI	Other	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1587	Interior Lighting	LED <=13 Watt Lamp Replacing Interior Halogen BRV4 35-50 Watt Lamp	Bi-Standard/SBDI	Other	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1588	Interior Lighting	LED <=20 Watt Lamp Replacing Interior Halogen PAR48-90 Watt Lamp	Bi-Standard/SBDI	Other	Retro	77%	26%	21%	17%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1589	Interior Lighting	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	Bi-Standard/SBDI	Other	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1590	Interior Lighting	LED <=20 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	Bi-Standard/SBDI	Other	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1591	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID	Bi-Standard	Other	Retro	77%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1592	Interior Lighting	LED Fixture with Network Controls Replacing Interior HID 300-500 Watt Lamp or Fixture	Bi-Standard/SBDI	Other	Retro	77%	23%	20%	16%	13%	10%	8%	6%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1593	Interior Lighting	LED Replacing Interior 15 Fluorescent (Type A / Hybrid)	Bi-Standard/SBDI	Other	Retro	77%	20%	18%	16%	13%	10%	8%	6%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1594	Interior Lighting	LED Replacing Interior 15 Fluorescent (Type B, kits, and fixtures)	Bi-Standard/SBDI	Other	Retro	77%																							

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1611	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Standard	Other	ROB	68%	3%	4%	4%	8%	11%	14%	18%	22%	26%	30%	34%	38%	41%	44%	46%	48%	49%	50%	50%	50%
1612	Miscellaneous	High Efficiency Hood Drains	Bi-Custom	Other	Retro	68%	10%	11%	12%	12%	11%	10%	9%	8%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%
1613	Miscellaneous	Energy Star Printer/Copier/Fax	Bi-Custom	Other	Retro	68%	4%	4%	4%	5%	7%	10%	14%	18%	22%	26%	30%	34%	38%	41%	44%	46%	48%	49%	50%	50%
1614	Miscellaneous	Onco Commercial Laundry	Bi-Custom	Other	ROB	79%	69%	72%	74%	75%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%
1615	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Bi-Custom	Other	ROB	68%	19%	23%	27%	32%	36%	40%	44%	48%	52%	56%	60%	64%	68%	72%	76%	80%	84%	88%	92%	96%
1616	Miscellaneous	Pool Pump / Variable Frequency Drive	Bi-Custom	Other	ROB	68%	19%	23%	27%	32%	36%	40%	44%	48%	52%	56%	60%	64%	68%	72%	76%	80%	84%	88%	92%	96%
1617	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	Other	ROB	68%	19%	23%	27%	32%	36%	40%	44%	48%	52%	56%	60%	64%	68%	72%	76%	80%	84%	88%	92%	96%
1618	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	Other	ROB	68%	19%	23%	27%	32%	36%	40%	44%	48%	52%	56%	60%	64%	68%	72%	76%	80%	84%	88%	92%	96%
1619	Miscellaneous	High Efficiency Dryer	Bi-Custom	Other	ROB	68%	18%	22%	27%	32%	36%	40%	43%	46%	49%	51%	53%	55%	57%	59%	61%	63%	65%	67%	69%	71%
1620	Miscellaneous	High Efficiency Dryer (Covered)	Bi-Custom	Other	ROB	68%	18%	22%	27%	32%	36%	40%	43%	46%	49%	51%	53%	55%	57%	59%	61%	63%	65%	67%	69%	71%
1621	Motors	Miscellaneous Custom	Bi-Custom	Other	Retro	68%	10%	11%	12%	12%	11%	10%	9%	8%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1622	Motors	Cogged V-belt	Bi-Custom	Other	Retro	68%	3%	4%	4%	4%	5%	7%	10%	14%	18%	22%	26%	30%	34%	38%	41%	44%	46%	48%	49%	50%
1623	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Standard	Other	Retro	68%	3%	4%	4%	4%	5%	7%	10%	14%	18%	22%	26%	30%	34%	38%	41%	44%	46%	48%	49%	50%
1624	Motors	Power Drive Systems	Bi-Custom	Other	Retro	68%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1625	Motors	Switch Reluctance Motors	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1626	Motors	Escalator Motor (Efficiency Controls)	Bi-Custom	Other	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1627	Office_NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	Other	ROB	93%	89%	91%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
1628	Office_NonPC	Smart Power Strip - Commercial Use	Bi-Custom	Other	Retro	68%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1629	Office_NonPC	Plug Load Occupancy Sensor	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1630	Office_JC	Electrically Commutated Plug Fans in data centers	Bi-Custom	Other	ROB	68%	2%	3%	4%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1631	Office_JC	Server Virtualization	Bi-Custom	Other	ROB	68%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1632	Office_JC	High Efficiency Chiller Unit	Bi-Custom	Other	ROB	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1633	Office_JC	Computer Room Air Conditioner Economizer	Bi-Custom	Other	ROB	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1634	Office_JC	Dual Tier Hot/Cold Aisle Configuration	Bi-Custom	Other	ROB	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1635	Office_JC	Energy Star Peripherals	Bi-Custom	Other	ROB	90%	25%	31%	38%	46%	53%	60%	67%	72%	77%	80%	83%	85%	87%	88%	88%	88%	88%	88%	88%	88%
1636	Office_JC	Energy Star Monitor	Bi-Custom	Other	ROB	90%	25%	31%	38%	46%	53%	60%	67%	72%	77%	80%	83%	85%	87%	88%	88%	88%	88%	88%	88%	88%
1637	Refrigeration	Strap Curtains	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1638	Refrigeration	Base Suction Line	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1639	Refrigeration	Floating Head Pressure Controls	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1640	Refrigeration	Saturated Suction Controls	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1641	Refrigeration	Compressor Retrofit	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1642	Refrigeration	Electrically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Standard	Other	Retro	86%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1643	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1644	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1645	Refrigeration	Refrigeration Economizer	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1646	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1647	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Standard	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1648	Refrigeration	Electrically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Standard	Other	Retro	86%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1649	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1650	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Other	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	60%	61%	62%	
1651	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Standard	Other	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	60%	61%	62%	
1652	Refrigeration	Anti-Sweat Heater Controls LT	Bi-Standard	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1653	Refrigeration	Display Case Door Retrofit, Low Temp	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1654	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Other	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	60%	61%	62%	
1655	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Other	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	60%	61%	62%	
1656	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Bi-Standard	Other	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	57%	60%	61%	62%	
1657	Refrigeration	Retro-commissioning, Refrigerator Optimization	Bi-Custom	Other	ROB	68%	1%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1658	Refrigeration	Energy Star Ice Machine	Bi-Custom	Other	ROB	68%	1%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1659	Refrigeration	High Efficiency Venting Methods	Bi-Custom	Other	ROB	68%	1%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1660	Refrigeration	Energy Star Refrigerator, Backlit	Bi-Custom	Other	ROB	68%	1%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1661	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Other	Retro	68%	2%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1662	Refrigeration	LED Refrigerated Display Case Lighting Controls	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1663	Ventilation	Demand Controlled Ventilation	Bi-Custom	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1664	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Bi-Standard	Other	Retro	68%	2%	3%	3%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1665	Ventilation	High Volume Low Speed Fan, 20	Bi-Standard	Other	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
1666	Ventilation	High Volume Low Speed Fan, 22	Bi-Standard	Other	Retro	68%	3%	4%	4%	4%	5%	6%	7%	8%	8%	9%										

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1662	Cooking	Dishwasher (Low Temp Door Energy Star)	Bi-Custom	BSS	ROB	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	
1663	Cooking	Dishwasher (High Temp Door Energy Star)	Bi-Custom	BSS	ROB	73%	60%	63%	65%	67%	68%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	
1664	Cooking	Energy Efficient electric fryer	Bi-Custom	BSS	ROB	68%	23%	27%	31%	36%	39%	43%	45%	47%	49%	50%	51%	52%	52%	52%	52%	52%	52%	52%	52%	52%	52%	
1665	Cooking	Insulated Holding Cabinets (Full Size)	Bi-Custom	BSS	ROB	68%	5%	7%	9%	11%	14%	17%	20%	22%	24%	25%	26%	28%	30%	31%	32%	32%	33%	33%	33%	33%	33%	
1666	Cooking	Insulated Holding Cabinets (Half Size)	Bi-Custom	BSS	ROB	68%	5%	7%	9%	11%	14%	17%	20%	22%	24%	25%	26%	28%	30%	31%	32%	32%	33%	33%	33%	33%	33%	
1667	Cooking	Air Conditioner - 17.1ER (5-20 Tons)	Bi-Custom	BSS	ROB	77%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	62%	68%	74%	77%	77%	77%	77%	
1668	Cooking	Air Conditioner - 18.1ER (5-20 Tons)	Bi-Custom	BSS	ROB	77%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	62%	68%	74%	77%	77%	77%	77%	
1669	Cooking	Air Conditioner - 18.1ER (5-20 Tons)	Bi-Custom	BSS	ROB	77%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	62%	68%	74%	77%	77%	77%	77%	
1700	Cooking	Air Conditioner - 21.1ER (5-20 Tons)	Bi-Custom	BSS	ROB	77%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	62%	68%	74%	77%	77%	77%	77%	
1701	Cooking	Air Conditioner - 14.3 REER (20+ Tons)	Bi-Custom	BSS	ROB	77%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	62%	68%	74%	77%	77%	77%	77%	
1702	Cooking	Air Conditioner - 15.1ER (20+ Tons)	Bi-Custom	BSS	ROB	77%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	62%	68%	74%	77%	77%	77%	77%	
1703	Cooking	Air Conditioner - 17.1ER (20+ Tons)	Bi-Custom	BSS	ROB	77%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	62%	68%	74%	77%	77%	77%	77%	
1704	Cooking	Comprehensive Rooftop Unit Quality Maintenance (ACT-Upgrade)	Bi-Custom	BSS	Retro	77%	20%	18%	16%	13%	11%	10%	9%	8%	7%	6%	4%	3%	3%	2%	2%	0%	0%	0%	0%	0%	0%	
1705	Cooking	Air Side Economizer	Bi-Custom	BSS	Retro	77%	10%	11%	12%	12%	11%	10%	9%	8%	7%	6%	4%	3%	3%	2%	2%	0%	0%	0%	0%	0%	0%	0%
1706	Cooking	Advanced Rooftop Controls	Bi-Custom	BSS	Retro	77%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	3%	2%	2%	0%	0%	0%	0%	
1707	Cooking	HVAC Occupancy Controls	Bi-Custom	BSS	ROB	77%	19%	22%	25%	27%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1708	Cooking	Air Conditioner - 15.5ER (5 Tons)	Bi-Custom	BSS	ROB	77%	1%	4%	6%	8%	11%	15%	19%	24%	29%	35%	41%	46%	51%	56%	62%	68%	74%	77%	77%	77%		
1709	Cooking	Air Conditioner - 17.5ER (5 Tons)	Bi-Custom	BSS	ROB	77%	3%	5%	6%	8%	10%	12%	15%	17%	19%	21%	23%	24%	26%	28%	28%	28%	28%	28%	28%	28%	28%	
1710	Cooking	Air Conditioner - 18.5ER (5 Tons)	Bi-Custom	BSS	ROB	77%	2%	3%	5%	6%	8%	10%	13%	16%	19%	22%	25%	28%	30%	32%	33%	33%	33%	33%	33%	33%	33%	
1711	Cooking	Air Conditioner - 21.5ER (5 Tons)	Bi-Custom	BSS	ROB	77%	2%	3%	5%	6%	8%	10%	14%	18%	22%	27%	32%	38%	43%	47%	51%	54%	57%	59%	61%	62%	63%	
1712	Cooking	Smart Thermostat	Bi-Custom	BSS	ROB	77%	42%	48%	53%	58%	61%	64%	66%	68%	69%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
1713	Cooking	PTAC - <7,000 Btu/h - lodging	Bi-Custom	BSS	ROB	77%	19%	23%	27%	30%	33%	36%	38%	40%	42%	43%	43%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	
1714	Cooking	PTAC - 7,000 to 15,000 Btu/h - lodging	Bi-Custom	BSS	ROB	77%	19%	23%	27%	30%	33%	36%	38%	40%	42%	43%	43%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	
1715	Cooking	PTAC - 15,000 to 30,000 Btu/h - lodging	Bi-Custom	BSS	ROB	77%	19%	23%	27%	30%	33%	36%	38%	40%	42%	43%	43%	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	
1716	Cooking	Air-Conditioned Chiller	Bi-Custom	BSS	ROB	77%	15%	18%	22%	26%	30%	34%	38%	42%	46%	49%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	
1717	Cooking	Water Cooled Chiller	Bi-Custom	BSS	ROB	77%	2%	4%	5%	7%	9%	12%	15%	18%	22%	26%	30%	33%	36%	38%	40%	41%	42%	43%	44%	44%	44%	
1718	Cooking	Chiller Tune-up	Bi-Custom	BSS	ROB	77%	1%	3%	5%	7%	9%	12%	15%	18%	22%	26%	30%	33%	36%	38%	40%	41%	42%	43%	44%	44%	44%	
1719	Cooking	Window Film	Bi-Custom	BSS	Retro	77%	20%	18%	16%	13%	11%	10%	9%	8%	7%	6%	4%	3%	3%	2%	2%	0%	0%	0%	0%	0%	0%	
1720	Cooking	Triple Pane Windows	Bi-Custom	BSS	Retro	77%	12%	13%	13%	12%	11%	10%	9%	8%	7%	6%	5%	4%	3%	3%	2%	2%	0%	0%	0%	0%	0%	
1721	Cooking	Energy Recovery Ventilator	Bi-Custom	BSS	ROB	77%	1%	2%	3%	4%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
1722	Cooking	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	BSS	Retro	77%	3%	4%	4%	4%	5%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
1723	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	BSS	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1724	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	BSS	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1725	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	BSS	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1726	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	BSS	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1727	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	BSS	Retro	78%	32%	25%	19%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1728	Exterior Lighting	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-176-300 Watt Lamp or Fixture	Bi-Custom	BSS	Retro	68%	20%	18%	16%	13%	10%	8%	6%	5%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
1729	Heating	Heat Pump - 16.5ER (5 Tons)	Bi-Custom	BSS	ROB	68%	3%	5%	6%	8%	10%	12%	15%	17%	19%	21%	23%	24%	26%	28%	28%	28%	28%	28%	28%	28%	28%	
1730	Heating	Heat Pump - 18.5ER (5 Tons)	Bi-Custom	BSS	ROB	68%	3%	4%	5%	7%	9%	12%	14%	17%	20%	22%	25%	27%	29%	30%	31%	32%	32%	33%	33%	33%	33%	
1731	Heating	Heat Pump - 21.5ER (5 Tons)	Bi-Custom	BSS	ROB	68%	1%	3%	5%	7%	9%	12%	15%	18%	22%	26%	30%	33%	36%	40%	43%	46%	48%	50%	51%	52%	53%	
1732	Heating	Variable Refrigerant Flow Heat Pump	Bi-Custom	BSS	ROB	68%	9%	12%	15%	19%	22%	26%	30%	33%	35%	38%	39%	41%	42%	43%	43%	43%	43%	43%	43%	43%	43%	
1733	Heating	Heat Pump - 15.0 REER COP3 (6,000-15,000 Btu/h)	Bi-Custom	BSS	ROB	68%	11%	13%	15%	19%	22%	26%	30%	33%	35%	38%	39%	41%	42%	43%	43%	43%	43%	43%	43%	43%	43%	
1734	Heating	Heat Pump - 16.0 REER COP3 (6,000-15,000 Btu/h)	Bi-Custom	BSS	ROB	68%	11%	13%	15%	19%	22%	26%	30%	33%	35%	38%	39%	41%	42%	43%	43%	43%	43%	43%	43%	43%	43%	
1735	Heating	Heat Pump - 16.5 REER COP3 (6,000-15,000 Btu/h)	Bi-Custom	BSS	ROB	68%	11%	13%	15%	19%	22%	26%	30%	33%	35%	38%	39%	41%	42%	43%	43%	43%	43%	43%	43%	43%	43%	
1736	Heating	Heat Pump - 17.5 REER COP3 (6,000-15,000 Btu/h)	Bi-Custom	BSS	ROB	68%	11%	13%	15%	19%	22%	26%	30%	33%	35%	38%	39%	41%	42%	43%	43%	43%	43%	43%	43%	43%	43%	
1737	Heating	Heat Pump - 18.5 REER COP3 (6,000-15,000 Btu/h)	Bi-Custom	BSS	ROB	68%	1%	3%	5%	7%	9%	12%	15%	18%	22%	26%	30%	33%	36%	40%	43%	46%	47%	48%	49%	50%	50%	
1738	Heating	Heat Pump - 21.5 ER 3.4 COP (238,000 Btu/h)	Bi-Custom	BSS	ROB	68%	1%	3%	5%	7%	9%	12%	15%	18%	22%	26%	30%	33%	36%	40%	43%	46%	47%	48%	49%	50%	50%	
1739	Heating	Heat Pump - 19.1 ER 3.6 COP (238,000 Btu/h)	Bi-Custom	BSS	ROB	68%	1%	3%	5%	7%	9%	12%	15%	18%	22%	26%	30%	33%	36%	40%	43%	46%	47%	48%	49%	50%	50%	
1740	Heating	Geothermal HP - 17 ER - C138bbu	Bi-Custom	BSS	ROB	68%	19%	22%	25%	27%	29%	31%	33%	34%	35%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
1741	Heating	Geothermal HP - 19 ER - C138bbu	Bi-Custom	BSS	ROB	68%	19%	22%	25%	27%	29%	31%	33%	34%	35%	36%	36%	36%										

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1765	Interlighting	LED Replacing Interior T8 Fluorescent (Type A, Hybrid)	Bi-Custom	BS5	Retro	77%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	0%	0%	0%	0%	0%
1766	Interlighting	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	Bi-Custom	BS5	Retro	77%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	0%	0%	0%	0%	0%
1767	Interlighting	LED Replacing Interior T8 Fluorescent (Type C, Kits, and Fixtures)	Bi-Custom	BS5	Retro	77%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	0%	0%	0%	0%	0%
1768	Interlighting	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	Bi-Custom	BS5	Retro	77%	15%	15%	14%	13%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1769	Interlighting	LED Replacing Interior T12 Fluorescent (Type A, Hybrid)	Bi-Custom	BS5	Retro	77%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	0%	0%	0%	0%	0%
1770	Interlighting	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	Bi-Custom	BS5	Retro	77%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	0%	0%	0%	0%	0%
1771	Interlighting	LED Replacing Interior T12 Fluorescent (Type C)	Bi-Custom	BS5	Retro	77%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	2%	2%	0%	0%	0%	0%	0%
1772	Interlighting	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	Bi-Custom	BS5	Retro	77%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1773	Interlighting	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	Bi-Custom	BS5	Retro	77%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	3%	2%	2%	0%	0%	0%
1774	Interlighting	Remote Mounted Occupancy Sensor Controlling > 150 Watts	Bi-Custom	BS5	Retro	77%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1775	Interlighting	Lighting Power Density	Bi-Custom	BS5	Retro	77%	4%	5%	7%	8%	9%	9%	9%	9%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	0%	0%
1776	Interlighting	LED Lighting Redesign/Custom	Bi-Custom	BS5	Retro	86%	26%	21%	17%	13%	10%	8%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1777	Miscellaneous	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	Bi-Custom	BS5	Retro	68%	1%	3%	5%	13%	13%	9%	7%	5%	4%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1778	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Bi-Custom	BS5	ROB	68%	1%	3%	5%	6%	9%	11%	14%	18%	22%	27%	31%	35%	39%	42%	45%	47%	49%	50%	51%	52%
1780	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Bi-Custom	BS5	ROB	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1781	Miscellaneous	High Efficiency Hand Dryers	Bi-Custom	BS5	Retro	68%	4%	4%	4%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	4%	4%	3%	3%	2%	1%	0%
1782	Miscellaneous	Ozone Commercial Laundry	Bi-Custom	BS5	ROB	79%	69%	72%	74%	75%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%
1783	Miscellaneous	ENERGY STAR Interrupted Power Supply	Bi-Custom	BS5	ROB	68%	19%	23%	28%	32%	36%	40%	44%	46%	49%	50%	52%	52%	53%	53%	53%	53%	53%	53%	53%	53%
1784	Miscellaneous	Pool Pump w/ Variable Frequency Drive	Bi-Custom	BS5	ROB	68%	19%	23%	28%	32%	36%	40%	43%	46%	49%	50%	51%	52%	52%	53%	53%	53%	53%	53%	53%	53%
1785	Miscellaneous	Pool Heater Heat Pump (Uncovered)	Bi-Custom	BS5	ROB	68%	19%	23%	28%	32%	36%	40%	43%	46%	49%	50%	51%	52%	52%	53%	53%	53%	53%	53%	53%	53%
1787	Miscellaneous	Pool Heater Heat Pump (Covered)	Bi-Custom	BS5	ROB	68%	19%	23%	27%	31%	35%	39%	42%	45%	47%	48%	50%	51%	52%	52%	53%	53%	53%	53%	53%	53%
1788	Miscellaneous	High Efficiency Dryer	Bi-Custom	BS5	ROB	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1789	Miscellaneous	Miscellaneous Custom	Bi-Custom	BS5	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1789	Motors	Cogged V-Belt	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	0%
1790	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Bi-Custom	BS5	Retro	68%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	0%
1791	Motors	Power Drive Systems	Bi-Custom	BS5	Retro	68%	5%	6%	7%	8%	9%	10%	10%	9%	8%	7%	6%	5%	4%	3%	3%	2%	2%	0%	0%	0%
1792	Motors	Switch Reluctance Motors	Bi-Custom	BS5	Retro	68%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	0%
1793	Motors	Excitation Motor Efficiency Controllers	Bi-Custom	BS5	Retro	68%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
1794	Office, NonPC	Energy Star Printer/Copier/Fax	Bi-Custom	BS5	ROB	68%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
1795	Office, NonPC	Smart Power Strip - Commercial Use	Bi-Custom	BS5	ROB	68%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1796	Office, NonPC	Highly Configurable Plug-In Data Centers	Bi-Custom	BS5	ROB	68%	8%	9%	10%	11%	11%	10%	9%	8%	7%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%
1797	Office, PC	Energy Star Server	Bi-Custom	BS5	ROB	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	0%
1798	Office, PC	Server Virtualization	Bi-Custom	BS5	ROB	68%	1%	3%	4%	6%	8%	11%	14%	17%	21%	25%	30%	34%	37%	40%	43%	45%	46%	48%	48%	48%
1800	Office, PC	High Efficiency ChA/c Unit	Bi-Custom	BS5	ROB	68%	1%	2%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1801	Office, PC	Computer Room Air Conditioner Economizer	Bi-Custom	BS5	ROB	68%	1%	2%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1802	Office, PC	Data Center Hot/Cold Aisle Configuration	Bi-Custom	BS5	ROB	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1803	Office, PC	Energy Star Laptop	Bi-Custom	BS5	ROB	90%	25%	31%	38%	46%	53%	60%	67%	72%	77%	80%	83%	85%	87%	88%	88%	88%	88%	88%	88%	88%
1804	Office, PC	Energy Star Monitor	Bi-Custom	BS5	ROB	90%	25%	31%	38%	46%	53%	60%	67%	72%	77%	80%	83%	85%	87%	88%	88%	88%	88%	88%	88%	88%
1805	Refrigeration	Strip Curtains	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1806	Refrigeration	Ballast Curtains	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1807	Refrigeration	Floating Head Pressure Controls	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1808	Refrigeration	Saturated Suction Controls	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1809	Refrigeration	Compressor Retrofit	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1810	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1811	Refrigeration	Evaporator Fan Motor Controls	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1812	Refrigeration	Variable Speed Condenser Fan	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1813	Refrigeration	Refrigeration Economizer	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1814	Refrigeration	Anti-Sweat Heater Controls MT	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1815	Refrigeration	Display Case Door Retrofit, Medium Temp	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1816	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1817	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1818	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Bi-Custom	BS5	ROB	68%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1819	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Bi-Custom	BS5	ROB	68%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
1820	Refrigeration	Anti-Sweat Heater Controls LT, Temp	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1821	Refrigeration	Anti-Sweat Heater Controls HT, Temp	Bi-Custom	BS5	Retro	68%	2%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	2%	2%	0%	0%	0%	0%	
1822	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Bi-Custom	BS5	ROB	68%	1%	3%	6%	8%	10%	14%	18%	22%	27%	33%	38%	43%	48%	52%	55%	58%	60%	61%		

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Ultimate Adoption	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1845	Behavioral	Building Benchmarking	Bi-Custom	BSS	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	1%	
1846	Behavioral	Strategic Energy Management	Bi-Custom SEM	BSS	Retro	38%	2%	3%	3%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	1%	
1847	Behavioral	BEFMS	Bi-Custom	BSS	Retro	38%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	1%	0%	
1848	Behavioral	Building Operator Certification	Bi-Custom	BSS	Retro	38%	3%	4%	4%	4%	5%	6%	7%	8%	9%	9%	8%	7%	6%	5%	4%	3%	2%	1%	1%	0%	
1849	Water/Wastewater	Water Supply & Wastewater treatment pumps and process efficiency	Bi-Custom	Industrial	Retro	68%	15%	15%	14%	13%	11%	9%	7%	6%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1850	Compressed Air	Efficient Air Compressor Equipment	Bi-Custom	Industrial	ROB	68%	24%	28%	31%	35%	38%	40%	42%	43%	44%	45%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	
1851	Compressed Air	Efficient Air Compressor Controls	Bi-Custom	Industrial	Retro	68%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1852	HVAC	Efficient HVAC Equipment	Bi-Custom	Industrial	ROB	68%	23%	28%	33%	37%	41%	44%	47%	49%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%	
1853	HVAC	Efficient HVAC O&M	Bi-Custom	Industrial	Retro	68%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1854	Lighting	Efficient Lighting Equipment	Bi-Standard	Industrial	Retro	77%	5%	6%	7%	8%	9%	10%	10%	10%	9%	7%	6%	5%	4%	3%	2%	2%	2%	0%	0%	0%	
1855	Lighting	Efficient Lighting O&M	Bi-Custom	Industrial	Retro	77%	10%	11%	12%	12%	11%	10%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1856	Machine Drive	Efficient Motor/Dr Equipment	Bi-Custom	Industrial	ROB	68%	23%	27%	32%	36%	40%	43%	46%	48%	48%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%	53%	
1857	Machine Drive	Efficient Motor/Dr O&M	Bi-Custom	Industrial	Retro	68%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1858	Process Heat	Efficient Prodn/Heat Equipment	Bi-Custom	Industrial	ROB	68%	22%	25%	32%	35%	38%	40%	42%	43%	44%	45%	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%	
1859	Process Heat	Efficient Prodn/Heat O&M	Bi-Custom	Industrial	Retro	68%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1860	Process Heat	Efficient Prodn/Heat Equipment	Bi-Custom	Industrial	ROB	68%	23%	27%	32%	36%	40%	43%	46%	48%	48%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%	53%	
1861	Process Heat	Efficient Prodn/Heat O&M	Bi-Custom	Industrial	Retro	68%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1862	Other Process	Efficient Other Facility Process Equipment	Bi-Custom	Industrial	ROB	68%	25%	29%	33%	38%	42%	44%	46%	48%	48%	50%	47%	48%	48%	48%	48%	48%	48%	48%	48%	48%	
1863	Other Process	Efficient Other Facility Process O&M	Bi-Custom	Industrial	Retro	68%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1864	Wholebuilding	Power Distribution (Transformers)	Bi-Custom	Industrial	Retro	68%	18%	17%	15%	13%	11%	10%	9%	7%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	
1865	Wholebuilding	Strategic Energy Management	Bi-Custom SEM	Industrial	Retro	68%	15%	15%	14%	13%	11%	9%	7%	6%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
1866	Motors	Efficient Motor Pmp Equipment - Q1 Cost	Bi-Agriculture	Agriculture	ROB	68%	23%	28%	33%	37%	41%	44%	47%	49%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%	
1867	Motors	Efficient Motor Pmp Equipment - Q2 Cost	Bi-Agriculture	Agriculture	ROB	68%	23%	28%	33%	37%	41%	44%	47%	49%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%	
1868	Motors	Efficient Motor Pmp Equipment - Q3 Cost	Bi-Agriculture	Agriculture	ROB	68%	23%	28%	33%	37%	41%	44%	47%	49%	49%	51%	53%	54%	54%	54%	54%	54%	54%	54%	54%	54%	
1869	Motors	Efficient Motor Pmp O&M	Bi-Agriculture	Agriculture	Retro	68%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%		
1870	Refrigeration	Efficient Refrigeration Equipment	Bi-Agriculture	Agriculture	ROB	68%	23%	27%	32%	36%	40%	43%	46%	48%	48%	49%	51%	52%	52%	52%	52%	52%	52%	52%	52%		
1871	Lighting	Efficient Lighting	Bi-Agriculture	Agriculture	Retro	68%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%		
1872	Lighting	Grow Lighting	Bi-Agriculture	Agriculture	Retro	68%	26%	21%	17%	13%	10%	8%	6%	6%	6%	4%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	
1873	Ventilation	Efficient Ventilation	Bi-Agriculture	Agriculture	Retro	68%	12%	13%	13%	12%	11%	10%	8%	6%	5%	4%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
1874	HVAC	HVAC	Bi-Agriculture	Agriculture	ROB	68%	23%	28%	32%	36%	40%	44%	46%	49%	49%	50%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	

APPENDIX D: DEMAND RESPONSE DETAIL

Data Needed	Value	Source	Notes
General			
Years in study	20	Ameren MO	
Discount rate	6.59%	Ameren MO	
Peak demand line loss factor	7.979% for Residential; 7% for Commercial; 5.071% for Industrial	Ameren MO	
Reserve margin	16.15%	Ameren MO	
Rate of inflation	2%	Ameren MO	
CP load per eligible customer (kW) - Residential	3.49	Ameren MO with GDS Calculations	
CP load per eligible customer (kW) - C&I - SGS Only	4.95	Ameren MO with GDS Calculations	
CP load per eligible customer (kW) - C&I - LGS, SPS	167.47	Ameren MO with GDS Calculations	
CP load per eligible customer (kW) - C&I - SGS, LGS, SPS	15.95	Ameren MO with GDS Calculations	
Number of control hours for DLC	32	6-8 events per summer, 3-4 hours each	
Number of control hours for TOU Evening/Morning Savers	4380	Ameren MO	12 hours/day, 365 days/year
Number of control hours for TOU Overnight Savers	5840	Ameren MO	16 hours/day, 365 days/year
Number of control hours for TOU Smart & Ultimate Savers	1040	Ameren MO	4 hours/weekday, every week
Number of control hours for C&I TOU	1300	Ameren MO rate schedule - 5 hrs/day, weekdays	
Number of control hours for CPP	80	GDS Assumption	
Number of control hours for PTR	80	Portland Gas and Electric	12-20 events per summer, 3-4 hours each (max)
Number of control hours for ice storage	480	6 hours a day for summer weekdays	
Number of existing participants in DLC AC Thermostat program	31684	PY2021 DR Portfolio Evaluation Report	
Number of existing participants in Capacity Bidding Program	601	PY2021 DR Portfolio Evaluation Report	
Number of existing participants in TOU Evening/Morning Savers Program	359115	Steven M Wills Direct Testimony	
Number of existing participants in TOU Overnight Savers Program	522	Steven M Wills Direct Testimony	
Number of existing participants in TOU Smart Savers Program	366	Steven M Wills Direct Testimony	
Number of existing participants in TOU Ultimate Savers Program	302	Steven M Wills Direct Testimony	
Per Participant CP Load Reduction (kW or %)			
Residential Central AC Thermostat	1.05 kW	PY2021 DR Portfolio Evaluation Report	
Residential Space Heating	1 kW	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.	
Residential Electric Water Heating	0.41 kW in summer; 0.8 kW in winter	Average of Brattle Study (0.4 kW), Cadmus PSE potential study (0.57 kW with 94% effective rate applied), and Cadmus evaluation for Kootenai (0.26 kW) for summer; Brattle Study for winter	
Residential Room AC	0.504 kW	GDS Calculations using Enernoc saturations, UECs, and peak factors. Net Fraction of Load Available for Spinning Reserves from US DOE report on Use of Residential Smart Appliances for Peak-Load Shifting and Spinning Reserves, 2010.	
Residential Pool Pumps	1.36 kW	Southern California Edison Pool Pump Demand Response Potential Report 2008	
Residential CPP without Enabling Technology	12.95%	Impacts on Ameren TOU CPP Pilot Results	
Residential CPP with Enabling Technology	23.44%	Impacts on Ameren TOU CPP Pilot Results	
Residential TOU Evening/Morning Savers	0.3% in summer; 0.2% in winter	Steven M Wills Direct Testimony; Faruqui papers	
Residential TOU Overnight Savers	6.8% in summer; 3.5% in winter	Steven M Wills Direct Testimony; Faruqui papers	
Residential TOU Smart Savers	11.8% in summer; 9.0% in winter	Steven M Wills Direct Testimony; Faruqui papers	
Residential TOU Ultimate Savers	12.9% in summer; 9.3% in winter	Steven M Wills Direct Testimony; Faruqui papers	
Residential Peak Time Rebate	12.90%	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.	
Residential PEV Charging	.62 TOU only, .66 with level 2 charger	Testimony from Steven M. Wills for Ameren MO	
Residential Battery Storage	3 kW	GDS Assumption	
Non Residential Central AC Thermostat	1.6 kW	2012 FERC DR Survey Data (Reported realized savings data for 14 utility programs, adjusted to account for peak summer temperature differences using NOAA Normal Max Summer Temperture Data, 1981-2010)	
Non Residential Space Heating	1.5 kW	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.	
Non Residential PP	2 kW	Rocky Mountain Institute, LIPA Edge Program Profile	

Data Needed	Value	Source	Notes
Non Residential Lighting	8.94%	Business Energy Advisor/E Source, Strategies for C&I Demand Response; LIGHTING CALIFORNIA'S FUTURE: COST-EFFECTIVE DEMAND RESPONSE, Prepared For: California Energy Commission By: NEV Electronics, LLC, California Lighting Technology Center, March 2011; Lighting Controls Association, Lighting Control and Demand Response, By Craig DiLouie, on May 20, 2014; Demonstration and Evaluation of lighting technologies and Applications, Lighting Research Center, Field Test Issue 6, October 2011; What is the relation between energy consumption savings and peak load savings and how can this affect future energy conservation requirements? - Study conducted by the City of Toronto.	
Non Residential Electric Water Heating	0.6 kW in summer; 1.2 kW in winter	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.	
Non Residential TES	19.4 kW	MISO DR, EE, DG Potential Study: Supplemental Program Slides. Value for Local Resource Zone 5 (Includes Ameren MO service area)	
Non Residential CPP with Enabling Technology	21.47%	Dynamic Pricing: Transitioning from Experiments to Full Scale Deployments, Michigan Retreat on Peak Shaving to Reduce Wasted Energy, The Brattle Group, August 06, 2014.	
Non Residential CPP without Enabling Technology	11.3%	The Potential Impact of Demand-Side Rates for Ameren Missouri, The Brattle Group, Stakeholder Webinar, May 24, 2013	
Non Residential Time of Use	2%	The Potential Impact of Demand-Side Rates for Ameren Missouri, The Brattle Group, Stakeholder Webinar, May 24, 2013	
Non Residential Peak Time Rebate	0.7%	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.	
Non Residential Ag Irrigation	44 kW	2012 FERC DR Survey Data (Reported realized savings data for 17 utility programs)	
Non Residential Golf Cart Charging	0.75 kW per cart; 42.75 kW per golf course	Demand Response and Load Management Strategies for Electric Forklifts and Non-Road EV Fleets, Richard Cromie Program Manager, Southern California Edison Co.	
Non Residential Capacity Bidding	19.50%	2014 Statewide Load Impact Evaluation of California Aggregator Demand Response Programs. 2015. Christensen Associates Energy Consulting.	
Non Residential Demand Bidding	7%	Average taken from: 2013, 2014, and 2015 Load Impact of California Statewide Demand Bidding Programs for Non-Res Customers by Christensen Associates Energy Consulting and FERC 2012 DR Study.	
Non Residential Interruptible Rate	41.3 KW	MISO DR, EE, DG Potential Study: Supplemental Program Slides, July 31, 2015. Value for Local Resource Zone 5 (Includes Ameren MO service area)	
Control equipment useful life			
AMI meters	20 Years	Ameren Illinois AMI Cost/Benefit Analysis, 2012	
Controllable smart thermostat	10 Years	Illinois Technical Reference Manual 2022	
Level 2 EV Charger	10 Years	US DOE, Costs Associated with Non-Residential EV Supply Equipment, 2015	
Load switches	10 Years	Freeman, Sullivan & Co Cost Effectiveness of CECONY Demand Response Programs 2013; PA Act 129 Order 2013	
Residential battery for Battery Storage program	10 Years	Tesla's warranty period	
Costs			
Equipment and installation cost for smart thermostat	\$150	Nest & Ecobee	BYOT program- self install
Equipment cost for smart water heater	\$768	Home Depot - average of 4 cheapest smart water heaters; assuming self install by customer	
Equipment and installation cost for DLC pool pump	\$146 installed	DR Advanced Controls Framework and Assessment of Enabling Tech Costs, LBNL August 2017	
Equipment and installation cost for golf cart charging	\$9,000	Eaton Pow-R-Command Golf Car Off-Peak Charging	
Equipment and installation cost for non-residential lighting	\$1,900	Demonstration and Evaluation of lighting technologies and Applications, Lighting Research Center, Field Test Issue 6, October 2011	
Equipment and installation cost for PEV charging (level 1 charger)	\$245 for TOU meter, \$100 install	Provided by Ameren for a Landis&Gyr S4X meter	Assumed customer has level 1 charger, needs TOU meter to participate

Data Needed	Value	Source	Notes
Equipment and installation cost for residential PEV charging (enabling tech, level 2 charger)	\$0	GDS Assumption	Assumed customer already has level 2 charger, no additional cost to participate
Equipment and installation cost for residential Battery Storage	\$11,871	NREL 2022 forecast	
Equipment and installation cost for agriculture irrigation control	\$41/kW	DR Advanced Controls Framework and Assessment of Enabling Tech Costs, LBNL August 2017	
Equipment and installation cost for capacity bidding	\$0	Ameren data response 6.18.19	All participants are required to have a recordable, interval meter. In many cases the interval meter already exists for billing. If it does not exist, the cost per year to participate is ~\$250, which is covered with program administration budget.
Equipment and installation cost for demand bidding	\$0	GDS Assumption	
Incentive costs for residential DLC programs	MAP: \$30/participant-yr , RAP: \$25/participant-yr	Ameren MO Peak Time Savings Program; Market Research	
BYOT program one-time rebate incentive	\$50/thermostat	Ameren MO Peak Time Savings Program	
Incentive costs for non-residential DLC programs	MAP: \$60/participant-yr, RAP: \$50/participant-yr	Market Research	
Incentive costs for interruptible program	\$9.5/kW	Market Research	
Incentive costs for capacity bidding program	\$45/kW	Ameren MO	
Incentive costs for demand bidding program	\$0.5/kWh	Market Research	
Admin costs residential DLC programs	\$36,276	Assumes one senior project manager overseeing each of the residential and non-residential sectors, one associate engineer and one engineering assistant working on all of the DLC programs for each sector. All consultants are assumed to work 10 hours per week	
Admin costs non-residential DLC programs	\$37,019		
Admin costs residential rate programs	\$17,333		
Admin costs non-residential rate programs	\$22,285		
Admin costs for Capacity Bidding program	\$18/kW		Ameren MO
Evaluation Cost	\$50,000/year/program	GDS Estimate	
Marketing Cost - Programs with small customers	\$50/new participant/program	TENNESSEE VALLEY AUTHORITY POTENTIAL STUDY VOLUME 3: DEMAND RESPONSE POTENTIAL STUDY, Global Energy partners, December 21, 2011	
Marketing Cost - Programs with large customers	\$500/new participant/program	TENNESSEE VALLEY AUTHORITY POTENTIAL STUDY VOLUME 3: DEMAND RESPONSE POTENTIAL STUDY, Global Energy partners, December 21, 2011	Programs with large customers include Capacity Bidding, Interruptible Rate, TES/Ice Storage
Program implementation cost	\$400,000 for brand new program	TENNESSEE VALLEY AUTHORITY POTENTIAL STUDY VOLUME 3: DEMAND RESPONSE POTENTIAL STUDY, Global Energy partners, December 21, 2011	
Amortize program costs?	No	Ameren MO	
Central Controller - Hardware Cost	\$25,000/10 years for DLC program	GDS Experience	
Central Software - Software Cost	\$5,000/year for DLC programs	GDS Experience	
Saturations			
Residential Central AC	90.5%	2019 primary research conducted by ODC in the Ameren Missouri	
Residential Space Heating	36.5%	2019 primary research conducted by ODC in the Ameren Missouri	
Residential Room AC	18.1%	2019 primary research conducted by ODC in the Ameren Missouri	
Residential Electric Water Heating	29.9%	2019 primary research conducted by ODC in the Ameren Missouri	
Residential Pool Pumps	3.0%	2019 primary research conducted by ODC in the Ameren Missouri	
Residential Number of thermostats	1.18	Ameren MO Data Response	
Residential Wifi	76%	https://www.securitysales.com/research/majority-broadband-households-wifi-connection/	
Residential TOU & CPP without Enabling Technology	100% (all customers eligible)	GDS Assumption	
Residential TOU & CPP with Enabling Technology	90.5% (only customers with central AC)	2019 primary research conducted by ODC in the Ameren Missouri	
Non-Residential Central AC	80.85%	EIA CBECS, average of "West North Central" and "East South Central" regions	
Non-Residential Electric Water Heating	28%	Ameren/Enernoc 2013 Study	
Non-Residential Pool Pumps	4.6%	Ameren/Enernoc 2013 Study	
Non-Residential TES/Ice Storage	2.41%	EIA CBECS, average of "West North Central" and "East South Central" regions for chillers	
Non-Residential TOU & CPP without Enabling Technology	100% (all customers eligible)	GDS Assumption	
Non-Residential TOU & CPP with Enabling Technology	80.85% (only customers with central AC)	EIA CBECS, average of "West North Central" and "East South Central" regions	
Non-Residential Lighting	12.10%	Ameren's Latest Commercial Market Baseline Study (2011) adjusted for actual lighting installations from Ameren-Missouri Implementation Database	% of T12 lighting
Non-Residential Number of Thermostats	2.000	GDS Estimate	
Non-Residential Wifi	76%	https://www.securitysales.com/research/majority-broadband-households-wifi-connection/	
Number of Golf courses in Ameren territory	153	golfink.com, EIA data on residential customers	

Data Needed	Value	Source	Notes
Number of Irrigated farms	685	1: USDA, 2013 Farm and Ranch Irrigation Survey, Table 12: On-Farm Energy Expense for Pumping Irrigation Water by Water Source and Type of Energy, State of MO; 2: Based on Percent of Zip Codes in Each County Served by Ameren MO. Zip Codes Served provided by Ameren MO.	
Adoption Rates (Also see Adoption Rates (F.3))			
Residential Central AC Thermostat	34.3% MAP, 18.1% RAP	ODC Market Research, Adoption Curves	MAP: adoption rate at \$50 incentive, with 73% awareness factor; RAP: adoption rate at \$25 incentive with 59% awareness factor
Residential Space Heating	34.3% MAP, 18.1% RAP	ODC Market Research, Adoption Curves	MAP: adoption rate at \$50 incentive, with 73% awareness factor; RAP: adoption rate at \$25 incentive with 59% awareness factor
Residential Electric Water Heating	28.4% MAP, 14.1% RAP	ODC Market Research, Adoption Curves	MAP: adoption rate at \$50 incentive, with 73% awareness factor; RAP: adoption rate at \$25 incentive with 59% awareness factor
Residential Room AC	31% MAP, 20% RAP	Ameren Missouri Demand Side Management Market Potential Study, Volume 4, Demand Response Analysis, EnerNOC, December 20, 2013.	
Residential Pool Pumps	38% MAP, 19% RAP	Pool Pump Demand Response Potential, Design & Engineering Services Customer Service Business Unit Southern California Edison, June 2008 (76% of survey respondents expressed interest in an incentive-based pool pump demand response program). For RAP it is assumed that 25% of interested customers will participate.	
Residential Rate Programs overall	39% MAP, 19% RAP	ODC Market Research, Adoption Curves	MAP: adoption rate at 3 cents/kWh off-peak rate, with 73% awareness factor; RAP: adoption rate at 6 cents/kWh off-peak rate, with 59% awareness factor
Residential CPP without Enabling Technology	7.9% MAP, 3.9% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016. 46% MAP and 17% RAP, adjusted with Market Research, Adoption Curves.	
Residential CPP with Enabling Technology	10.2% MAP, 5% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016. 59% MAP and 22% RAP, adjusted with Market Research, Adoption Curves.	
Residential TOU Evening/Morning Savers	61% MAP, 81% MAP	GDS calculations based on Market Research from 2020 study combined with existing participation rates for current program	Assumed this would be the default rate if customers did not choose another rate program
Residential TOU Overnight Savers	5.1% MAP, 2.5% RAP	GDS calculations based on Market Research from 2020 study combined with existing participation rates for current program	
Residential TOU Smart Savers	3.5% MAP, 1.7% RAP	GDS calculations based on Market Research from 2020 study combined with existing participation rates for current program	
Residential TOU Ultimate Savers	2.9% MAP, 1.4% RAP	GDS calculations based on Market Research from 2020 study combined with existing participation rates for current program	
Residential Peak Time Rebate	9.6% MAP, 4.8% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016. 56% MAP and 21% RAP, adjusted with Market Research, Adoption Curves.	
Residential Electric Vehicle Charging	94% MAP, 57% RAP	Plug-in Electric Vehicle and Infrastructure Analysis September 2015, Prepared for the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy by Idaho National Lab.	
Non Residential Central AC Thermostat	26.4% MAP, 9% RAP	ODC Market Research, Adoption Curves	MAP: adoption rate at \$50 incentive, with 73% awareness factor; RAP: adoption rate at \$25 incentive with 32% awareness factor
Non Residential Space Heating	26.4% MAP, 9% RAP	ODC Market Research, Adoption Curves	MAP: adoption rate at \$50 incentive, with 73% awareness factor; RAP: adoption rate at \$25 incentive with 32% awareness factor

Data Needed	Value	Source	Notes
Non Residential Pool Pumps	16% MAP, 7% RAP	Used Direct Load - Control Water Heating take rate. FERC 2012 DR survey data contained no utility programs targeting just commercial pool pumps. A general search for such programs by GDS also produced no useful results.	
Non Residential Lighting	14% MAP, 3% RAP	Used Direct Load - Air Conditioning take rate. FERC 2012 DR survey data contained only one program targeting lighting with a take rate of .6%. A general search for such programs by GDS also produced no useful results.	
Non Residential Water Heating	30.4% MAP, 10% RAP	ODC Market Research, Adoption Curves	MAP: adoption rate at \$50 incentive, with 73% awareness factor; RAP: adoption rate at \$25 incentive with 32% awareness factor
Non Residential Rate Programs overall	26% MAP, 12% RAP	ODC Market Research, Adoption Curves	MAP: adoption rate at 8% lower than current rates, with 73% awareness factor; RAP: adoption rate at 8% lower than current rates, with 32% awareness factor
Non Residential Thermal Electric Storage	20% MAP, 7% RAP	Used TOU with enabling technology take rate. It is assumed that an enabling system will be installed to manage charging.	
Non Residential CPP with Enabling Technology	7.3% MAP, 3.2% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016. Adjusted with Market Adoption Research.	
Non Residential CPP without Enabling Technology	6.6% MAP, 2.9% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016. Adjusted with Market Adoption Research.	
Non Residential TOU	4.4% MAP, 2.0% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016. Adjusted with Market Adoption Research.	
Non Residential Peak Time Rebate	7.7% MAP, 3.4% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016. Adjusted with Market Adoption Research.	
Non Residential Ag Irrigation	30% MAP, 15% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.	
Non Residential Capacity Bidding	50.2% MAP, 18% RAP	Market Research, Adoption Curves (Custom program)	MAP: adoption rate at \$100/kW incentive, with 73% awareness factor; RAP: adoption rate at \$25/kW incentive with 32% awareness factor
Non Residential Demand Bidding	8% MAP, 1% RAP	Demand Response Market Potential in Xcel Energy's Northern States Power Service Territory, The Brattle Group, April 2014. "Customer interest in such a program was modest based on market research, with around 10% of small/medium customers and 8% of large customers being interested."; Capacity bidding programs at PG&E and SCE in California have low (less than 1%) and declining enrollments as shown in the Annual CBP Evaluations (2). Long term forecasts of enrollments are also expected to remain at current levels. (3)	
Non Residential Interruptible Rate	21% MAP, 3% RAP	FERC 2012 DR Survey Data	
Non Residential Golf Cart Charging	20% MAP, 7% RAP	Used TOU with enabling technology take rate. It is assumed that an enabling system will be installed to manage charging.	

Appendix D: Demand Response Annual Participants

Ameren Missouri 2023 DSM Market Potential Study

Program	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	
DLC Central AC	37,364	42,679	48,001	53,327	58,661	64,018	69,395	74,771	80,140	85,500	90,822	96,152	101,481	106,753	111,979	117,175	122,352	127,484	132,531	138,691		
DLC Room AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Pool Pumps	623	2,031	4,237	5,660	6,145	6,279	6,321	6,339	6,350	6,358	6,362	6,366	6,369	6,369	6,366	6,362	6,357	6,366	6,374	6,382		
DLC Water Heating	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOU Evening/Morning Savers	431,451	456,695	481,818	506,817	531,774	556,844	581,994	607,063	632,014	656,839	681,351	705,902	730,428	754,533	778,321	801,913	825,395	850,593	875,855	901,180		
TOU Overnight Savers	4,161	5,392	6,629	7,868	9,110	10,358	11,611	12,865	14,119	15,372	16,619	17,868	19,116	20,354	21,584	22,807	24,026	25,296	26,568	27,844		
TOU Smart Savers	2,917	3,781	4,648	5,517	6,388	7,263	8,141	9,020	9,900	10,778	11,652	12,528	13,403	14,272	15,133	15,991	16,846	17,736	18,628	19,523		
TOU Ultimate Savers	2,407	3,120	3,835	4,552	5,271	5,993	6,718	7,443	8,169	8,893	9,615	10,337	11,060	11,776	12,487	13,195	13,900	14,635	15,371	16,109		
Peak Time Rebate	5,025	16,294	33,825	44,964	48,570	49,382	49,462	49,353	49,186	48,996	48,776	48,555	48,331	48,078	47,805	47,523	47,236	47,046	46,856	46,665		
Critical Peak Pricing with Enabling Tech	3,539	11,263	22,732	29,636	31,747	32,144	32,098	31,937	31,741	31,529	31,298	31,068	30,834	30,582	30,317	30,047	29,773	29,561	29,349	29,135		
Critical Peak Pricing without Enabling Tech	4,034	12,840	25,898	33,795	36,282	36,833	36,882	36,800	36,679	36,540	36,380	36,219	36,055	35,870	35,670	35,462	35,252	35,114	34,976	34,837		
Electric Vehicle Charging Rate	820	4,065	12,267	22,098	30,078	37,640	45,697	111,695	143,308	167,578	183,250	198,919	218,008	235,631	253,987	272,343	291,685	303,999	321,358	338,718		
Battery Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Central AC	868	2,844	5,970	8,029	8,777	9,028	9,149	9,239	9,324	9,409	9,495	9,583	9,672	9,763	9,856	9,951	10,047	10,143	10,240	10,336		
DLC Pool Pumps	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Water Heating	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Lighting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Agricultural Irrigation	10	33	69	92	100	102	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103
Capacity Bidding	612	688	764	841	917	995	1,072	1,151	1,229	1,308	1,387	1,467	1,547	1,627	1,708	1,789	1,871	1,953	2,035	2,117		
Demand Bidding	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interruptible Rate	32	102	211	281	303	307	307	306	305	303	302	300	299	297	296	294	293	291	290	288		
Time of Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Time Rebate	537	1,759	3,692	4,965	5,428	5,583	5,658	5,714	5,766	5,819	5,872	5,927	5,982	6,038	6,095	6,154	6,213	6,273	6,333	6,392		
Critical Peak Pricing with Enabling Tech	332	1,065	2,161	2,843	3,082	3,161	3,198	3,226	3,252	3,278	3,305	3,332	3,359	3,387	3,416	3,445	3,475	3,504	3,534	3,564		
Critical Peak Pricing without Enabling Tech	487	1,569	3,206	4,237	4,602	4,723	4,780	4,823	4,864	4,904	4,945	4,987	5,029	5,072	5,117	5,162	5,208	5,253	5,299	5,345		
Thermal Electric Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling Rate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Cart Charging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Program IAP - Cumulative MW Savings (Of net cost effective)

Program	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	
DLC Central AC	38	43	47	50	54	57	61	65	68	72	75	79	82	86	89	92	95	98	102	106		
DLC Room AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Pool Pumps	1	3	6	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
DLC Water Heating	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOU Evening/Morning Savers	5	5	5	5	5	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8	8
TOU Overnight Savers	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	5	5	6	6
TOU Smart Savers	1	2	2	2	3	3	3	4	4	4	4	5	5	5	6	6	6	6	6	7	7	7
TOU Ultimate Savers	1	1	2	2	2	3	3	3	3	4	4	4	5	5	5	5	5	6	6	6	6	6
Critical Peak Pricing with Enabling Tech	3	9	18	24	25	26	25	25	25	24	24	23	23	22	22	22	21	21	20	20	20	20
Critical Peak Pricing without Enabling Tech	2	6	12	15	16	16	16	16	16	15	15	15	15	15	14	14	14	14	13	13	13	13
Peak Time Rebate	2	7	15	20	21	22	21	21	21	21	20	20	20	20	19	19	18	18	18	18	18	18
Electric Vehicle Charging Rate	1	3	8	14	19	24	30	72	93	109	119	130	142	154	166	179	192	200	212	224		
Battery Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Central AC	1	4	9	12	13	13	13	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11
DLC Pool Pumps	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Water Heating	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Lighting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DLC Agricultural Irrigation	0	1	3	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Capacity Bidding	123	131	139	147	154	154	160	152	154	156	154	155	155	155	153	149	147	146	143	142		
Demand Bidding	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interruptible Rate	1	4	9	12	12	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12
Time of Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Time Rebate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Program	Program hAP - Program Costs (\$0 if not cost effective)																					
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	
Critical Peak Pricing with Enabling Tech	\$2,038,709	\$3,375,364	\$3,590,045	\$3,804,447	\$4,021,134	\$4,243,396	\$4,466,439	\$4,685,282	\$4,903,052	\$5,120,428	\$4,607,293	\$5,904,330	\$6,134,672	\$6,346,547	\$6,562,070	\$6,785,860	\$7,012,638	\$7,330,744	\$7,574,019	\$7,818,343	\$8,062,667	\$8,307,000
Critical Peak Pricing without Enabling Tech	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Thermal Electric Storage	\$458,979	\$440,121	\$681,677	\$575,759	\$400,056	\$332,635	\$316,208	\$313,616	\$314,383	\$316,256	\$453,656	\$575,617	\$730,872	\$592,634	\$419,393	\$394,716	\$339,044	\$339,371	\$340,892	\$343,165	\$345,688	\$348,211
Cooling Rate	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Golf Cart Charging	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Residential	\$976,587	\$1,703,429	\$2,600,924	\$1,732,524	\$740,982	\$375,585	\$288,411	\$288,157	\$287,659	\$287,061	\$286,343	\$285,643	\$284,943	\$284,243	\$283,543	\$282,843	\$282,143	\$281,443	\$280,743	\$280,043	\$279,343	\$278,643
DLC Central AC	\$444,010	\$492,302	\$723,322	\$463,923	\$180,435	\$77,160	\$50,429	\$48,628	\$49,600	\$50,592	\$51,604	\$52,636	\$53,689	\$54,763	\$55,858	\$56,975	\$58,115	\$59,277	\$60,462	\$61,672	\$62,907	\$64,167
DLC Pool Pumps	\$518,598	\$643,365	\$982,048	\$662,493	\$288,058	\$119,146	\$80,314	\$77,345	\$78,892	\$80,470	\$82,079	\$83,721	\$85,395	\$87,103	\$88,845	\$90,622	\$92,434	\$94,283	\$96,169	\$98,092	\$100,051	\$102,044
DLC Water Heating	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
DLC Lighting	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
DLC-Agricultural Irrigation	\$357,413	\$206,812	\$309,382	\$335,168	\$323,160	\$317,804	\$317,750	\$319,306	\$321,296	\$323,423	\$325,597	\$327,821	\$330,095	\$332,418	\$334,791	\$337,214	\$339,687	\$342,210	\$344,783	\$347,406	\$350,079	\$352,802
Capacity Bidding	\$8,085,086	\$8,645,017	\$9,182,596	\$9,677,261	\$10,128,845	\$10,175,221	\$10,549,985	\$9,996,655	\$10,160,362	\$10,309,041	\$10,118,659	\$10,206,355	\$10,210,652	\$10,197,219	\$10,092,742	\$9,819,064	\$9,713,895	\$9,602,453	\$9,432,496	\$9,358,532	\$9,284,568	\$9,210,604
Demand Bidding	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Interruptible Rate	\$301,232	\$152,261	\$220,319	\$230,546	\$216,516	\$210,594	\$209,660	\$210,855	\$211,930	\$213,032	\$214,156	\$215,298	\$216,503	\$217,705	\$218,950	\$220,206	\$221,495	\$222,819	\$224,198	\$225,581	\$227,000	\$228,459
Time of Use	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Peak Time Rebate	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Critical Peak Pricing with Enabling Tech	\$316,136	\$205,691	\$293,575	\$216,146	\$126,064	\$93,367	\$85,635	\$84,903	\$85,891	\$87,332	\$88,887	\$90,519	\$92,118	\$93,787	\$95,533	\$97,345	\$99,151	\$100,814	\$102,539	\$104,275	\$106,021	\$107,767
Critical Peak Pricing without Enabling Tech	\$271,642	\$103,400	\$134,347	\$104,883	\$70,931	\$58,902	\$56,492	\$56,791	\$57,762	\$58,920	\$60,141	\$61,396	\$62,656	\$63,957	\$65,303	\$66,675	\$68,063	\$69,422	\$70,811	\$72,225	\$73,665	\$75,134
Thermal Electric Storage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Cooling Rate	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Golf Cart Charging	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Program	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043					
Residential	DLC Central AC	7%	9%	10%	11%	13%	14%	16%	17%	19%	20%	21%	23%	24%	26%	27%	29%	30%	31%	33%	34%				
	DLC Room AC	3%	10%	21%	28%	30%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%			
	DLC Pool Pumps	4%	12%	26%	34%	37%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%		
	DLC Water Heating	3%	9%	19%	26%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	
	TOU Evening/Morning Savers	37%	38%	39%	41%	42%	43%	44%	46%	47%	48%	49%	51%	52%	53%	54%	56%	57%	58%	58%	60%	61%	61%	61%	
	TOU Overnight Savers	1%	1%	1%	1%	2%	2%	2%	2%	2%	3%	3%	3%	3%	4%	4%	4%	4%	4%	5%	5%	5%	5%	5%	
	TOU Smart Savers	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
	TOU Ultimate Savers	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%
	Peak Time Rebate	1%	3%	7%	9%	9%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
	Critical Peak Pricing with Enabling Tech	1%	3%	7%	9%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
	Critical Peak Pricing without Enabling Tech	1%	3%	7%	9%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
	Electric Vehicle Charging Rate	9%	31%	63%	85%	92%	93%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%	94%
	Battery Storage	1%	3%	7%	9%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
	DLC Central AC	3%	9%	18%	24%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
	DLC Pool Pumps	2%	5%	11%	14%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
DLC Water Heating	3%	10%	21%	27%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
DLC Lighting	1%	5%	9%	13%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	
DLC Agricultural Irrigation	3%	10%	20%	27%	29%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
Capacity Bidding	11%	13%	15%	18%	20%	22%	24%	26%	28%	30%	32%	34%	36%	38%	40%	42%	44%	46%	48%	50%	50%	50%	50%	50%	50%
Demand Bidding	1%	3%	5%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
Interruptible Rate	2%	7%	14%	19%	20%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	
Time of Use	0%	1%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
Peak Time Rebate	1%	2%	5%	7%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	
Critical Peak Pricing with Enabling Tech	1%	2%	5%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	
Critical Peak Pricing without Enabling Tech	1%	2%	4%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
Thermal Electric Storage Cooling Rate	2%	6%	14%	18%	19%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	
Golf Cart Charging	2%	6%	14%	18%	19%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	

Program	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043				
Residential	DLC Central AC	5%	6%	6%	7%	8%	9%	10%	10%	11%	12%	13%	13%	14%	15%	15%	16%	17%	17%	18%				
	DLC Room AC	2%	6%	14%	18%	19%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%			
	DLC Pool Pumps	2%	6%	13%	17%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	
	DLC Water Heating	1%	5%	9%	13%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%
	TOU Evening/Morning Savers	40%	42%	44%	46%	48%	50%	53%	55%	57%	59%	61%	63%	66%	68%	70%	72%	74%	76%	79%	81%			
	TOU Overnight Savers	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
	TOU Smart Savers	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
	TOU Ultimate Savers	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
	Peak Time Rebate	0%	2%	3%	4%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
	Critical Peak Pricing with Enabling Tech	1%	2%	3%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
	Critical Peak Pricing without Enabling Tech	0%	1%	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
	Electric Vehicle Charging Rate	6%	19%	38%	51%	56%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
	Battery Storage	1%	2%	3%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
	DLC Central AC	1%	3%	6%	8%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
	DLC Pool Pumps	1%	2%	5%	6%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
DLC Water Heating	1%	3%	7%	9%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	
DLC Lighting	0%	1%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
DLC Agricultural Irrigation	2%	5%	10%	14%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	

Appendix D: Demand Response Annual Adoption Rates

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Business	Capacity Bidding	7%	8%	8%	9%	9%	10%	10%	11%	12%	12%	13%	13%	14%	15%	15%	16%	16%	17%	17%	18%	
	Demand Bidding	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
	Interruptible Rate	0%	1%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
	Time of Use	0%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
	Peak Time Rebate	0%	1%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
	Critical Peak Pricing with Enabling Tech	0%	1%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
	Critical Peak Pricing without Enabling Tech	0%	1%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
	Thermal Electric Storage Cooling Rate	1%	2%	5%	6%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
	Golf Cart Charging	1%	2%	5%	6%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%

	Program	TRC - MAP	TRC - RAP	UCT - MAP	UCT - RAP
Residential	DLC Central AC	1.83	2.28	2.46	3.09
	DLC Room AC	0.71	0.74	0.71	0.74
	DLC Pool Pumps	2.86	2.68	2.86	2.68
	DLC Water Heating	0.34	0.35	0.34	0.35
	TOU Evening/Morning Savers	1.98	1.96	1.98	1.96
	TOU Overnight Savers	9.42	7.89	9.42	7.89
	TOU Smart Savers	14.06	10.81	14.06	10.81
	TOU Ultimate Savers	13.99	10.28	13.99	10.28
	Critical Peak Pricing with Enabling Tech	3.55	3.79	3.55	3.79
	Critical Peak Pricing without Enabling Tech	7.84	8.84	7.84	8.84
	Peak Time Rebate	7.75	8.58	7.75	8.58
	Electric Vehicle Charging Rate	3.95	4.29	3.95	4.29
	Battery Storage	0.24	0.24	0.24	0.24
Business	DLC Central AC	1.54	1.64	2.05	2.19
	DLC Pool Pumps	1.49	0.90	1.49	0.90
	DLC Water Heating	0.40	0.37	0.40	0.37
	DLC Lighting	0.13	0.10	0.13	0.10
	DLC Agricultural Irrigation	2.30	1.86	2.30	1.86
	Capacity Bidding	2.21	2.23	2.21	2.23
	Demand Bidding	1.35	0.42	1.35	0.42
	Interruptible Rate	11.76	7.67	11.76	7.67
	Time of Use	0.50	0.29	0.50	0.29
	Peak Time Rebate	0.25	0.16	0.25	0.16
	Critical Peak Pricing with Enabling Tech	8.80	7.88	8.80	7.88
	Critical Peak Pricing without Enabling Tech	12.93	9.83	12.93	9.83
	Thermal Electric Storage Cooling Rate	0.10	0.10	0.13	0.13
	Golf Cart Charging	1.17	0.49	1.27	0.50

APPENDIX E: DISTRIBUTED ENERGY DETAIL

Appendix E: DER Measure Supporting Details

Ameren Missouri 2023 DSM Market Potential Study

Measure ID	Measure Name	Sector	Measure Life (Full EUL)	Annual Reported Energy Savings (per measure, kWh at meter)	Gross Verified Demand Savings (kW at meter)	Incremental Measure Cost (per measure)	Incremental O&M Cost (per measure)	TRC Benefits	TRC Costs (no pgm admin)	Net TRC Costs	TRC Ratio (no Admin)
NR_CHP_01	CHP_Fuel_Cell_175kW	Non-Residential	20	1,157,415	176	2,444,691	58,131	\$1,310,896	\$3,716,621	-\$2,405,726	0.35
NR_CHP_02	CHP_Fuel_Cell_500kW	Non-Residential	20	3,306,900	502	3,042,000	134,093	\$2,562,566	\$5,976,007	-\$3,413,441	0.43
NR_CHP_03	CHP_Fuel_Cell_1125kW	Non-Residential	20	7,440,525	1,130	5,325,750	296,683	\$3,712,425	\$6,491,517	-\$2,779,092	0.57
NR_CHP_04	CHP_Fuel_Cell_Biogas_800kW	Non-Residential	20	5,291,040	804	4,348,800	318,654	\$3,944,586	\$11,321,060	-\$7,376,474	0.35
NR_CHP_05	CHP_Gas_Turbine_2500kW	Non-Residential	20	17,082,000	2,491	7,595,792	216,848	\$8,792,871	\$12,340,498	-\$3,547,628	0.71
NR_CHP_06	CHP_Gas_Turbine_3000kW	Non-Residential	20	20,498,400	2,990	8,730,474	259,364	\$10,430,473	\$14,405,442	-\$3,974,969	0.72
NR_CHP_07	CHP_Gas_Turbine_3500kW	Non-Residential	20	23,914,800	3,488	9,736,997	301,595	\$12,061,415	\$16,336,001	-\$4,274,586	0.74
NR_CHP_08	CHP_Micro_Turbine_25kW	Non-Residential	20	91,980	14	81,768	1,167	\$59,211	\$107,299	-\$48,087	0.55
NR_CHP_09	CHP_Micro_Turbine_100kW	Non-Residential	20	367,920	56	299,718	4,628	\$225,735	\$400,990	-\$175,254	0.56
NR_CHP_10	CHP_Micro_Turbine_200kW	Non-Residential	20	735,840	112	526,491	9,153	\$430,776	\$726,766	-\$295,989	0.59
NR_CHP_11	CHP_Reciprocating_Engine_125kW	Non-Residential	20	394,200	60	324,398	9,363	\$283,123	\$529,275	-\$246,152	0.53
NR_CHP_12	CHP_Reciprocating_Engine_350kW	Non-Residential	20	1,103,760	168	883,628	24,999	\$779,143	\$1,430,611	-\$651,467	0.54
NR_CHP_13	CHP_Reciprocating_Engine_1250kW	Non-Residential	20	3,942,000	599	2,803,134	73,923	\$2,708,797	\$4,420,586	-\$1,711,789	0.61
NR_CHP_14	CHP_Reciprocating_Engine_3000kW	Non-Residential	20	9,460,800	1,437	5,081,681	156,372	\$6,090,995	\$8,503,155	-\$2,412,220	0.72
NR_CHP_15	CHP_Reciprocating_Engine_4500kW	Non-Residential	20	14,191,200	2,156	7,003,156	207,504	\$9,012,984	\$11,543,411	-\$2,530,427	0.78
NR_CHP_16	CHP_Reciprocating_Engine_Biogas_1250kW	Non-Residential	20	3,942,000	599	3,478,134	73,923	\$2,911,297	\$5,095,586	-\$2,184,289	0.57
NR_CHP_17	CHP_Steam_Turbine_1500kW	Non-Residential	20	5,847,300	888	6,750,000	263,129	\$2,442,431	\$12,507,341	-\$10,064,928	0.20
NR_CHP_18	CHP_Steam_Turbine_3500kW	Non-Residential	20	13,643,700	2,073	15,750,000	613,967	\$5,698,964	\$29,183,796	-\$23,484,832	0.20
NR_CHP_19	CHP_Steam_Turbine_5000kW	Non-Residential	20	19,491,000	2,961	22,500,000	877,095	\$8,141,378	\$41,691,138	-\$33,549,760	0.20
NR_CHP_20	CHP_Gas_Turbine_5000kW	Non-Residential	20	34,164,000	4,983	11,987,611	426,582	\$16,850,706	\$21,321,367	-\$4,470,661	0.79
NR_CHP_21	CHP_Gas_Turbine_10000kW	Non-Residential	20	68,328,000	9,966	16,374,416	824,708	\$32,603,217	\$34,419,308	-\$1,815,992	0.95
NR_CHP_22	CHP_Gas_Turbine_15000kW	Non-Residential	20	102,492,000	14,948	23,298,740	956,064	\$49,691,257	\$44,217,757	\$5,473,501	1.12
NR_CHP_23	CHP_Gas_Turbine_30000kW	Non-Residential	20	204,984,000	29,897	39,020,176	1,899,251	\$101,068,913	\$80,576,445	\$20,492,469	1.25
NR_PV_01	Roof/Mounted Fixed 3 kW, with storage: 12.7 kWh, 5 kW	Non-Residential	25	4,269	1.2	\$10,058	\$87	\$7,711	\$12,163	-\$4,452	0.63
NR_PV_02	Roof/Mounted Fixed 3 kW, without storage	Non-Residential	25	4,299	1.3	\$5,158	\$48	\$6,366	\$6,319	\$47	1.01
NR_PV_01	Roof/Mounted Fixed 3 kW, without storage	Non-Residential	25	35,770	10.4	\$49,889	\$725	\$54,296	\$67,430	-\$13,134	0.81
NR_PV_03	Roof/Mounted Fixed 25 kW, without storage	Non-Residential	25	35,829	11.1	\$42,981	\$400	\$53,055	\$52,659	\$396	1.01
NR_PV_04	Roof/Mounted Fixed 50 kW, with storage: 38 kWh, 11 kW	Non-Residential	25	71,496	20.9	\$98,887	\$1,450	\$108,277	\$133,968	-\$25,692	0.81
NR_PV_05	Roof/Mounted Fixed 50 kW, without storage	Non-Residential	25	71,658	22.1	\$85,963	\$800	\$106,110	\$105,318	\$792	1.01
NR_PV_06	Roof/Ground Mounted Fixed 100 kW, with storage: 40 kWh, 12 kW	Non-Residential	25	141,711	41.4	\$185,715	\$2,900	\$211,527	\$255,877	-\$44,350	0.83
NR_PV_07	Roof/Ground Mounted Fixed 100 kW, without storage	Non-Residential	25	141,903	43.8	\$171,925	\$1,600	\$210,635	\$210,635	\$0	1.00
NR_PV_08	Roof/Ground Mounted Fixed 250 kW, with storage: 120 kWh, 28 kW	Non-Residential	25	353,702	103.2	\$467,669	\$7,250	\$529,199	\$643,075	-\$113,876	0.82
NR_PV_09	Roof/Ground Mounted Fixed 250 kW, without storage	Non-Residential	25	354,549	109.4	\$429,813	\$4,000	\$526,354	\$526,589	-\$234	1.00
NR_PV_10	Roof/Ground Mounted Fixed 500 kW, with storage: 175 kWh, 50 kW	Non-Residential	25	707,425	206.4	\$918,858	\$14,500	\$1,053,478	\$1,269,670	-\$216,192	0.83
NR_PV_11	Roof/Ground Mounted Fixed 500 kW, without storage	Non-Residential	25	709,015	218.7	\$859,626	\$8,000	\$1,052,616	\$1,053,177	-\$562	1.00
NR_PV_12	Roof/Ground Mounted Fixed 1000 kW, with storage: 430 kWh, 105 kW	Non-Residential	25	1,412,131	412.1	\$1,856,953	\$29,000	\$2,109,737	\$2,558,577	-\$448,840	0.82
NR_PV_13	Roof/Ground Mounted Fixed 1000 kW, without storage	Non-Residential	25	1,417,904	437.4	\$1,719,251	\$16,000	\$2,105,090	\$2,106,354	-\$1,264	1.00
NR_PV_14	Ground Mounted Tracking 1000 kW, with storage: 430 kWh, 105 kW	Non-Residential	25	1,622,756	183.9	\$1,856,953	\$29,000	\$1,764,540	\$2,558,577	-\$794,037	0.69
NR_PV_15	Ground Mounted Tracking 1000 kW, without storage	Non-Residential	25	1,627,659	497.3	\$1,719,251	\$16,000	\$2,377,915	\$2,106,354	\$271,561	1.13
NR_PV_16	Roof/Ground Mounted Fixed 2000 kW, with storage: 500 kWh, 185 kW	Non-Residential	25	2,828,878	825.5	\$3,626,241	\$58,000	\$4,198,250	\$5,029,490	-\$831,240	0.83
NR_PV_17	Roof/Ground Mounted Fixed 2000 kW, without storage	Non-Residential	25	2,835,628	874.7	\$3,438,502	\$32,000	\$4,209,978	\$4,212,709	-\$2,731	1.00
NR_PV_18	Ground Mounted Tracking 2000 kW, with storage: 500 kWh, 185 kW	Non-Residential	25	3,248,724	368.2	\$3,626,241	\$58,000	\$3,505,171	\$5,029,490	-\$1,524,319	0.70
NR_PV_19	Ground Mounted Tracking 2000 kW, without storage	Non-Residential	25	3,255,199	994.5	\$3,438,502	\$32,000	\$4,755,693	\$4,212,709	\$542,985	1.13
R_PV_01	Residential, Rooftop Mounted Fixed 5 kW, with storage: 12.7 kWh, 5 kW	Residential	25	6,949	2.1	\$25,529	\$145	\$15,467	\$29,037	-\$13,570	0.53
R_PV_02	Residential, Rooftop Mounted Fixed 5 kW, without storage	Residential	25	7,131	2.1	\$13,608	\$145	\$11,806	\$17,116	-\$5,310	0.69
R_PV_03	Residential, Rooftop Mounted Fixed 7 kW, with storage: 12.7 kWh, 5 kW	Residential	25	9,788	3.0	\$30,972	\$203	\$20,290	\$35,883	-\$15,593	0.57
R_PV_04	Residential, Rooftop Mounted Fixed 7 kW, without storage	Residential	25	9,983	3.0	\$19,051	\$203	\$16,527	\$23,962	-\$7,435	0.69

Appendix E: DER Measure Supporting Details

Ameren Missouri 2023 DSM Market Potential Study

Measure ID	Measure Name	Sector	Measure Life (Full EUL)	Annual Reported Energy Savings (per measure, kWh at meter)	Gross Verified Demand Savings (kW at meter)	Incremental Measure Cost (per measure)	Incremental Annual O&M Cost (per measure)	TRC Benefits	TRC Costs (no pgjm admin)	Net TRC Costs	TRC Ratio (no Admin)
R_PV_05	Residential, Rooftop Mounted Fixed 10 kW, with storage: 12.7 kWh, 5 kW	Residential	25	14,059	4.3	\$39,137	\$290	\$27,538	\$46,153	-\$18,614	0.60
R_PV_06	Residential, Rooftop Mounted Fixed 10 kW, without storage	Residential	25	14,262	4.2	\$27,215	\$290	\$23,611	\$34,231	-\$10,620	0.69
R_PV_07	Residential, Rooftop Mounted Fixed 25 kW, with storage: 12.7 kWh, 5 kW	Residential	25	35,416	10.7	\$79,959	\$725	\$63,783	\$97,500	-\$33,717	0.65
R_PV_08	Residential, Rooftop Mounted Fixed 25 kW, without storage	Residential	25	35,655	10.6	\$68,038	\$725	\$59,028	\$85,578	-\$26,551	0.69
R_PV_09	Residential, Rooftop Mounted Fixed 3 kW, with storage: 12.7 kWh, 5 kW	Residential	25	4,113	1.2	\$20,086	\$87	\$10,647	\$22,191	-\$11,544	0.48
R_PV_10	Residential, Rooftop Mounted Fixed 3 kW, without storage	Residential	25	4,279	1.3	\$8,165	\$87	\$7,084	\$10,269	-\$3,186	0.69

APPENDIX F: LOAD FLEXIBILITY ANALYSIS

The 2023 Market Potential Study estimates of economic and achievable potential utilize avoided costs for capacity and T&D under the then current MISO construct where the full annual value of avoided costs are placed on the annual summer peak demand savings. The 2023 MPS also included a separate “load-flexibility” scenario to help inform the ability of DSM resources (EE, DR, and DER) to modify the net consumption of electricity and serve as a time-differentiated resource. Many electric utilities, regional transmission organizations (RTO’s), and independent system operators (ISO’s) are considering how to address system resource constraints shifting to winter and the need for load flexibility. However, there is not an established market standard program or analysis methodology to address this changing environment.

As part of the 2023 MPS, Ameren Missouri conducted a load-flexibility analysis that will analyze the base economic and achievable potential under an alternative scenario of avoided costs. This alternative scenario shifts the full value of avoided generation capacity (and to a lesser extent, avoided distribution) from the summer months to winter months. In addition, variations in seasonal planning reserve margin requirements impact cost-effectiveness. As a direct result, the 2023 MPS analyzed the potential for savings from DSM measures and/or programs that primarily target the summer season versus DSM measures and/or programs that either provide winter season savings or provide savings across multiple seasons.

Energy Efficiency

Energy Efficiency measures typically provide year-round impacts, with peak demand impacts (whether summer and/or winter) being a “passive” benefit. Figure F-1 and Figure F-2, below, demonstrate the expected energy efficiency load reductions, by end-use and sector, in the winter season compared to a MW saved during the summer season. These estimates were derived the Ameren Missouri hourly end-use load shapes provided to GDS. In the residential sector, the potential for winter load reductions can be greater in the winter season across the end-uses, except for cooling-only measures and/or solar technologies. In the business sector, the potential impacts are more consistent across the seasons (except for cooling and/or water heating).

FIGURE F-1: RESIDENTIAL SECTOR WINTER: SUMMER RATIO PER SUMMER MW SAVED (BY END-USE)

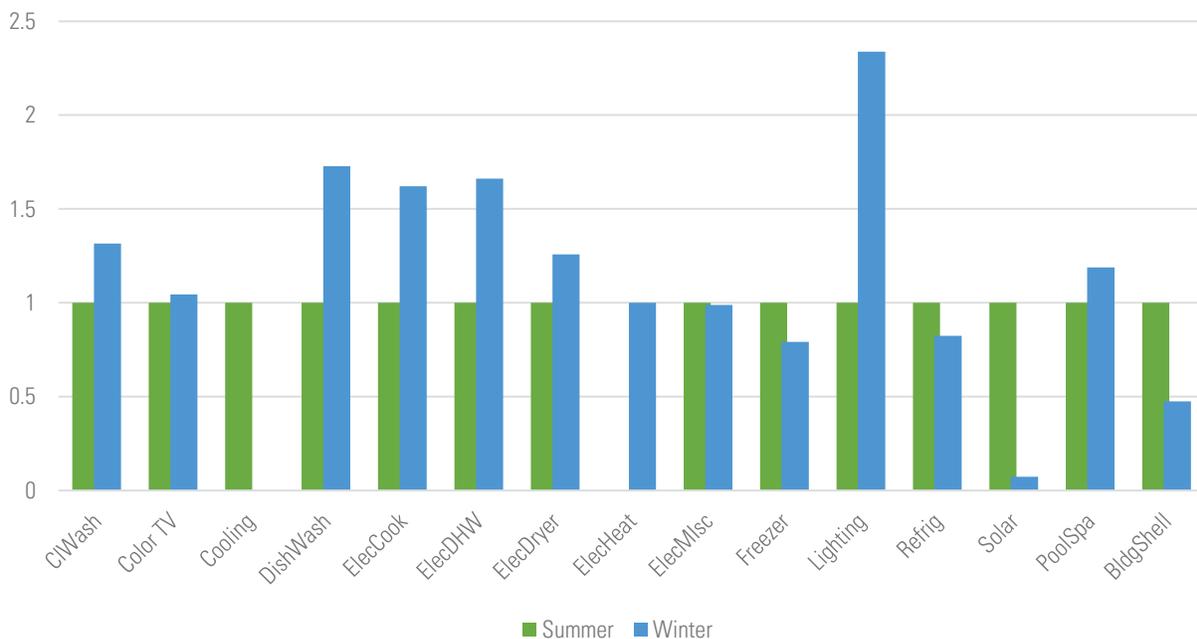
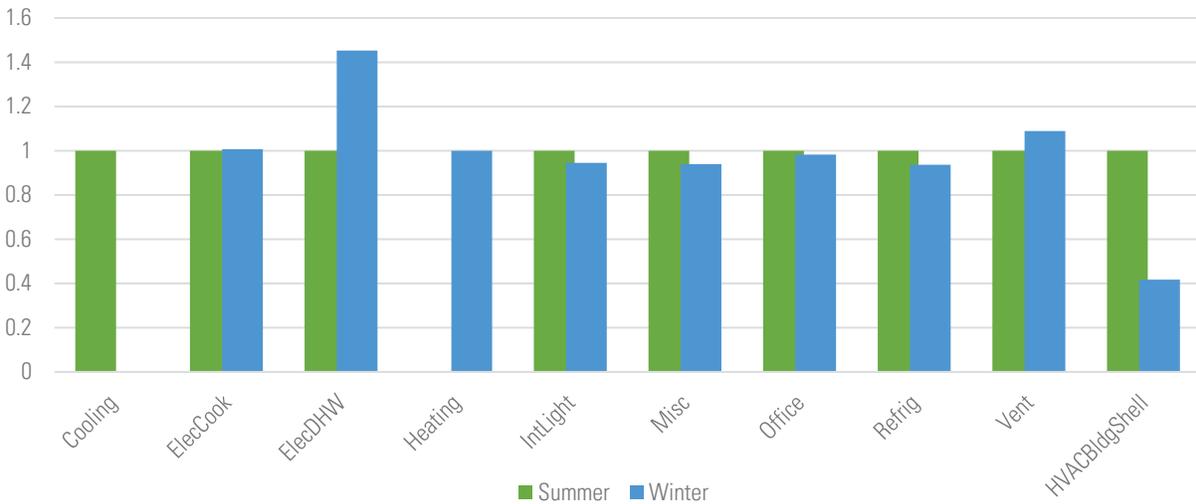


FIGURE F-2: BUSINESS SECTOR WINTER: SUMMER RATIO PER SUMMER MW SAVED (BY END-USE)



In the load flex scenario, energy efficiency measures were re-screened for cost-effectiveness based on their peak winter demand savings estimates in lieu of the summer impacts. Note that because demand benefits (regardless of season) are typically secondary compared to the avoided energy benefits for energy efficiency measures, most measures either remained cost-effective, or did not become cost-effective as the value of avoided capacity and T&D shifted to the winter season. However, select measures that provided heating season benefits did become cost-effective in the load flexibility scenario, leading to increased winter MW impacts compared to the associated winter demand savings in the base scenarios from the MPS.¹

Demand Response

Demand response kept all of the summer impacts assumed in the base case, but added winter impacts for programs that could be run in all seasons. Residential time of use rates are currently run in both the summer and winter, so both summer and winter impacts are the same in the load flex scenario as the base case for those programs. Programs that were found to be cost-effective in the winter were Direct Load Control of Space Heating (for both residential and business) and the Capacity Bidding program.

The Direct Load Control of Space Heating was assumed to be added on to the existing Direct Load Control of Air Conditioners program. It was assumed that homes and businesses who could participate in space heating control would be required to have electric space heating. This limited the eligible customers and the impacts for the winter are much smaller than in the summer.

All customers who are eligible to participate in the Capacity Bidding program in the summer were also assumed to be eligible to participate in the winter. The business load shape was used to determine a summer to winter ratio². This ratio was applied to the coincident peak load per eligible customer for the Capacity Bidding program.

The additional load flex costs over the base case are the incremental incentive costs for controlling the load in the winter in addition to the summer. All other program costs are also included in the base case costs.

¹ Similarly, select measures that provided predominately cooling savings were no longer cost-effective in the load flexibility scenario, but Ameren Missouri ultimately opted to retain these measures for this scenario, and focus on the incremental energy and winter impacts that could be derived relative to the MPS' base case.

² This ratio of winter to summer load was found to be 0.897.

Distributed Energy Resources

For the DER scenario, no solar was found to be cost-effective in the current load flexibility scenario, and the CHP MW impacts estimated in the base MPS scenario were assumed to be identical in the summer and winter season.

Load Flexibility Scenario Results

As anticipated, because demand response programs can be seasonally focused, they were found to have a larger impact on winter MW savings (relative to increased costs)³ than the energy efficiency and DER resources identified in the base and load flexibility scenarios. Tables F-1 through F-5 provides a comparison of the savings impacts and costs for the program realistic achievable potential from the base case in the MPS to the load flexibility scenario, by sector, for demand response, energy efficiency, and DER respectively. The demand response programs were found to have the largest potential to add incremental winter MW savings and at lower costs compared to other program types. In addition, there are some substantial additional winter MW savings that can be achieved from residential energy efficiency, as additional measures with heating season impacts became cost effective. However, the cost to Ameren Missouri to achieve these additional savings from the residential energy efficiency measures is more substantial. Last, additional impacts from business sector energy efficiency and DER resources were relatively minor.

TABLE F-1: RESIDENTIAL DEMAND RESPONSE – IMPACT/COST COMPARISON OF PROGRAM RAP VS. LOAD FLEX

	2024	2025	2026	2033	2043
Base Case					
Summer MW	47	54	63	98	141
Winter MW	5	6	7	12	17
Annual Costs (\$ millions)	\$3.2	\$3.2	\$3.7	\$4.7	\$7.0
Load Flex Scenario					
Summer MW	47	54	63	98	141
Winter MW	10	24	44	67	73
Annual Costs (\$ millions)	\$3.3	\$3.6	\$4.6	\$6.1	\$8.4

TABLE F-2: BUSINESS DEMAND RESPONSE – IMPACT/COST COMPARISON OF PROGRAM RAP VS. LOAD FLEX

	2024	2025	2026	2033	2043
Base Case					
Summer MW	125	137	152	173	158
Winter MW	0	0	0	0	0
Annual Costs (\$ millions)	\$8.9	\$9.4	\$10.4	\$11.3	\$10.5
Load Flex Scenario					
Summer MW	125	137	152	173	158
Winter MW	113	122	132	150	138
Annual Costs (\$ millions)	\$14.3	\$15.2	\$16.7	\$18.4	\$17.0

³ Savings and costs shown below for demand response are annual. For energy efficiency, the savings are cumulative annual (savings that occur from installations in a given year plus any savings that continue to occur from measures installed in prior years) and costs are cumulative to demonstrate the total cost to achieve the reported year savings.

TABLE F-3: RESIDENTIAL ENERGY EFFICIENCY – IMPACT/COST COMPARISON OF PROGRAM RAP VS. LOAD FLEX

	2024	2025	2026	2033	2043
Base Case					
Energy	90,247	185,032	285,138	1,043,683	1,920,310
Summer MW	40	80	122	355	509
Winter MW	19	40	62	256	500
Cum. Annual Costs (\$ millions)	\$61	\$127	\$195	\$773	\$1,834
Load Flex Scenario					
Energy	97,816	201,067	310,293	1,132,165	2,061,220
Summer MW	43	88	133	387	551
Winter MW	20	43	66	273	529
Annual Costs (\$ millions)	\$68	\$142	\$219	\$861	\$2,011

TABLE F-4: BUSINESS ENERGY EFFICIENCY – IMPACT/COST COMPARISON OF PROGRAM RAP VS. LOAD FLEX

	2024	2025	2026	2033	2043
Base Case					
Energy	201,421	395,969	585,202	1,620,248	2,204,250
Summer MW	54	108	161	476	655
Winter MW	32	63	93	253	343
Cum. Annual Costs (\$ millions)	\$36	\$72	\$108	\$353	\$661
Load Flex Scenario					
Energy	217,996	427,781	630,914	1,712,751	2,284,720
Summer MW	59	118	175	503	674
Winter MW	35	69	101	270	356
Cum. Annual Costs (\$ millions)	\$39	\$78	\$118	\$377	\$702

TABLE F-5: DISTRIBUTED ENERGY RESOURCES – IMPACT/COST COMPARISON OF PROGRAM RAP VS. LOAD FLEX

	2024	2025	2026	2033	2043
Base Case					
Energy	2,946	6,363	10,318	60,138	233,075
Summer MW	0	1	2	9	35
Winter MW	0	1	2	9	35
Cum. Annual Costs (\$ millions)	\$1	\$2	\$4	\$20	\$79
Load Flex Scenario					
Energy	2,946	6,363	10,318	60,138	233,075
Summer MW	0	1	2	9	35
Winter MW	0	1	2	9	35
Cum. Annual Costs (\$ millions)	\$1	\$2	\$4	\$20	\$79

APPENDIX G: REGULATORY COMPLIANCE CHECKLIST

4 CSR 240-22.050 Demand Side Resource Analysis	IRP Rule	Section of MPS
(1)	The utility shall identify a set of potential demand-side resources from which demand side candidate resource options will be identified for the purposes of developing the alternative resource plans required by 4 CSR 240-22.050(3). A potential demand-side resource consists of a demand-side program designed to deliver one (1) or more energy efficiency and energy management measures or a demand-side rate. The utility shall select the set of potential demand-side resources and describe and document its selection—	1.1
(A)	To provide broad coverage of—	
1.	Appropriate market segments within each major class;	1.1, 3.1.2.1
2.	All significant decision-makers, including at least those who choose building design features and thermal integrity levels, equipment and appliance efficiency levels, and utilization levels of the energy-using capital stock; and	1.1, 3.1.3.1
3.	All major end uses, including at least the end uses which are to be considered in the utility's load analysis as listed in 4 CSR 240-22.030(3)(A)1.;	1.1, 3.1.2.1
(B)	To fulfill the goal of achieving all cost-effective demand-side savings, the utility shall design highly effective potential demand-side programs consistent with subsection (1)(A) that broadly cover the full spectrum of cost-effective end-use measures for all customer market segments;	3.1.8
(C)	To include demand-side rates for all customer market segments;	4.1.2, 4.3.1
(D)	To consider and assess multiple designs for demand-side programs and demand-side rates, selecting the optimal designs for implementation, and modifying them as necessary to enhance their performance; and	To be Addressed in IRP
(E)	To include the effects of improved technologies expected over the planning horizon to—	
1.	Reduce or manage energy use; or	3.1.3.2, 3.5.1
2.	Improve the delivery of demand-side programs or demand-side rates.	3.5.1, 4.3.1
(2)	The utility shall conduct, describe, and document market research studies, customer surveys, pilot demand-side programs, pilot demand-side rates, test marketing programs, and other activities as necessary to estimate the maximum achievable potential, technical potential, and realistic achievable potential of potential demand-side resource options for the utility and to develop the information necessary to design and implement cost-effective demand-side programs and demand-side rates. These research activities shall be designed to provide a solid foundation of information applicable to the utility about how and by whom energy-related decisions are made and about the most appropriate and cost-effective methods of influencing these decisions in favor of greater long-run energy efficiency and energy management impacts. The utility may compile existing data or adopt data developed by other entities, including government agencies and other utilities, as long as the utility verifies the applicability of the adopted data to its service territory. The utility shall provide copies of completed market research studies, pilot programs, pilot rates, test marketing programs, and other studies as required by this rule and descriptions of those studies that are planned or in progress and the scheduled completion dates.	3.1.2, 3.1.7.1, 4.1.5, 6.3
(3)	The utility shall develop potential demand-side programs that are designed to deliver an appropriate selection of end-use measures to each market segment. The utility shall describe and document its potential demand-side program planning and design process which shall include at least the following activities and elements:	To be Addressed in IRP
(A)	Review demand-side programs that have been implemented by other utilities with similar characteristics and identify programs that would be applicable for the utility;	3.1.3.1, 4.1.2
(B)	Identify, describe, and document market segments that are numerous and diverse enough to provide relatively complete coverage of the major classes and decision-makers identified in subsection (1)(A) and that are specifically defined to reflect the primary market imperfections that are common to the members of the market segment;	1.1, 3.1.2.1
(C)	Identify a comprehensive list of end-use measures and demand-side programs considered by the utility and develop menus of end-use measures for each demand-side program. The demand-side programs shall be appropriate to the shared characteristics of each market segment. The end-use measures shall reflect technological changes in end-uses that may be reasonably anticipated to occur during the planning horizon;	3.1.3.1, 3.1.3.4, 3.1.8
(D)	Assess how advancements in metering and distribution technologies that may be reasonably anticipated to occur during the planning horizon affect the ability to implement or deliver potential demand-side programs;	
(E)	Design a marketing plan and delivery process to present the menu of end-use measures to the members of each market segment and to persuade decision-makers to implement as many of these measures as may be appropriate to their situation. When appropriate, consider multiple approaches such as rebates, financing, and direct installations for the same menu of end-use measures;	3.1.3.1
(F)	Evaluate, describe, and document the feasibility, cost-reduction potential, and potential benefits of statewide marketing and outreach programs, joint programs with natural gas utilities, upstream market transformation programs, and other activities. In the event that statewide marketing and outreach programs are preferred, the utilities shall develop joint programs in consultation with the stakeholder group;	1.4
(G)	Estimate the characteristics needed for the twenty (20)-year planning horizon to assess the cost effectiveness of each potential demand-side program, including:	1.2
1.	An assessment of the demand and energy reduction impacts of each stand-alone end-use measure contained in each potential demand-side program;	3.1.3.3, 4.1.5, 5.1.3
2.	An assessment of how the interactions between end-use measures, when bundled with other end-use measures in the potential demand-side program, would affect the stand-alone end-use measure impact estimates;	3.1.5.1, 4.1.6, 4.3.1
3.	An estimate of the incremental and cumulative number of program participants and end-use measure installations due to the potential demand-side program;	3.1, Appendices C-G
4.	For each year of the planning horizon, an estimate of the incremental and cumulative demand reduction and energy savings due to the potential demand-side program; and	3.1, Appendices C-G
5.	For each year of the planning horizon, an estimate of the costs, including:	3.1, Appendices C-G
A.	The incremental cost of each stand-alone end-use measure;	3.1.3.3, 4.1.5, 5.1.2, 5.1.3
B.	The cost of incentives paid by the utility to customers or utility financing to encourage participation in the potential demand-side program. The utility shall consider multiple levels of incentives paid by the utility for each end-use measure within a potential demand-side program, with corresponding adjustments to the maximum achievable potential and the realistic achievable potential of that potential demand-side program;	3.1.7, 3.1.7.2, 4.1.5, 5.2.1
C.	The cost of incentives to customers to participate in the potential demand-side program paid by the entities other than the utility;	3.1.3, 5.1.3
D.	The cost to the customer and to the utility of technology to implement a potential demand-side program;	3.1.7.2
E.	The utility's cost to administer the potential demand-side program; and	3.1.7.2
F.	Other costs identified by the utility;	3.1.7.2

4 CSR 240-22.050 Demand Side Resource Analysis	IRP Rule	Section of MPS
(H)	A tabulation of the incremental and cumulative number of participants, load impacts, utility costs, and program participant costs in each year of the planning horizon for each potential demand-side program; and	3.1, Appendices C-G
(I)	The utility shall describe and document how it performed the assessments and developed the estimates pursuant to subsection (3)(G) and shall provide documentation of its sources and quality of information.	3.1, 4.1, 5.1
(4)	The utility shall develop potential demand-side rates designed for each market segment to reduce the net consumption of electricity or modify the timing of its use. The utility shall describe and document its demand-side rate planning and design process and shall include at least the following activities and elements:	4.3.1
(A)	Review demand-side rates that have been implemented by other utilities and identify whether similar demand-side rates would be applicable for the utility taking into account factors such as similarity in electric prices and customer makeup;	4.3.1
(B)	Identify demand-side rates applicable to the major classes and decision-makers identified in subsection (1)(A). When appropriate, consider multiple demand-side rate designs for the same major classes;	4.3.1
(C)	Assess how technological advancements that may be reasonably anticipated to occur during the planning horizon, including advanced metering and distribution systems, affect the ability to implement demand-side rates;	6.3.2 (& Appendix F)
(D)	Estimate the input data and other characteristics needed for the twenty (20)-year planning horizon to assess the cost effectiveness of each potential demand-side rate, including:	4.3.1
1.	An assessment of the demand and energy reduction impacts of each potential demand-side rate;	4.3.1
2.	An assessment of how the interactions between multiple potential demand-side rates, if offered simultaneously, would affect the impact estimates;	4.3.1
3.	An assessment of how the interactions between potential demand-side rates and potential demand-side programs would affect the impact estimates of the potential demand side programs and potential demand-side rates;	4.3.1
4.	For each year of the planning horizon, an estimate of the incremental and cumulative demand reduction and energy savings due to the potential demand-side rate; and	4.3.2 (& Appendix F)
5.	For each year of the planning horizon, an estimate of the costs of each potential demand-side rate, including:	4.3.2 (& Appendix F)
A.	The cost of incentives to customers to participate in the potential demand side rate paid by the utility. The utility shall consider multiple levels of incentives to achieve customer participation in each potential demand-side rate, with corresponding adjustments to the maximum achievable potential and the realistic achievable potentials of that potential demand-side rate;	4.3.2 (& Appendix F)
B.	The cost to the customer and to the utility of technology to implement the potential demand-side rate;	4.3.2 (& Appendix F)
C.	The utility's cost to administer the potential demand-side rate; and	4.3.2 (& Appendix F)
D.	Other costs identified by the utility;	4.3.2 (& Appendix F)
(E)	A tabulation of the incremental and cumulative number of participants, load impacts, utility costs, and program participant costs in each year of the planning horizon for each potential demand-side program;	4.2.3
(F)	Evaluate how each demand-side rate would be considered by the utility's Regional Transmission Organization (RTO) in resource adequacy determinations, eligibility to participate as a demand response resource in RTO markets for energy, capacity, and ancillary services; and	4.1.1
(G)	The utility shall describe and document how it performed the assessments and developed the estimates pursuant to subsection (4)(D) and shall document its sources and quality of information.	4.3.1
(5)	The utility shall describe and document its evaluation of the cost effectiveness of each potential demand-side program developed pursuant to section (3) and each potential demand-side rate developed pursuant to section (4). All costs and benefits shall be expressed in nominal dollars.	3.1.6, 4.1.3, 5.1
(A)	In each year of the planning horizon, the benefits of each potential demand-side program and each potential demand-side rate shall be calculated as the cumulative demand reduction multiplied by the avoided demand cost plus the cumulative energy savings multiplied by the avoided energy cost. These calculations shall be performed both with and without the avoided probable environmental costs. The utility shall describe and document the methods, data, and assumptions it used to develop the avoided costs.	3.1.6, 4.1.3, 5.1
1.	The utility avoided demand cost shall include the capacity cost of generation, transmission, and distribution facilities, adjusted to reflect reliability reserve margins and capacity losses on the transmission and distribution systems, or the corresponding market-based equivalents of those costs. The utility shall describe and document how it developed its avoided demand cost, and the capacity cost chosen shall be consistent throughout the triennial compliance filing.	3.1.6
2.	The utility avoided energy cost shall include the fuel costs, emission allowance costs, and other variable operation and maintenance costs of generation facilities, adjusted to reflect energy losses on the transmission and distribution systems, or the corresponding market-based equivalents of those costs. The utility shall describe and document how it developed its avoided energy cost, and the energy costs shall be consistent throughout the triennial compliance filing.	3.1.6
3.	The avoided probable environmental costs include the effects of the probable environmental costs calculated pursuant to 4 CSR 240-22.040(2)(B) on the utility avoided demand cost and the utility avoided energy cost. The utility shall describe and document how it developed its avoided probable environmental cost.	3.1.6
(B)	The total resource cost test shall be used to evaluate the cost effectiveness of the potential demand-side programs and potential demand-side rates. In each year of the planning horizon—	3.1.3.1, 3.1.6
1.	The costs of each potential demand side program shall be calculated as the sum of all incremental costs of end-use measures that are implemented due to the program (including both utility and participant contributions) plus utility costs to administer, deliver, and evaluate each potential demand side program;	3.1.6
2.	The costs of each potential demand side rate shall be calculated as the sum of all incremental costs that are due to the rate (including both utility and participant contributions) plus utility costs to administer, deliver, and evaluate each potential demand side rate; and	4.1.5
3.	For purposes of this test, the costs of potential demand-side programs and potential demand-side rates shall not include lost revenues or utility incentive payments to customers.	3.1.6
(C)	The utility cost test shall also be performed for purposes of comparison. In each year of the planning horizon—	3.1.6
1.	The costs of each potential demand side program and potential demand-side rate shall be calculated as the sum of all utility incentive payments plus utility costs to administer, deliver, and evaluate each potential demand-side program or potential demand-side rate;	3.1.6
2.	For purposes of this test, the costs of potential demand-side programs and potential demand-side rates shall not include lost revenues; and	3.1.6
3.	The costs shall include, but separately identify, the costs of any rate of return or incentive included in the utility's recovery of demand-side program costs.	To be Addressed in IRP
(D)	The present value of program benefits minus the present value of program costs over the planning horizon must be positive or the ratio of annualized benefits to annualized costs must be greater than one (1) for a potential demand-side program or potential demand-side rate to pass the utility cost test or the total resource cost test. The utility may relax this criterion for programs that are judged to have potential benefits that are not captured by the estimated load impacts or avoided costs, including programs required to comply with legal mandates.	3.1.6
(E)	The utility shall provide results of the total resource cost test and the utility cost test for each potential demand-side program evaluated pursuant to subsection (5)(B) and for each potential demand-side rate evaluated pursuant to subsection (5)(C) of this rule, including a tabulation of the benefits (avoided costs), demand-side resource costs, and net benefits or costs.	3.1.6, 4.2.4, 5.2.1, 5.2.2
(F)	If the utility calculates values for other tests to assist in the design of demand-side programs or demand-side rates, the utility shall describe and document the tests and provide the results of those tests.	3.1.6, 5.2.1, 5.2.2

4 CSR 240-22.050 Demand Side Resource Analysis	IRP Rule	Section of MPS
(G)	The utility shall describe and document how it performed the cost effectiveness assessments pursuant to section (5) and shall describe and document its methods and its sources and quality of information.	3.1.6
(6)	Potential demand-side programs and potential demand-side rates that pass the total resource cost test including probable environmental costs shall be considered as demand side candidate resource options and must be included in at least one (1) alternative resource plan developed pursuant to 4 CSR 240-22.060(3).	To be Addressed in IRP
(A)	The utility may bundle demand-side candidate resource options into portfolios, as long as the requirements pursuant to section (1) are met and as long as multiple demand side candidate resource options and portfolios advance for consideration in the integrated resource analysis in 4 CSR 240-22.060. The utility shall describe and document how its demand-side candidate resource options and portfolios satisfy these requirements.	To be Addressed in IRP
(B)	For each demand-side candidate resource option or portfolio, the utility shall describe and document the time-differentiated load impact estimates over the planning horizon at the level of detail required by the supply system simulation model that is used in the integrated resource analysis, including a tabulation of the estimated annual change in energy usage and in diversified demand for each year in the planning horizon due to the implementation of the candidate demand-side resource option or portfolio.	3.1.3.3, 5.1
(C)	The utility shall describe and document its assessment of the potential uncertainty associated with the load impact estimates of the demand-side candidate resource options or portfolios. The utility shall estimate—	3.5.1
1.	The impact of the uncertainty concerning the customer participation levels by estimating and comparing the maximum achievable potential and realistic achievable potential of each demand-side candidate resource option or portfolio; and	3.5.1, 4.3, 5.2.3
2.	The impact of uncertainty concerning the cost effectiveness by identifying uncertain factors affecting which end-use resources are cost effective. The utility shall identify how the menu of cost-effective end-use measures changes with these uncertain factors and shall estimate how these changes affect the load impact estimates associated with the demand side candidate resource options.	3.5.1, 4.3, 5.2.3
(7)	For each demand-side candidate resource option identified in section (6), the utility shall describe and document the general principles it will use to develop evaluation plans pursuant to 4 CSR 240-22.070(8). The utility shall verify that the evaluation costs in subsections (5)(B) and (5)(C) are appropriate and commensurate with these evaluation plans and principles.	To be Addressed in IRP
(8)	Demand-side resources and load-building programs shall be separately designed and administered, and all costs shall be separately classified to permit a clear distinction between demand-side resource costs and the costs of load-building programs. The costs of demand-side resource development that also serve other functions shall be allocated between the functions served.	To be Addressed in IRP
Special Contemporary Issues (EO-2023-0099)		
1A	Explore the feasibility, impacts, and potential mitigation of a potentially more pronounced urban heat island over the greater St. Louis urban area over a twenty-year IRP cycle.	3.1.3.2
1B	Model for low, medium, and high participation scenarios of commercial and industrial customers electing to participate in demand response activities based on the introduction of third-party ARCs within its footprint and provide an analysis of that impact ARCs would have on its IRP.	4.1.2
1C	Account for and explicitly identify cost reductions, tax credits (including all available tax credits for renewable and storage assets), additional funding sources, and other potential benefits from the Inflation Reduction Act and incorporate those changes into its IRP modeling as appropriate.	3.1.3.3, 5.1.3
1D	Update its analysis and planning activities regarding actions necessary for system-wide voltage optimization analysis of its distribution system.	To be Addressed in IRP
1E	Analyze the impact resulting from satisfaction of the clean energy goals of large customers in general, and St. Louis’ municipal clean energy goals in particular.	To be Addressed in IRP
1F	Study and/or model various technologies and programs designed to reduce demand on the customer side of the meter, including but not limited to:	4
1F(1)	Residential demand response programs, pairing increased rebates for web-enabled or “smart” thermostats with demand response program participation;	4.1.2
1F(2)	Increased rebates for residential electric vehicle charging units paired with customer agreements to participate in a program allowing the Company’s use of electricity from a customer’s connected electric vehicle at times of high demand;	4.3.1
1F(3)	New rebates for residential battery storage units paired with customer agreements to participate in a program allowing the Company’s use of batteries at times of high demand;	4.1.2
1F(4)	A program offering free installation of utility-owned battery storage units in exchange for customer agreements to allow the Company to use batteries at times of high demand.	4.1.2
1G	Study and/or model the potential for utility-scale battery storage to meet current and future demand, including:	To be Addressed in IRP
1G(1)	Consideration of the range of potential price reductions in these technologies over the coming two decades;	To be Addressed in IRP
1G(2)	Consideration of pumped hydro, stacked blocks, liquid air, above-ground and underground compressed air, and flow battery technologies in addition to lithium-ion battery technologies;	To be Addressed in IRP
1G(3)	Pairing mid-scale deployments of battery storage technologies with current and future utility-scale solar generation sites; and	To be Addressed in IRP
1G(4)	Offering free installation of utility-owned battery storage systems to large commercial and industrial customers in exchange for the Company’s use of systems at times of high peak demand.	4.1.2
1H	Model stand-alone or hybrid battery storage resources.	To be Addressed in IRP

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2023 DSM MARKET POTENTIAL STUDY

April
2023

FINAL REPORT