Hoosier Energy
2023 Integrated Resource Plan
Volume III: Technical Appendices

April 2024

Hoosier Energy – Technical Appendices to 2023 Integrated Resource Plan

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Appendix C

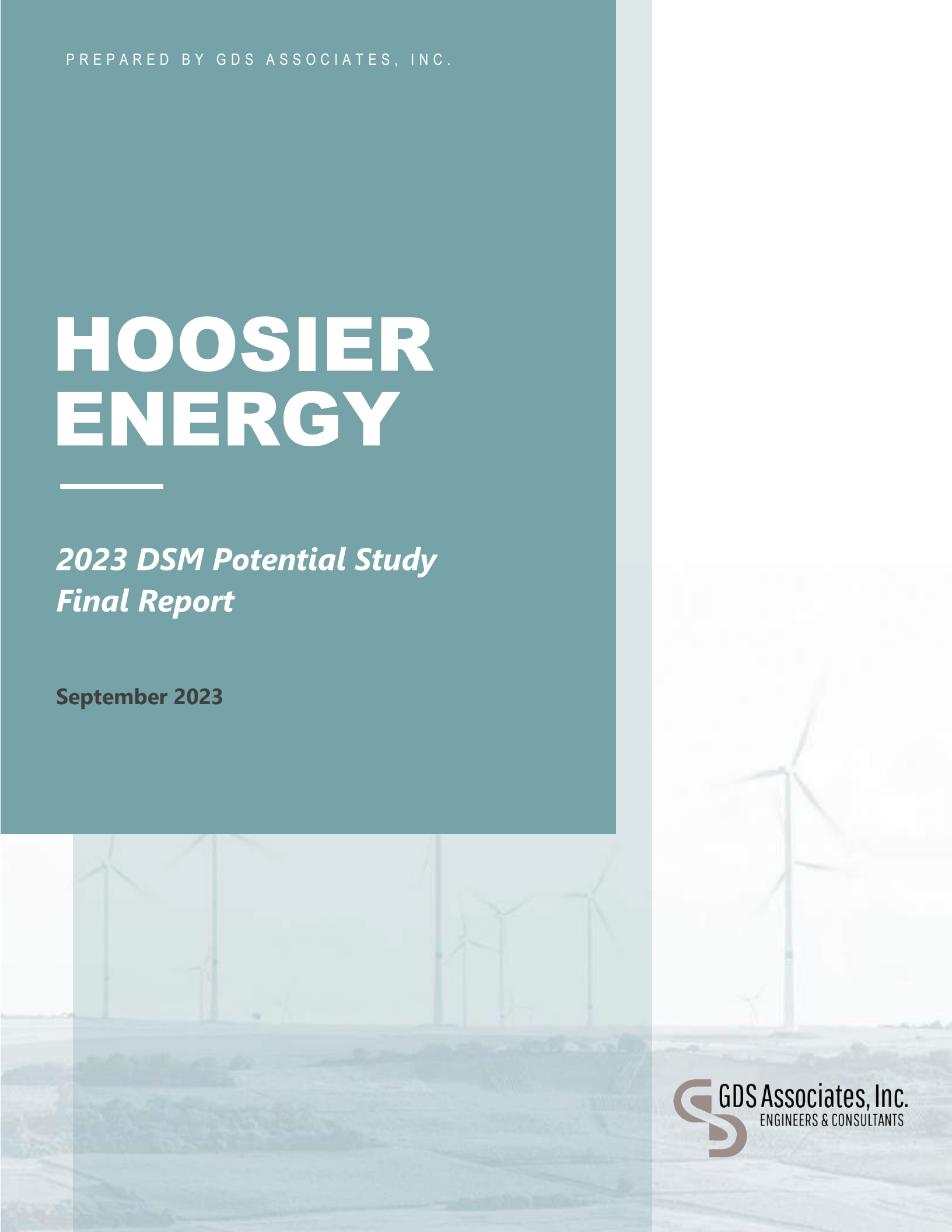
GDS Report – 2023 DSM Potential Study

PREPARED BY GDS ASSOCIATES, INC.

HOOSIER ENERGY

2023 DSM Potential Study Final Report

September 2023



GDS Associates, Inc.
ENGINEERS & CONSULTANTS

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1 Executive Summary

1.1 BACKGROUND

This energy efficiency and demand response potential study for the Hoosier Energy service area provides a roadmap and identifies the energy efficiency and demand response measures having the greatest potential savings and the measures that are the most cost-effective. In addition to technical and economic potential estimates, the development of achievable potential estimates for a range of feasible energy efficiency measures is useful for program planning and modification purposes. Unlike achievable potential estimates, technical and economic potential estimates do not include customer acceptance considerations for energy efficiency measures, which are often among the most important factors when estimating the likely customer response to new programs.

All energy efficiency results were developed using customized residential, commercial, and industrial sector-level energy efficiency potential assessment Excel models and Company-specific cost effectiveness criteria including the most recent Hoosier Energy avoided energy and capacity cost projections for electricity. Demand response results were calculated in a separate model.

The results of this study provide detailed information on measures that are cost-effective and have potential kWh and kW savings. The data referenced in this report were the best available at the time this analysis was developed. As building and appliance codes and energy efficiency standards change, and as energy prices fluctuate, additional opportunities for energy efficiency may occur while current practices may become outdated. Actual energy and demand savings will depend upon the level and degree of voluntary member system participation in DSM programs.

1.2 STUDY SCOPE

This study examines the potential to reduce electric consumption and peak demand through the implementation of DSM technologies and practices in residential, commercial, and industrial facilities. The study assessed energy efficiency potential and demand response throughout Hoosier Energy Members' service territories over twenty years, from 2024 through 2043.

The scope of this study distinguishes three types of energy efficiency potential: (1) technical, (2) economic, and (3) achievable.

- *Technical Potential* is the theoretical maximum amount of energy use that could be displaced by efficiency, disregarding all non-engineering constraints such as cost-effectiveness and the willingness of end users to adopt the efficiency measures. Technical potential is constrained only by factors such as technical feasibility and applicability of measures.
- *Economic Potential* refers to the subset of the technical potential that is economically cost-effective as compared to conventional supply-side energy resources. Economic potential follows the same adoption rates as technical potential. Like technical potential, the economic scenario ignores market barriers to ensuring actual implementation of efficiency. Finally, economic potential only considers the costs of efficiency measures themselves, ignoring any programmatic costs (e.g., marketing, analysis, administration) that would be necessary to capture them.[1]

[1] National Action Plan for Energy Efficiency, "Guide for Conducting Energy Efficiency Potential Studies" (November 2007), page 2-4.

- *Achievable Potential* is the amount of energy use that efficiency can realistically be expected to displace, assuming the most aggressive program scenario possible (e.g., providing end users with payments for the entire incremental cost of more efficient equipment). Achievable potential considers real-world barriers to encouraging end users to adopt efficiency measures, the non-measure costs of delivering programs (for administration, marketing, tracking systems, and monitoring and evaluation), and the capability of programs and administrators to boost program activity over time. The study assessed two types of achievable potential: maximum (MAP) and realistic (RAP).

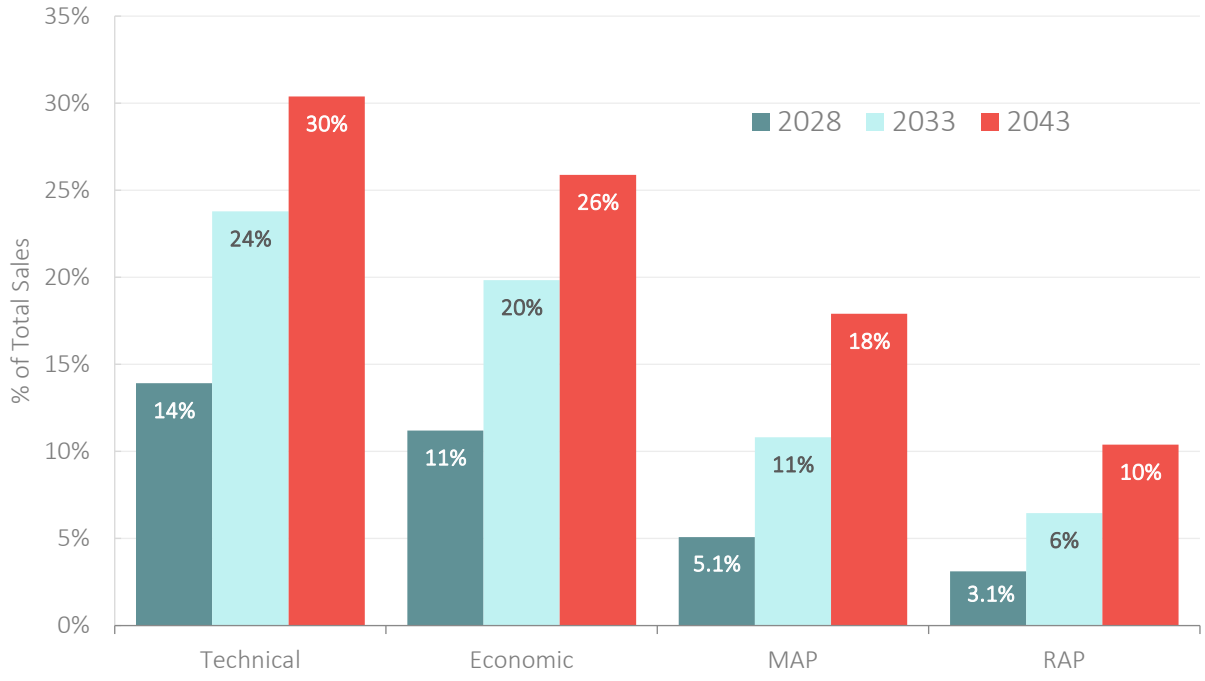
GDS also calculated savings and costs estimates associated with a refined set of DSM programs for the Hoosier Energy territory. These savings levels are referred to as *Program Potential* and are summarized in Chapter 6 of the report.

1.3 ENERGY EFFICIENCY POTENTIAL

Figure 1-1 provides the technical, economic, MAP and RAP results for the 5-year, 10-year, and 20-year timeframes. The cumulative annual 5-year technical potential is 14% of the forecasted sales, and the economic potential is 11% of forecasted sales. The cumulative annual 5-year MAP is 5.1% and the RAP is 3.1%, as a percentage of forecasted sales.

Over the duration of the study timeframe the technical potential rises to 30% and the economic potential rises to 26% of forecasted sales, indicating that most of the technical potential is cost-effective. The MAP and RAP rise respectively to 18% and 10% of forecasted sales over the study timeframe. 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. Residential and C&I sector detail is provided in Chapter 4.

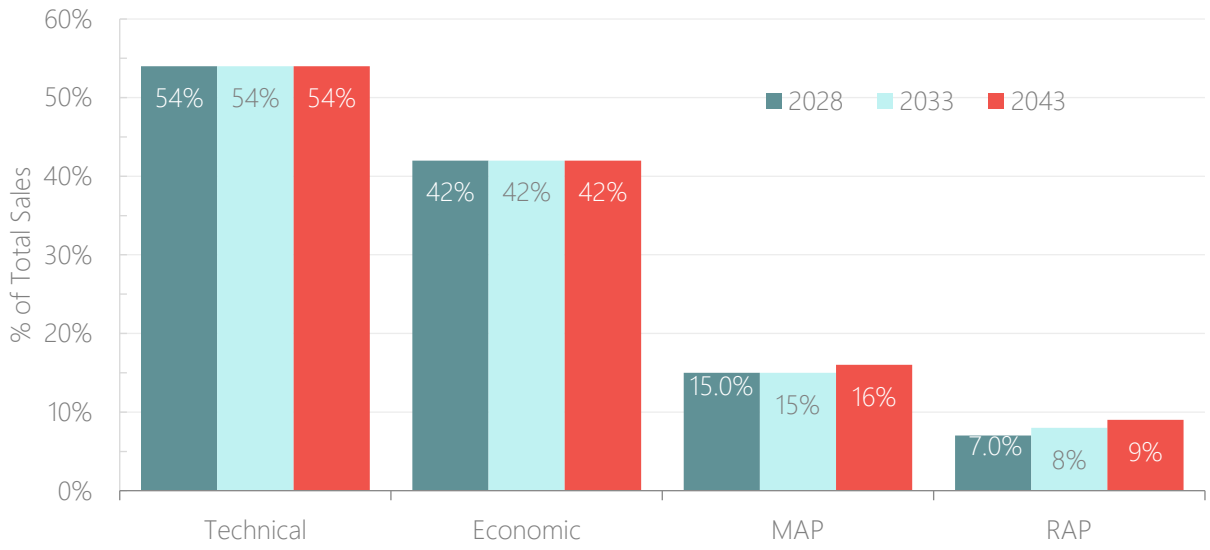
FIGURE 1-1: OVERVIEW OF ENERGY EFFICIENCY POTENTIAL



1.4 DEMAND RESPONSE POTENTIAL

Figure 1-2 provides the technical, economic, MAP and RAP results for the Demand Response (DR) analysis over 5-year, 10-year, and 20-year timeframes. The cumulative annual 5-year technical potential is 54% of the peak demand forecasted, and the economic potential is 42% of forecasted demand. The cumulative annual 5-year MAP is 15.0% and the RAP is 7%, as a percentage of forecasted demand. A detailed discussion of the traditional direct load control (DLC) programs, as well as demand response rate options, included in the DR potential analysis, as well as results by sector and program are included in Chapter 5.

FIGURE 1-2: OVERVIEW OF DEMAND RESPONSE POTENTIAL



1.5 DSM PROGRAM POTENTIAL

Based on the results of the DSM savings potential analysis for realistic achievable potential, a review of energy efficiency programs currently offered by Hoosier Energy and other utility organizations in the Midwest, and coordination with Hoosier Energy staff on Member system preferences, GDS and Hoosier Energy developed estimates of program potential over the next decade. Here, program potential is scaled down from the realistic achievable potential to focus on a more limited set of measures/programs for Hoosier Energy (and its member systems) to offer to consumers.

In the residential sector, the recommended programs include the continued offering of the HVAC, Smart Thermostat, and HVAC Tune-Up programs, with an expansion of the HVAC program to include both HVAC equipment and limited building shell improvements. In addition, the program potential includes a residential new construction and behavior pilot offering for consideration. The C&I program offerings continue to include prescriptive rebates for LED lighting and other standard efficiency measures across the HVAC, cooking and refrigeration end-uses, and a Commercial custom program for non-standard offerings. Finally, demand response programs include traditional direct load control (AC) as well as demand response rate options (including an Interruptible tariff, and other potential time-of-use offerings). The DSM Potential, including detailed annual tables, is discussed in Chapter 6.

TABLE 1-1 RECOMMENDED PROGRAM SUMMARY

Sector / Program	Cumulative Annual MWh Savings – 2033	Cumulative Annual Summer MW Savings – 2033	NPV TRC Benefits ($2024)	NPV TRC Costs ($2024)	TRC B/C Ratio
TOTAL PORTFOLIO	253,698	120.8	$255.9 Mil	$67.9 Mil	3.77
Residential EE Programs	161,423	11.1	$125.8 Mil	$27.2 Mil	4.63
Residential HVAC	*144,636*	*9.3*	*$120.0 Mil*	*$24.1 Mil*	*4.62*
Smart Thermostat	*2,008*	*0.0*	*$1.2 Mil*	*$1.3 Mil*	*0.93*
HVAC Tune-Up	*547*	*0.2*	*$0.4 Mil*	*$0.8 Mil*	*0.53*
Residential New Construction Pilot	*201*	*0.0*	*$0.4 Mil*	*$0.2 Mil*	*2.20*
Residential Behavior Pilot	*14,031*	*1.6*	*$3.8 Mil*	*$0.8 Mil*	*4.72*
C&I EE Programs	92,275	13.9	$58.1 Mil	$17.6 Mil	3.30
Prescriptive Rebates	*56,977*	*8.6*	*$37.1 Mil*	*$9.2 Mil.*	*4.02*
Custom	*36,446*	*5.9*	*$21.0 Mil*	*$8.4 Mil*	*2.50*
Residential DR Programs	0	79.3	$60.0 Mil	$19.6 Mil	3..06
Direct Load Control of ACs	*0*	*33.9*	*$24.4 Mil*	*$12.4 Mil*	*1.97*
Rates	*0*	*45.4*	*$35.6 Mil*	*$7.2 Mil*	*4.95*
C&I DR Programs	0	16.5	$12.0 Mil	$3.5 Mil	3.43
Interruptible DR	*0*	*6.6*	*$4.9 Mil*	*$1.9 Mil*	*2.58*
Other C&I Rate DR	*0*	*9.9*	*$7.1 Mil*	*$1.6 Mil*	*4.36*

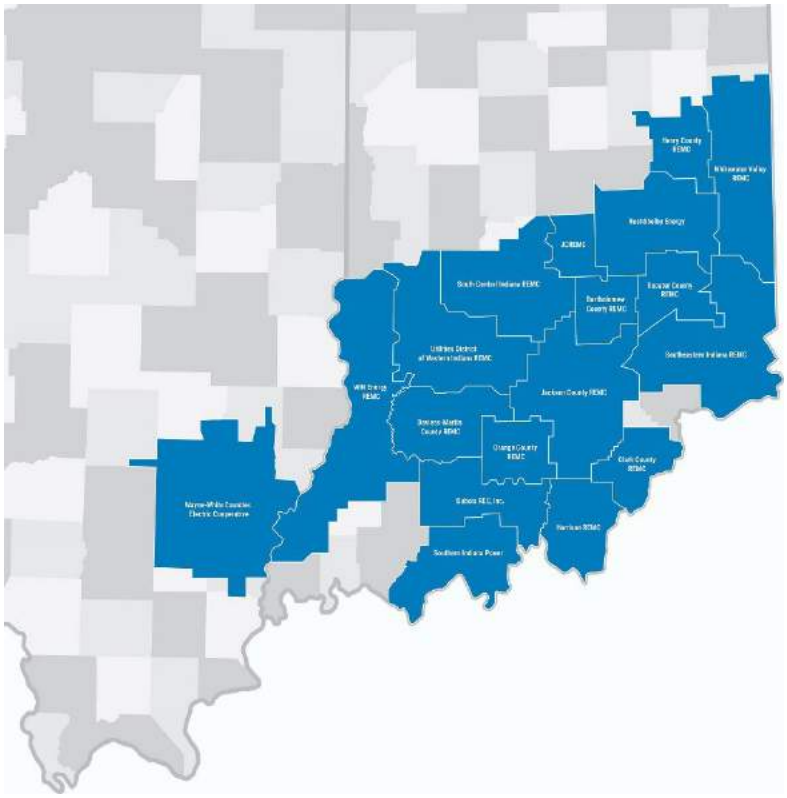
2 BASELINE FORECAST

The chapter provides updated forecast information on electricity consumption, consumption by market segment and by energy end use in Hoosier Energy's member service territories. This chapter also provides an overview of the number of households in Hoosier Energy's service area. Developing this information is a fundamental part of any energy efficiency potential study. It is necessary to understand how energy is consumed in a state or region before one can assess the energy efficiency savings potential that remains to be tapped.

2.1 HOOSIER ENERGY MEMBER SERVICE TERRITORIES

Hoosier Energy is a generation and transmission cooperative (G&T) providing wholesale electric power and services to 18 member cooperatives, serving 59 counties across central and southern Indiana and southeastern Illinois. As shown in Figure 2-1 the 18 member cooperatives serve a 15,000-square-mile service territory in the southern half of Indiana and southeastern Illinois counties. Collectively, Hoosier Energy provides electricity and related services to nearly 300,000 homes, businesses, and farms in Indiana and Illinois.

FIGURE 2-1. HOOSIER ENERGY SERVICE TERRITORY



2.2 SECTOR LEVEL FORECASTS AND SEGMENTATION

Table 2-1 provides the sales by sector across the 2022-2036 timeframe. Sales are forecasted to gradually increase over the timeframe of the study in both the residential and C&I sectors. Total sales are forecasted to be just over 8.0 million MWh by 2023 and increasing to 8.6 million MWh by 2043.

TABLE 2-1. 20-YR SALES FORECASTS BY SECTOR (MWH)

Year	Residential	C&I	Total
2024	4,206,476	3,804,629	8,011,105
2025	4,222,169	3,826,588	8,048,757
2026	4,251,351	3,840,866	8,092,217
2027	4,278,806	3,855,016	8,133,822
2028	4,319,780	3,824,663	8,144,443
2029	4,334,443	3,839,586	8,174,029
2030	4,356,352	3,824,680	8,181,032
2031	4,381,724	3,829,770	8,211,493
2032	4,424,199	3,837,028	8,261,227
2033	4,440,936	3,784,239	8,225,175
2034	4,472,564	3,775,031	8,247,595
2035	4,505,415	3,782,536	8,287,951
2036	4,553,569	3,774,180	8,327,749
2037	4,573,320	3,776,743	8,350,063
2038	4,607,115	3,783,992	8,391,107
2039	4,640,281	3,791,167	8,431,448
2040	4,685,825	3,797,852	8,483,677
2041	4,722,765	3,801,079	8,523,844
2042	4,759,996	3,804,361	8,564,357
2043	4,797,520	3,807,699	8,605,219

2.2.1 Residential Sector

The residential sector analysis approach employs a bottom-up analysis that is dependent on the number of households in the Hoosier Energy service area. Hoosier Energy provided GDS with a forecast of total residential system accounts, which GDS used as a proxy for number of households. GDS then used data from the latest residential appliance saturation study to derive a breakdown by housing unit (i.e, singly-family vs. multifamily) for the Hoosier Energy service territory, and US Census data to derive estimates by income-type (low-income vs. non-low-income). The assumed breakdown of households in 2024 in shown below.

2.2.2 Commercial & Industrial Sector

In the C&I sector, disaggregated forecast data provides the foundation for the development of energy efficiency potential estimates. GDS received a base case sales forecast from Hoosier Energy; the forecast was further segmented into end-uses by building type using a combination of regional data sources, including nearby utility sales data and the Energy Information Agency's (EIA) Annual Energy Outlook Reference Data.

Figure 2-2 provides a breakdown of commercial electric sales by building type. Sales are well distributed across retail, office, and miscellaneous building types, which tougher account for nearly 55% of sales. Assembly, education, and food service (restaurants) account for another 33% of sales. The remaining 13% of sales are attributed to food sales (grocery), healthcare, lodging, and warehouses.

FIGURE 2-2. RESIDENTIAL HOUSING TYPE BREAKDOWN (2024)

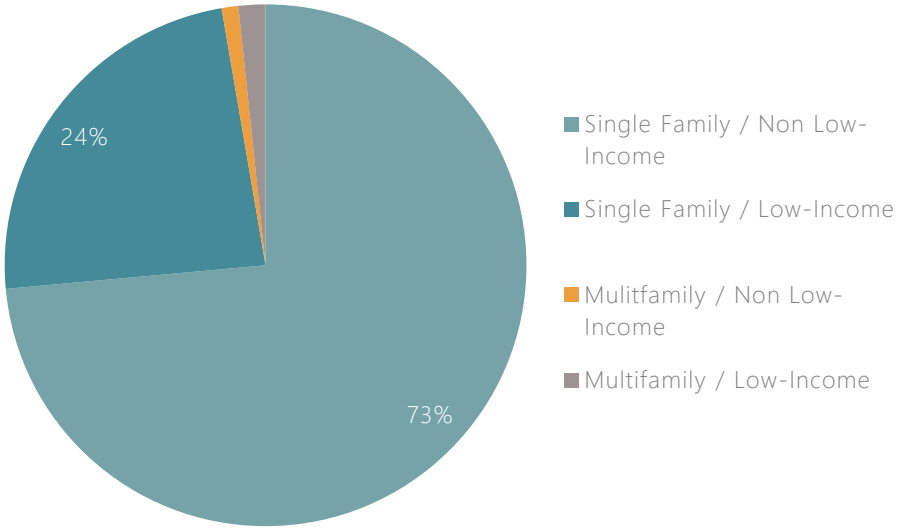


FIGURE 2-3. COMMERCIAL ELECTRIC SALES BREAKDOWN BY BUILDING TYPE

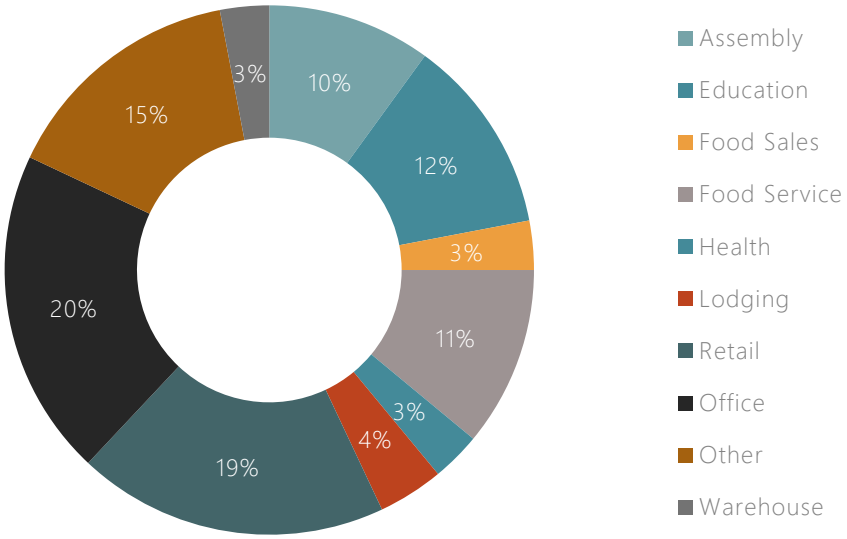
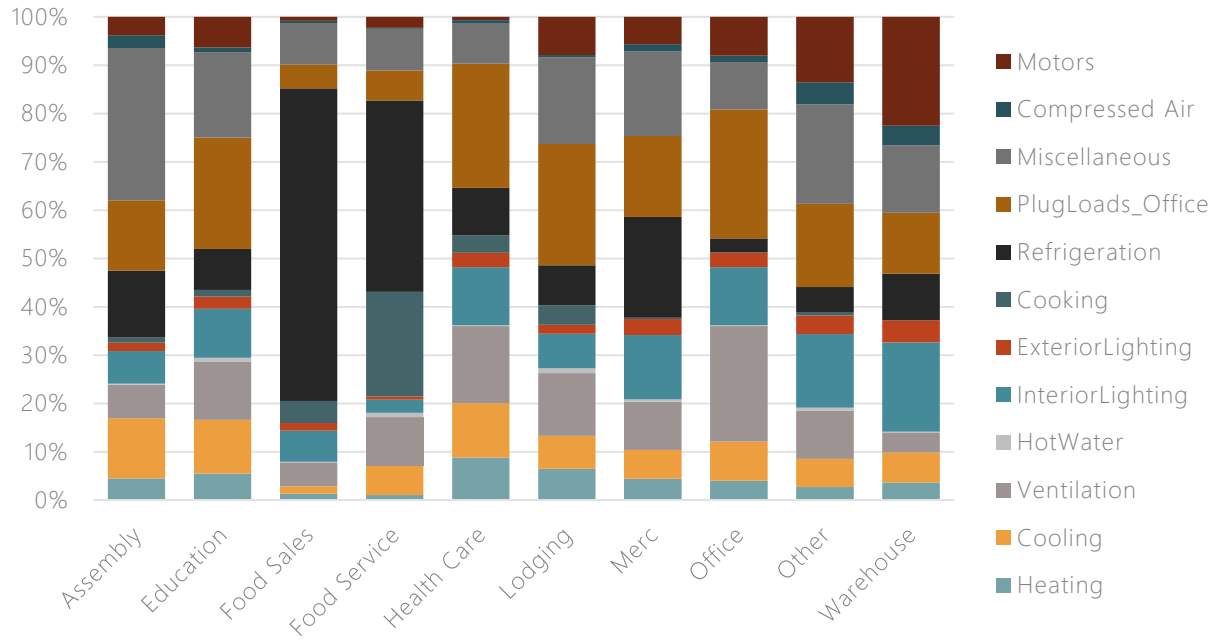


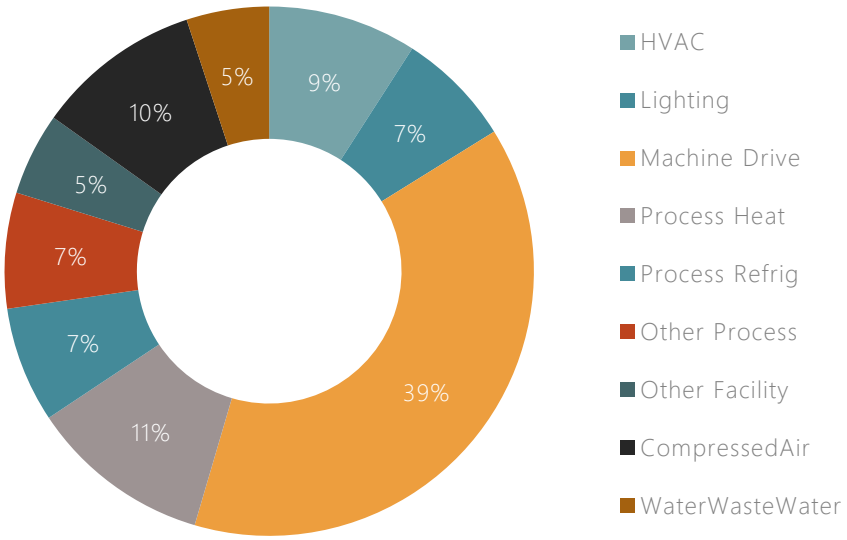
Figure 2-3 provides an illustration of the leading end-uses across all building types in the commercial sector. Lighting, space cooling, miscellaneous, and ventilation are the primary end-uses with a significant share of load across most building types. Shares of refrigeration, cooking, and plug loads are often dependent on the type of building, with refrigeration and cooking loads greatest in food sales and food service while office/computing loads are greatest in offices and education.

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



Industrial sales were also segmented by end-use based on the overall distribution of sales by industry type and EIA MECS data on end-use consumption by industrial segment. **Figure 2-4** provides a breakdown of the sales by end-use. Overall, the weighted average industrial sales by end-use in the Hoosier Energy service area was roughly 39% Machine Drive, 11% Process Heat, 10% Compressed Air, and 9% HVAC. These four end-uses accounted for nearly 70% of sales.

FIGURE 2-5. INDUSTRIAL ELECTRIC SALES BREAKDOWN BY BUILDING TYPE



3 METHODOLOGY

This section describes the overall methodology utilized to assess the electric energy efficiency potential in the Hoosier Energy service area. The main objectives of the study were to estimate the technical, economic, maximum, and realistic achievable potential savings from energy efficiency and demand response (see Chapter 5 for demand response methodology details) in the Hoosier Energy territory; and to quantify these estimates of potential in terms of MWh and MW savings. GDS also examined an estimate of program potential – a subset of achievable potential that is constrained by budget and a narrower focus on efficiency programs of interest to Hoosier Energy and their Member systems. GDS did not examine specific delivery approaches for energy efficiency programs as this task was not included in the scope of work for this study.

Energy efficiency potential studies involve several analytical steps to produce estimates of each type of energy efficiency potential: technical, economic, achievable and program potential. This study utilizes benefit/cost screening tools for the residential and non-residential sectors to assess the cost effectiveness of energy efficiency measures. These cost effectiveness screening tools are Excel-based models that integrate technology-specific impacts and costs, customer characteristics, utility avoided cost forecasts and more. Excel was used as the modeling platform to provide transparency to the estimation process and allow for simple customization based on Hoosier Energy's unique characteristics and the availability of specific model input data. The major analytical steps and an overview of the potential savings are summarized below, and specific changes in methodology from one sector to another have been noted throughout this section.

3.1 HOOSIER ENERGY MEMBER SERVICE TERRITORIES

For the residential sector, GDS took a bottom-up approach to the modeling, whereby measure-level estimates of costs, savings, and useful lives were used as the basis for developing the 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, which took into consideration incentives and estimates of annual adoption rates. Program design and budget constraints were then factored into the estimates of program potential. For the commercial and industrial sectors, GDS took 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 energy load.

3.2 MARKET CHARACTERIZATION

The initial step in the analysis was to gather a clear understanding of the current market segments in the Hoosier Energy service area. The GDS team coordinated with Hoosier Energy to gather utility sales and customer data and existing market research to define appropriate market sectors, market segments, vintages, saturation data and end uses. This information served as the basis for completing a forecast disaggregation and market characterization of both the residential and nonresidential sectors.

3.2.1 Forecast Disaggregation

Through the development of the baseline forecasts, the GDS Team produced disaggregated forecasts by sector and end-use. The resulting aggregate baseline forecasts were disaggregated by sector and then further segmented as follows:

- *Residential.* The residential forecast was broken out by housing type as well as existing vs. new construction.

- *Commercial.* Typically based on major EIA CBECS business types: retail, warehouse, food sales, office, lodging, health, food service, education, and miscellaneous.
- *Industrial.* As determined by actual load consumption shares and major industry types as defined by EIA's Manufacturing Energy Consumption Survey (MECS) data.

Within the residential, commercial, and industrial market segments, the sector level disaggregated forecasts were further segmented by the major end uses shown in **Table 3-1**.

TABLE 3-1. ELECTRIC END-USE LOADS

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	
Light	Whole Building / Behavioral	

3.2.2 Building Stock/Equipment Saturation

To assess the potential electric energy efficiency savings available, estimates of the current saturation of baseline equipment and energy efficiency measures are necessary.

3.2.2.1 Residential Sector

For the residential sector, GDS relied on a 2021 Residential End-Use Survey conducted by Hoosier Energy. Other data sources included ENERGY STAR unit shipment data and EIA Residential Energy Consumption Survey data. 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.

3.2.2.2 Business Sector

For the commercial sector, building stock and equipment saturation data was informed from a combination of available regional or national data, such as the EAI Annual Energy Outlook and the Energy Baseline Calculator. This data helped inform the disaggregation of the end-use sales forecast into measure groups consistent with those included in the potential analysis as well as saturation of energy efficient equipment.

For the industrial sector, the analysis employed a top-down analysis at the end-use level. Accordingly, it was not critical to disaggregate the industrial sales at a measure-level. Instead, measures were developed to estimate savings at a total end-use level.

3.2.3 Remaining Factor

The remaining factor is the proportion of a given market segment that is not yet efficient and can still be converted into an efficient alternative. It is the inverse of the saturation of an energy efficient measure, prior

to any adjustments. In this study, two key adjustments were made to recognize that energy efficient saturation does not necessarily always fully represent the state of market transformation. First, while a percentage of installed measures may already be efficient, some customers may backslide (i.e., revert to standard technologies, or otherwise less efficient alternatives in the future, based on considerations like measure cost and availability and customer preferences). For example, customers who purchased efficient HVAC equipment in the past may not want to pay the full cost for an efficient piece of equipment again due to price increases in recent years.

For measures categorized as market opportunity (i.e., replace-on-burnout), we assumed that 50% of the instances in which an efficient measure is already installed, the burnout or failure of those measures would be eligible for inclusion in the estimate of future savings potential. This adjustment assumes that 50% of the market is transformed, and no future savings potential exists, whereas the remaining 50% of the market is not transformed and could backslide without the intervention of a program and an incentive. Similarly, for retrofit measures, we assumed that only 10% of the instances in which an efficient measure is already installed, the burnout or failure of those measures would be eligible for inclusion in the estimate of future savings potential. This recognizes the more proactive nature of retrofit measures, as the implementation of these measures are more likely to be elective in nature, compared to market opportunity measures, which are more likely to be needs-based. The uncertainty in these assumptions is appropriate, as they factor in a key component of natural customer decision making.

A second, more limited, adjustment was also made to account for future replacements for measures that are installed early on over the 20-year analysis timeframe and subsequently reach the end of their useful life. Commercial lighting measures were primarily impacted by this adjustment, assuming the 85% of commercial lighting measures would be transformed following the initial modeled installation and would no longer require program intervention after reaching the end of their useful life. All other measures assumed market transformation of 25% or less, when eligible to "re-up" over the analysis period. Note that this second adjustment only impacts the incremental annual estimates of savings potential, and the savings that result from market transformed measures remain the reported estimates of cumulative potential.

3.3 MEASURE CHARACTERIZATION

This section of the report provides an overview of the measure lists used in the study as well as the assumptions and sources used to characterize these measures.

3.3.1 Measure Lists

The energy efficiency measures included in this study cover energy efficiency measures currently included in Hoosier Energy's energy efficiency programs, as well as additional measures suggested by the GDS Team based on existing knowledge and current databases of electric end-use technologies and energy efficiency measures. The study scope includes measures and practices that are currently commercially available as well as emerging technologies. The commercially available measures are of the most immediate interest to Hoosier Energy. However, a small number of well documented emerging technologies were considered for each sector. Emerging technology research was focused on measures that are commercially available but may not be widely accepted at the current time. These measure lists were then reviewed, discussed, and updated as necessary. A complete listing of the energy efficiency measures included in this study is provided in the Appendices of this report.

In addition, this study includes measures that could be relatively easily substituted for, or applied to, existing technologies on a retrofit or replace-on-burnout basis. Replace-on-burnout applies to equipment

replacements that are typically made in the market when a piece of equipment is at the end of its useful life. A retrofit measure is eligible to be replaced at any time in the life of the equipment or building. Replace-on-burnout measures are generally characterized by incremental measure costs and savings (e.g. the costs and savings of a high-efficiency versus standard efficiency air conditioner); whereas retrofit measures are generally characterized by full costs and savings (e.g. the full costs and savings associated with adding ceiling insulation into an existing attic). For new construction, energy efficiency measures can be implemented when each new home or building is constructed, thus the rate of availability is a direct function of the rate of new construction.

In total, GDS analyzed 332 measure types for Hoosier Energy. Many measures required multiple permutations for different applications, such as different building types, efficiency levels, and replacement options. GDS developed a total of 2,179 measure permutations for this study. **Table 3-2** provides a breakdown of the sector-level number of measures and permutations.

TABLE 3-2. MEASURE COUNTS BY SECTOR

Sector	# of Measures	Total Permutations
Residential	144	492
C&I	184	1687
Total	332	2,179

3.3.2 Assumptions and Sources

A significant amount of data is needed to estimate the electric savings potential for individual energy efficiency measures or programs across the residential and nonresidential customer sectors. GDS used the most recent nearby utility evaluation report findings, the Illinois TRM, and the Michigan Energy Measures Database (MEMD), and EIA data for a large amount of the data requirements. Additional source documents included American Council for an Energy-Efficient Economy (ACEEE) research reports covering topics like emerging technologies.

Measure Savings: GDS relied on existing nearby utility evaluation report findings and the Illinois TRM to inform calculations supporting estimates of annual measure savings as a percentage of base equipment usage. For custom measures and measures not included in the Illinois TRM, GDS estimated savings from a variety of sources, including:

- MEMD, IN TRM, and other regional/state TRMs
- Secondary sources such as the ACEEE, Department of Energy (DOE), EIA, ENERGY STAR©, and other technical potential studies

Measure Costs: Measure costs represent either incremental or full costs. These costs typically include the incremental cost of measure installation, when appropriate based on the measure definition. For purposes of this study, nominal measure costs held constant over time.

GDS obtained measure cost estimates primarily from the Illinois TRM. GDS also used the following supplementary data sources:

- MEMD, IN, and other regional/state TRMs
- Secondary sources such as the ACEEE, ENERGY STAR, and NREL

Costs and savings for new construction and replace on burnout measures were calculated as the incremental difference between the code minimum equipment and the energy efficiency measure. This approach was utilized because the consumer must select an efficiency level that is at least the code minimum equipment 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).

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

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

All measure savings, costs, and useful life assumptions are documented in the Appendices volume of this report.

3.4 ENERGY EFFICIENCY POTENTIAL

This section provides an overview of the types of potential and key considerations in assessing each level of energy efficiency potential.

3.4.1 Types of Potential

This section reviews the types of potential analyzed in this report, as well as some key methodological considerations in the development of technical, economic, and achievable potential. The first two types of potential, technical and economic, provide a theoretical upper bound for energy savings from energy efficiency measures. Still, even the best-designed portfolio of programs is unlikely to capture 100% of the technical or economic potential. Therefore, achievable potential attempts to estimate what savings can be realistically achieved through market interventions, when it can be captured, and how much it would cost to do so. A subset of achievable potential, program potential is an estimate of potential from a given set of programs and funding. **Figure 3-1** illustrates the types of energy efficiency potential considered in this analysis.

FIGURE 3-1. TYPES OF ENERGY EFFICIENCY POTENTIAL[2]

[2] 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.

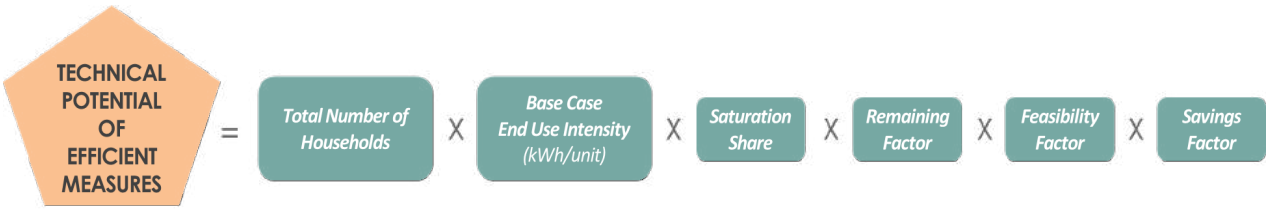
Not Technically Feasible	Not Cost Effective	Market Barriers	MAXIMUM ACHIEVABLE POTENTIAL		
Not Technically Feasible	Not Cost Effective	Market Barriers	Partial Incentives	REALISTIC ACHIEVABLE POTENTIAL	
Not Technically Feasible	Not Cost Effective	Market Barriers	Partial Incentives	Program Constraints	PROGRAM POTENTIAL

3.4.1.1 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 is only constrained by factors such as technical feasibility and applicability of measures. Under technical potential, GDS assumed 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 was assumed to be resource constrained and that it was not possible to install all retrofit measures all at once. Rather, retrofit opportunities were assumed to be replaced incrementally until 100% of stock was converted to the efficient measure over a period of no more than 15 years.

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 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 each market segment. For example, for residential water heating, the saturation share would be the fraction of all residential electric customers that have electric water heating 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 electric water heaters 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 heat pump water heaters in all homes because of space limitations).

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

Competing Measures & Interactive Effects Adjustments

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 are factored into the baseline saturation estimates. For example, nearly all homes can receive insulation. To account for this, GDS' analysis used multiple measure permutations that account for varying impacts of different heating/cooling combinations and baseline saturations were applied to reflect the proportions of households with each heating/cooling combination.

Applicability Factor Adjustment. Combined measures into measure groups, where total applicability factor across measures is set to 100%. For example, homes cannot receive a programmable thermostat, connected thermostat, and smart thermostat. In general, the models assign the measure with the most savings the greatest applicability factor in the measure group, with competing measures picking up any remaining share.

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 smart thermostat are adjusted down to reflect the efficiency gains of installing an efficient air source heat pump.

3.4.1.2 Economic Potential

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.

3.4.1.3 Achievable Potential

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 ("WTP") 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 evaluated two achievable potential scenarios:

MAP estimates achievable potential on paying incentives equal to up to 100% of measure incremental costs and aggressive adoption rates.

RAP estimates achievable potential with Hoosier Energy paying incentive levels at roughly 40% of the incremental measure costs. This level was selected to be representative of typical industry incentive levels. Note that the RAP level includes partial incentives (relative to incremental measure cost), but is not constrained by any previously determined spending levels.

3.4.1.3.1 Market Adoption Rates & Incentives

GDS assessed achievable potential on a measure-by-measure basis. In addition to accounting for the natural replacement cycle of equipment in the achievable potential scenario, GDS estimated measure specific

maximum adoption rates that reflect the presence of possible market barriers and associated difficulties in achieving the 100% market adoption assumed in the technical and economic scenarios.

The initial step was to assess the long-term market adoption potential for energy efficiency technologies. Due to the wide variety of measures across multiple end-uses, GDS employed varied measure and end-use-specific ultimate adoption rates versus a singular universal market adoption curve. These long-term market adoption estimates were based on aggregated WTP market research across several recent GDS studies, primarily in neighboring Indiana utilities. The WTP research included questions to residential homeowners and nonresidential facility managers regarding their perceived willingness to purchase and install energy efficient technologies across various end uses and incentive/payback performance levels. One caveat to this approach is that the WTP adoption score is generally a simple function of incentive levels and/or payback performance. To recognize outside influences and barriers to adoption, select surveys also included questions to assess the impact of these barriers, or motivation factors, on the willingness to participate.

GDS utilized likelihood and willingness-to-participate data to estimate the long-term market adoption potential for both the maximum and realistic achievable scenarios. **Table 3-3** presents the long-term market adoption rates at varied incentive levels used for the residential sector. **Table 3-4** presents the long-term adoption rates used in the nonresidential sector.

In the maximum achievable potential, incentives were assumed to represent 100% of the incremental measure cost (and 0-year payback). In the RAP scenario, incentives were roughly 40% of the measure cost, with the payback period a function of the remaining cost relative to energy savings.

TABLE 3-3. RESIDENTIAL LONG-TERM MARKET ADOPTION RATES BY INCENTIVE LEVEL

End-Use	0% Incentive	25% Incentive	50% Incentive	75% Incentive	100% Incentive
Water Heating	20%	37%	49%	65%	93%
HVAC Equipment	22%	36%	43%	60%	89%
HVAC Shell	20%	35%	48%	64%	91%
Appliances	21%	37%	53%	68%	95%
Other	21%	37%	53%	68%	95%

TABLE 3-4. NON-RESIDENTIAL LONG-TERM MARKET ADOPTION RATES BY PAYBACK PERIOD

End-Use	10 Year Payback	5 Year Payback	3 Year Payback	1 Year Payback	0 Year Payback
Lighting/Office	19%	28%	47%	71%	88%
HVAC	27%	41%	55%	70%	83%
Refrigeration	24%	36%	59%	77%	84%
Water Heat	20%	31%	51%	68%	80%
Motors/Process	23%	34%	48%	62%	73%

GDS then estimated initial year adoption rates by reviewing the current saturation levels of efficient technologies and (if necessary) calibrating the estimates of 2022 annual potential to reflect recent program activity. GDS then assumed a non-linear ramp rate from the initial year market adoption rate to the various long-term market adoption rates for each specific end-use.

3.4.1.3.2 Non-Incentive Costs

Consistent with National Action Plan for Energy Efficiency (NAPEE) guidelines[3], utility non-incentive costs were included in the overall assessment of cost-effectiveness at the MAP and RAP scenarios. Non-incentive costs include all non-incentive program delivery costs, including internal and external administrative and implementation costs, marketing, education and outreach, evaluation costs, or other associated program delivery costs. Based on discussions with Hoosier Energy staff, program non-incentive costs were assumed to be relatively minor (from $0.015-$0.025 per kWh saved).

3.4.1.4 Program Potential

Program potential is a subset of the Realistic Achievable Potential and reflects constraints on the portfolio of offered programs and funding levels. These constraints were developed in coordination with Hoosier Energy staff based on total incentive spending targets and expected interest in future program offerings. Program potential was calculated by assigning measures into different program-level offerings and scaling the achievable potential level incentive costs (and savings) down to the targeted incentive-spending levels. Measures/programs that were not selected for inclusion in the estimate of program potential were eliminated. The program potential was selected for inclusion in Hoosier Energy's forthcoming Integrated Resource Planning (IRP) process. A detailed description of the programs selected for inclusion in the Program Potential level estimates, and overall funding levels in included in Chapter 6.

[3] 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.

4 ENERGY EFICIENCY POTENTIAL

This section provides an overview of the technical, economic, and achievable electric energy efficiency potential in the residential and C&I sectors. Demand response potential, and estimates of Program Potential for EE/DR are included in subsequent chapters.

4.1 RESIDENTIAL ENERGY EFFICIENCY POTENTIAL

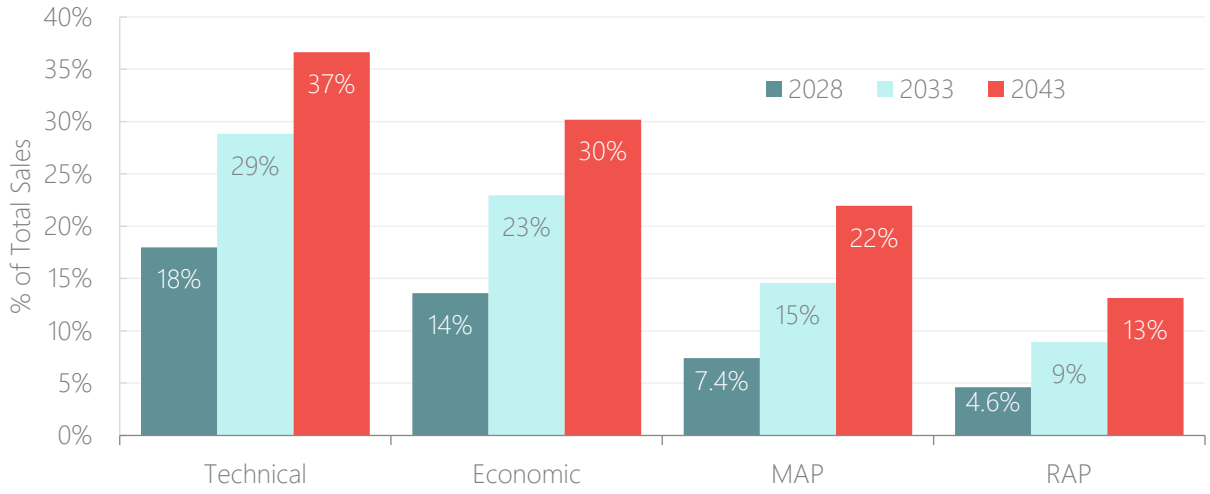
There were 144 total unique residential electric measures included in the analysis. **Table 4-1** provides the number of unique measures by end-use. The measure list was developed based on a review of current Hoosier Energy programs, the Indiana TRM, other regional TRMs, and industry documents related 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 4-1. RESIDENTIAL ENERGY EFFICIENCY MEASURES BY END-USE

End-Use	Number of Unique Measures
Appliances	22
Behavior	2
HVAC	47
Lighting	12
Pool/Pump	5
New Construction	2
Plug Loads	4
Shell	35
Water Heating	15

Figure 4-1 provides the technical, economic, MAP and RAP results for the 5-year, 10-year, and 20-year timeframes. The respective 20-yr technical and economic potential is 37% and 30% of residential sector sales. The MAP reaches 7.4% in five years and grows to 15% over 10 years, while the RAP reaches 4.6% in five years and grows to 9% over ten years. The MAP and RAP reach 22% and 13% of residential sector sales, respectively, over the 20-yr timeframe of the study.

FIGURE 4-1: OVERVIEW OF ENERGY EFFICIENCY POTENTIAL



4.1.1 Technical/Economic Potential

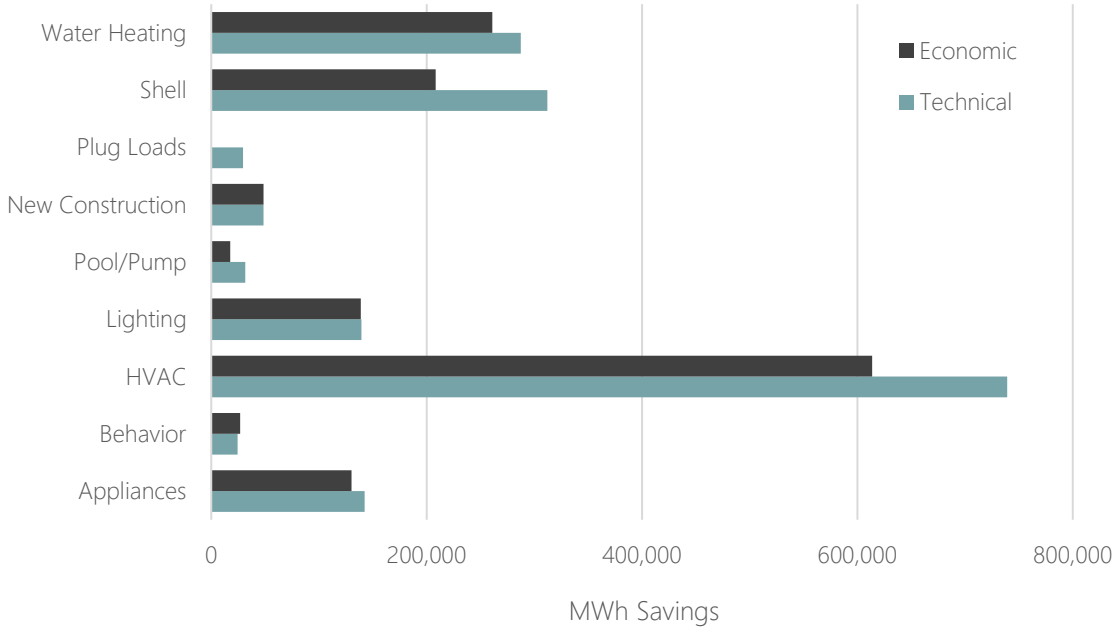
Table 4-2 provides cumulative annual technical and economic potential results across the for the 1-year, 2-year, 3-year, 10-year, and 15-year timeframes. The technical potential is more than 775,000 MWh by 2028 and rises to more than 1.75 million MWh by 2043. Economic potential rises to more than 587,000 MWh by 2028. Peak demand savings associated with technical potential reach 265 MW by 2028 and reach approximately 548 MW by 2043.

TABLE 4-2 TECHNICAL & ECONOMIC RESIDENTIAL POTENTIAL

	2024	2025	2026	2027	2028	2033	2043
Energy (MWh)							
Technical	213,048	386,785	531,929	658,104	775,925	1,280,463	1,754,832
Economic	163,269	289,528	399,703	494,895	587,999	1,019,700	1,445,897
Summer Peak Demand (MW)							
Technical	64	122	177	222	265	442	548
Economic	44	84	122	156	189	337	421

Figure 4-2 shows a comparison of the technical and economic potential (20-year) by end use. HVAC was the leading end-use among technical and economic potential, followed by Water Heating and Shell. These end-uses represent roughly 75% of the technical and economic potential.

FIGURE 4-2: 20-YR RESIDENTIAL TECHNICAL & ECONOMIC POTENTIAL, BY END-USE



4.1.2 Achievable Potential

Figure 4-3 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 grey and orange lines provide the corresponding cumulative annual MAP and RAP as a percentage of forecasted annual residential sector sales. The MAP rises to 22% by 2043, and the RAP rises to 13%.

FIGURE 4-3: OVERVIEW OF COMMERCIAL POTENTIAL – 20-YR RAP

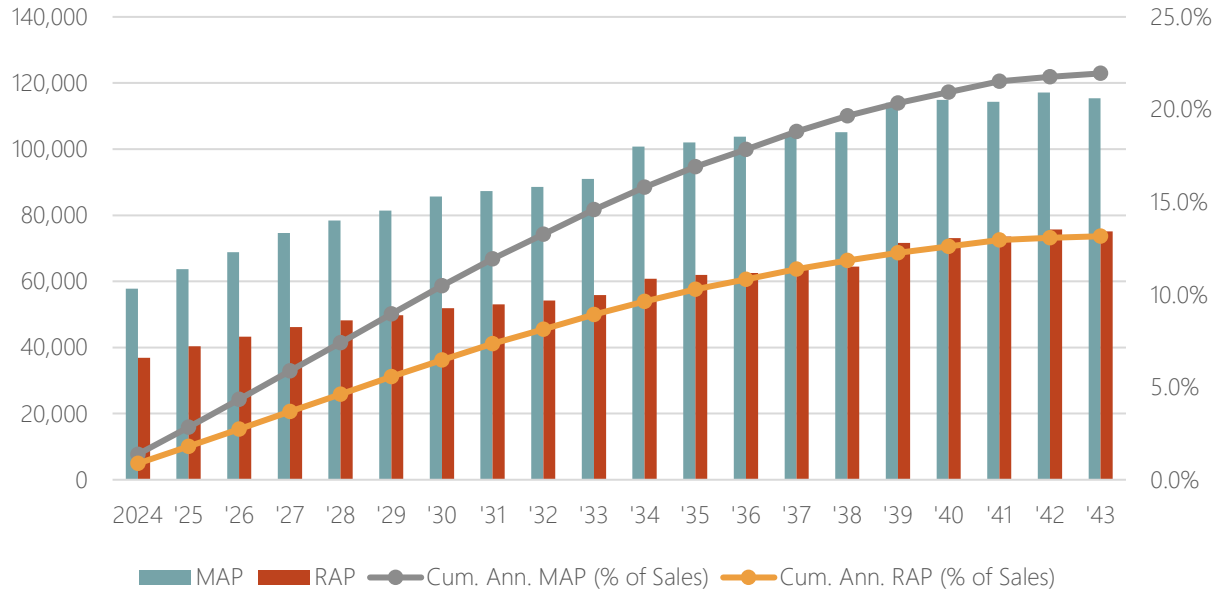


Figure 4-4 provides a breakdown of the RAP potential in 2043 across residential end-uses and home types/vintages. In the RAP scenario, HVAC, water Heating and Shell combine to account for 80% of the potential. Appliances and Lighting account for an additional 14% of the potential. Existing single-family homes account for 91% of the potential, multifamily accounts for 1% of the potential, and new construction accounts for 8% of the potential.

FIGURE 4-4: RESIDENTIAL POTENTIAL BY END-USE AND SECTOR TYPE – RAP 2043

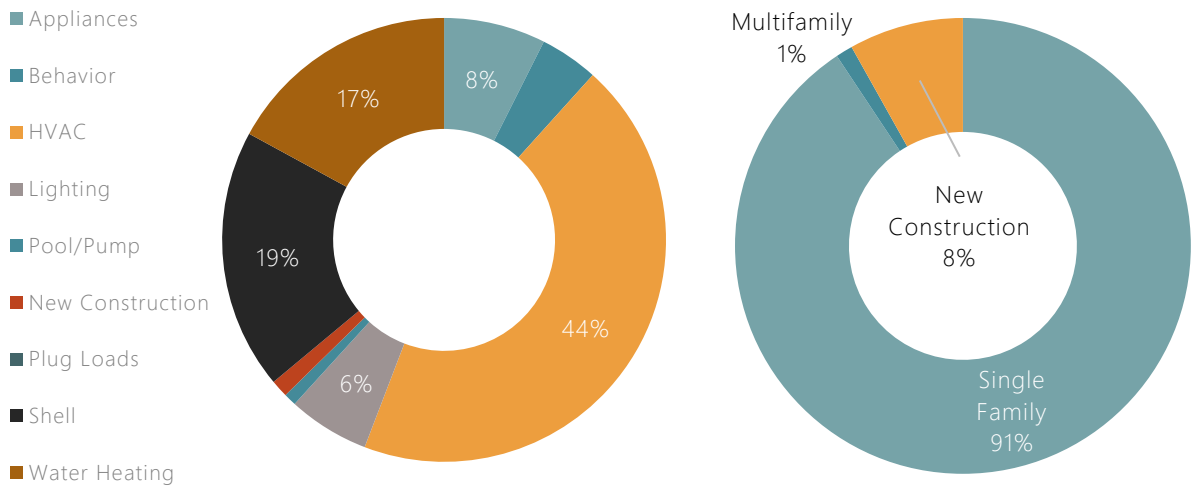


Table 4-3 provides incremental and cumulative annual residential sector energy and demand savings for MAP and RAP across the next five years as well as over the 10-yr and 20-yr time horizons. Incremental RAP energy savings begin at roughly 37,000 MWh in 2024 and increase to more than 75,000 MWh over the next twenty years. Cumulative RAP energy savings are roughly 630,000 MWh by 2043.

TABLE 4-3 RESIDENTIAL SECTOR MAP & RAP POTENTIAL

	2024	2025	2026	2027	2028	2033	2043
Incremental Annual Energy (MWh)							
MAP	57,841	63,710	68,810	74,648	78,432	91,015	115,407
RAP	36,910	40,345	43,251	46,167	48,185	55,814	75,114
Incremental Summer Demand (MW)							
MAP	14	16	19	21	23	24	30
RAP	8	9	10	11	12	13	17
Cumulative Annual Energy (MWh)							
MAP	57,841	119,661	184,341	251,364	319,752	647,670	1,051,197
RAP	36,910	75,696	116,105	157,572	199,481	395,932	629,864
Cumulative Summer Demand (MW)							
MAP	14	30	49	68	90	193	302
RAP	8	16	26	36	46	99	153

4.1.3 Residential Benefits & Costs

This section provides benefits and costs information for the residential sector. **Table 4-4** provides the NPV benefits and costs for the MAP and RAP scenarios. In the MAP scenario, the NPV net benefits (benefits – costs) are nearly $430 million over the study timeframe with a TRC ratio of 1.74. In the RAP scenario, the NPV net benefits are nearly $345 million over the study timeframe with a TRC ratio of 2.15.

TABLE 4-4 NPV BENEFITS AND COSTS (IN $MILLIONS) MAP & RAP POTENTIAL – 2043

	NPV Benefits	NPV Costs	TRC Ratio
MAP	$1,000.7	$578.0	1.74
RAP	$644.2	$299.2	2.15

4.2 COMMERCIAL/INDUSTRIAL ENERGY EFFICIENCY POTENTIAL

This section provides the potential results for technical, economic, MAP and RAP for the commercial and industrial sector. The cost-effectiveness results and budgets for the RAP scenario are also provided.

There were 170 total unique commercial and industrial (C&I) electric measures included in the analysis. **Table 4-5** provides the number of unique measures by end-use. The measure list was developed based on a review of current Hoosier Energy programs, the Indiana 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.

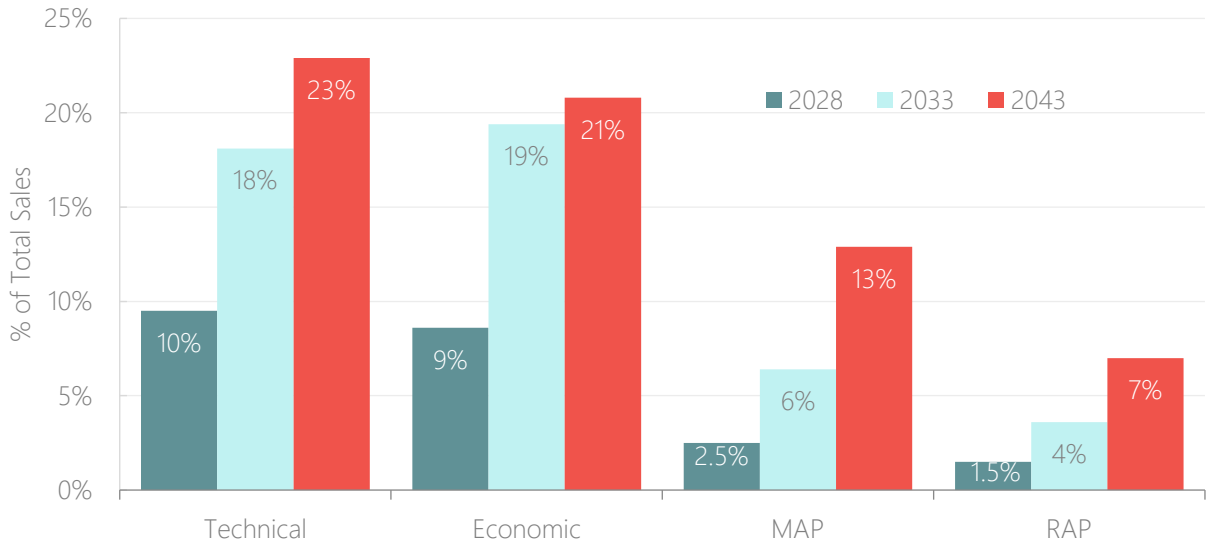
TABLE 4-5. C&I ENERGY EFFICIENCY MEASURES BY END-USE

End-Use	Number of Unique Measures
Compressed Air	7
Cooking	9
HVAC	60
Lighting	34
Miscellaneous	7
Motors/Machine Drive	7

End-Use	Number of Unique Measures
Office / Plug Load	11
Process	6
Refrigeration	27
Water Heat	5
Whole Building	11

Figure 4-5 provides the technical, economic, MAP and RAP results for the 5-year, 10-year, and 20-year timeframes. The respective 20-yr technical and economic potential is 23% and 21% of C&I sector sales. The MAP reaches 2.5% in five years and grows to 6% over 10 years, while the RAP reaches 1.4% in five years and grows to 4% over ten years. The MAP and RAP reach 13% and 17% of C&I sector sales, respectively, over the 20-yr timeframe of the study.

FIGURE 4-5: OVERVIEW OF ENERGY EFFICIENCY POTENTIAL



4.2.1 Technical/Economic Potential

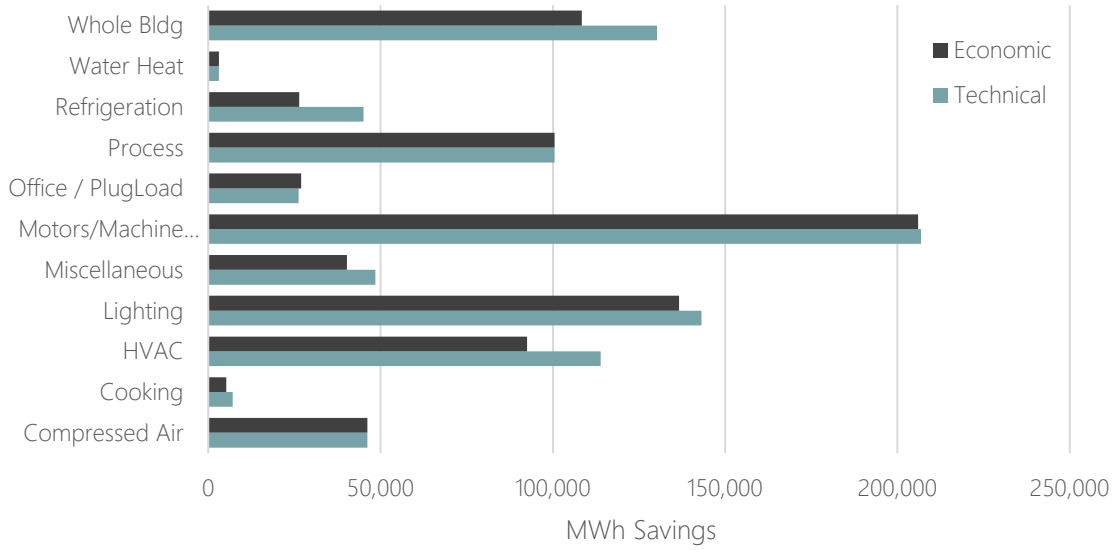
Table 4-6 provides cumulative annual technical and economic potential results across the for the 1-year, 2-year, 3-year, 10-year, and 15-year timeframes. The technical potential is roughly 361,000 MWh by 2028 and rises to more than 870,000 MWh by 2043. Economic potential rises to more than 792,000 MWh by 2043 as well. Peak demand savings associated with technical potential reach 62.6 MW by 2028 and reach approximately 154 MW by 2043.

TABLE 4-6 TECHNICAL & ECONOMIC COMMERCIAL POTENTIAL

	2024	2025	2026	2027	2028	2033	2043
Energy (MWh)							
Technical	66,222	137,407	211,882	286,770	361,351	682,545	870,716
Economic	60,448	125,181	192,826	260,710	328,272	618,716	792,078
Summer Peak Demand (MW)							
Technical	11.4	23.7	36.6	49.6	62.6	119.5	153.8
Economic	10.1	21.0	32.3	43.6	54.9	103.9	134.0

Figure 4-6 shows a comparison of the technical and economic potential (20-year) by end use. Commercial motors and Industrial machine drive was the leading end-use among technical and economic potential, followed by C&I lighting, C&I whole building, and C&I HVAC, and Industrial process. These end-uses represent roughly 80% of the technical and economic potential.

FIGURE 4-6: 20-YR C&I TECHNICAL & ECONOMIC POTENTIAL, BY END-USE



4.2.2 Achievable Potential

Figure 4-7 provides the MAP and RAP across the 15-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 grey and orange lines provide the corresponding cumulative annual MAP and RAP as a percent of forecasted annual C&I sector sales. The MAP rises to 13% by 2043, and the RAP rises to 7%.

FIGURE 4-7: OVERVIEW OF COMMERCIAL POTENTIAL – 20-YR RAP

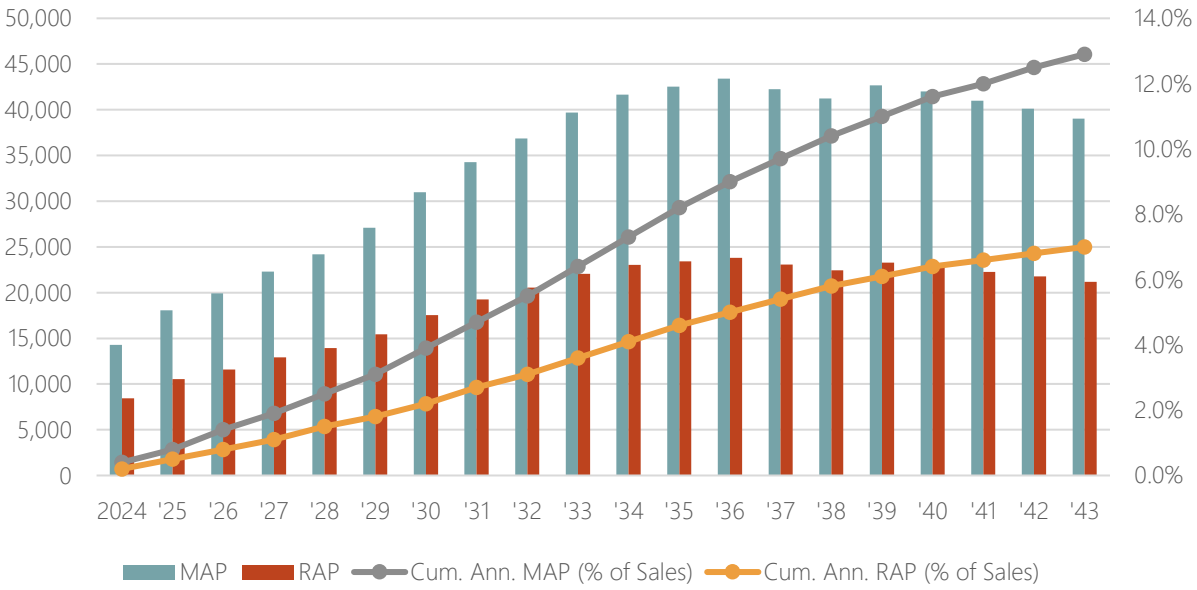


Figure 4-8 provides a breakdown of the RAP potential in 2036 across C&I end-uses and sector.[4] In the RAP scenario, C&I lighting. C&I whole building (retrofits and new construction), and C&I motors/machine drive account for 62% of the potential. HVAC accounts for an additional 12% of the potential. Across sector types, industrial represents 52% of the realistic achievable potential and commercial opportunities represent 48% of the realistic achievable potential.

FIGURE 4-8: COMMERCIAL POTENTIAL BY END-USE AND SECTOR TYPE – RAP 2043

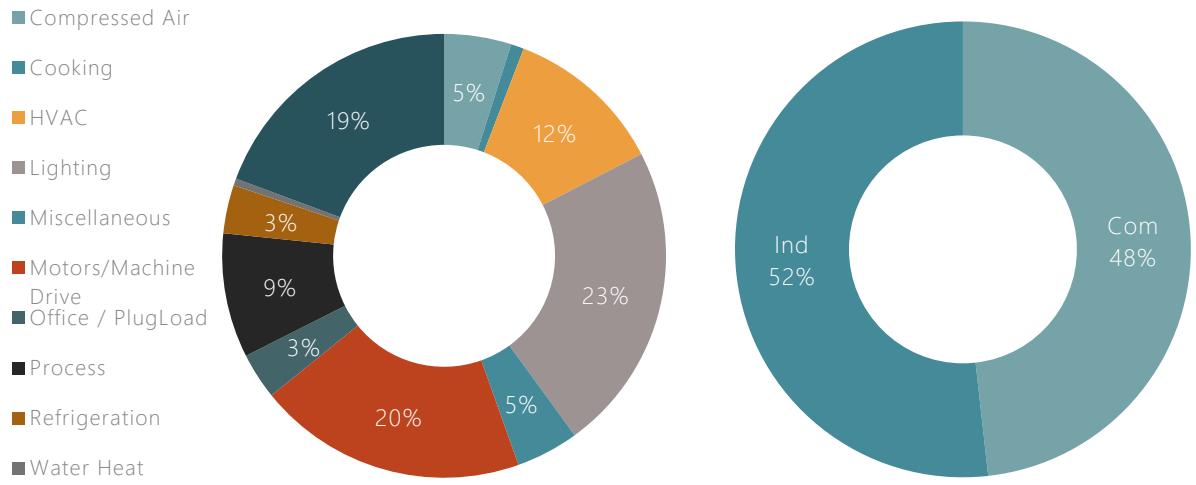


Table 4-7 provides incremental and cumulative annual commercial sector energy and demand savings for MAP and RAP across the next three years as well as over the 10-yr and 20-yr time horizons. Incremental RAP energy savings begin at roughly 8,000 MWh in 2024 and increase to nearly 21,000 over the next twenty years. Cumulative RAP energy savings are roughly 264,000 MWh by 2043.

TABLE 4-7 C&I SECTOR MAP & RAP POTENTIAL

	2024	2025	2026	2027	2028	2033	2043
Incremental Annual Energy (MWh)							
MAP	14,278	18,07	19,903	22,286	24,198	39,695	39,029
RAP	8,434	10,548	11,576	12,918	13,944	22,040	21,169
Incremental Summer Demand (MW)							
MAP	2.1	2.8	3.1	3.5	3.9	6.7	6.8
RAP	1.3	1.6	1.8	2.0	2.2	3.7	3.7
Cumulative Annual Energy (MWh)							
MAP	14,278	32,349	52,247	73,213	95,426	241,945	489,399
RAP	8,434	18,891	30,552	42,703	55,495	137,290	267,742
Cumulative Summer Demand (MW)							
MAP	2.1	4.9	8.0	11.3	14.8	38.8	81.8
RAP	1.3	2.9	4.6	6.5	8.5	21.8	44.6

[4] End-uses with less than 3% of total end-use or building type share do not display a data label (%) in donut-charts to improve readability of data.

4.2.3 C&I Benefits & Costs

This section provides benefits and costs information for the combined C/I sector. **Table 4-8** provides the NPV benefits and costs for the MAP and RAP scenarios. In the MAP scenario, the NPV net benefits (benefits – costs) are nearly $195 million over the study timeframe with a TRC ratio of 3.03. In the RAP scenario, the NPV net benefits are nearly $109 million over the study timeframe with a TRC ratio of 3.20.

TABLE 4-8 NPV BENEFITS AND COSTS (IN $MILLIONS) MAP & RAP POTENTIAL – 2043

	NPV Benefits	NPV Costs	TRC Ratio
MAP	$290.8	$96.0	3.03
RAP	$159.3	$49.9	3.20

5 DEMAND RESPONSE POTENTIAL

This section briefly covers aspects of the methodological approach that are distinct to the demand response analysis, followed by a discussion of the demand response potential results.

5.1 ANALYSIS APPROACH

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. This study uses the FERC definition of demand response so that all potential DR, including rate options, are identified.

5.1.1 Demand Response Program Options

Table 5-1 provides a brief description of the demand response program options considered and identifies the eligible customer segment for each demand response program that was considered in this study.

TABLE 5-1 C&I SECTOR MAP & RAP POTENTIAL

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 Small Non-Residential Customers
DLC AC (Thermostat)	The system operator can remotely raise the AC's thermostat set point during peak load conditions, lowering AC load.	Residential and Small 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 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 Small 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.	Large Non-Residential Customers
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

DR Program Option	Program Description	Eligible Markets
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
Peak Time Rebates	A program where customers are rewarded if they reduce electricity consumption during peak times with monetary rebates.	Residential and Non-Residential Customers
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.	Residential and Non-Residential Customers
Real Time Pricing	A retail rate in which the price for electricity fluctuates hourly during all hours of the year. Prices are typically provided on a day-ahead basis, or an hour-ahead basis	Non-Residential Customers

5.1.2 Demand Response Potential Assessment Overview

The analysis of DR, where possible, closely followed 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-Effectiveness of Demand Response, prepared for the National Forum on the National Action Plan (NAPA) on Demand Response*.[5] Additionally, GDS reviewed the May 2017 National Standard Practice Manual published by the National Efficiency Screening Project.[6] 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 DR Model, which determines the estimated savings for each DR program by performing a review of all benefits and costs associated with each program. GDS developed the model such that the value of future programs could be determined and to help facilitate demand response program planning strategies. The model contains approximately 50 required inputs for each program including: expected life, 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 Hoosier Energy member systems interested in the deployment of DR resources.

The Total Cost Resource Cost (TRC) test was used to determine the cost-effectiveness of each DR program. Benefits are based on avoided demand, energy (including load shifting), wholesale cost reductions and T&D 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.

[5] Study was prepared by Synapse Energy Economics and the Regulatory Assistance Project, February 2013.
[6] National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources, May 18, 2017, Prepared by The National Efficiency Screening Project

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

MAP represents an estimate of the maximum cost-effective demand response potential that can be achieved over the 20-year study period. For this study, this is 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 20-year study period. For this study, this is 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.

5.1.3 Demand Response Program Assumptions

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

Load Reduction: Demand reductions were based on load reductions found in Hoosier's existing demand response programs, and various secondary data sources including the FERC and other industry reports, including demand response potential studies. DLC and thermostat-based DR options were typically calculated based on a per-unit kW demand reduction whereas rate-based DR options were typically assumed to reduce a percentage of the total facility peak load.

Useful Life: The useful life of a smart thermostat is assumed to be 13 years. Load control switches have a useful life of 15 years . This life was used for all direct load control measures in this study.

Program Costs: One-time program development costs included in the first year of the analysis for new programs. No program development costs are assumed for programs that already exist. It was assumed that there would be a cost of $50 per new participant for marketing for residential and small C&I programs. Large C&I programs require higher marketing costs due to more time spent to acquire a participant, including potential site visits. Marketing costs are assumed to be 33.3% higher for MAP. All program costs were escalated each year by the general rate of inflation assumed for this study.

Saturation: The number of control units per participant was assumed to be 1 for all direct load control programs using switches (such as water heaters and air conditioning switches), because load control switches can control up to two units. However, for controllable thermostats, some participants have more than one thermostat. The average number of residential thermostats per single family home was assumed to be 1.72 thermostats.

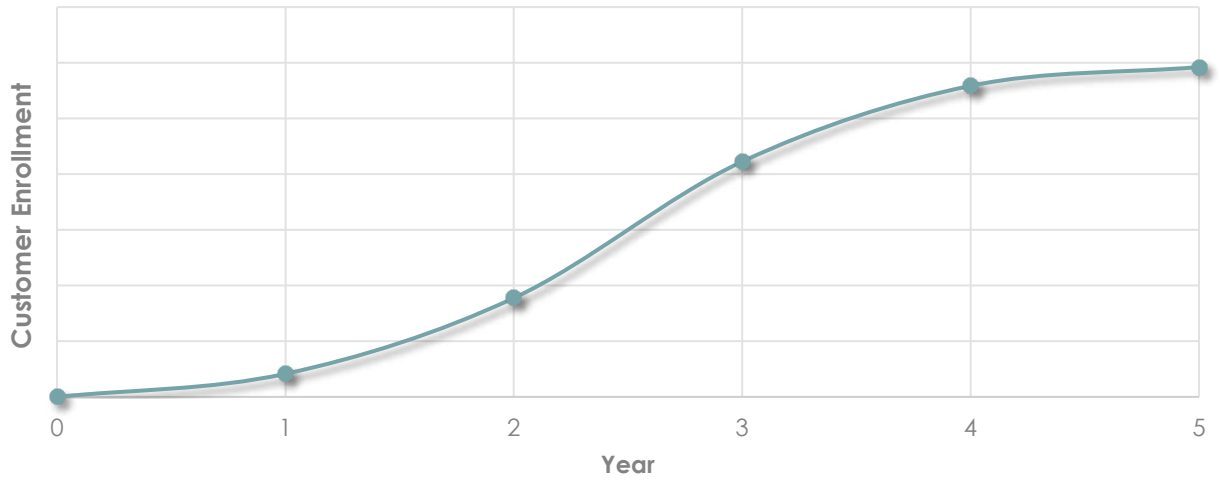
5.1.4 Demand Response Potential Assessment Overview

Long-term program adoption levels (or "steady state" participation) represent the enrollment rate once the fully achievable participation has been reached. GDS reviewed industry data and program adoption levels from several utility DR programs. The main sources of participant rates are several studies completed by the Brattle Group. As noted earlier in this section, for direct load control programs, interruptible rate, behavioral, and demand bidding DR programs, maximum achievable potential participation rates rely on industry best adoption rates and realistic achievable potential participation rates are based on industry average adoption

levels. For critical peak pricing and PEV charging, the MAP steady-state participation rates assumed programs were opt-out based and RAP participation assumed opt-in status.

Customer participation in new demand response programs is assumed to reach the steady state take 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 5-1**). Existing programs have already gone through this ramp-up period, so they were escalated linearly to the final participation rate.

FIGURE 5-1 ILLUSTRATION OF S-SHAPED MARKET ADOPTION CURVE



Double-counting savings from demand response programs that affect the same end use 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. Table 5-2 shows the hierarchy for each sector, with 1 being the top priority.

TABLE 5-2 DR HIERARCHY OF COST-EFFECTIVE PROGRAMS FOR EACH SECTOR

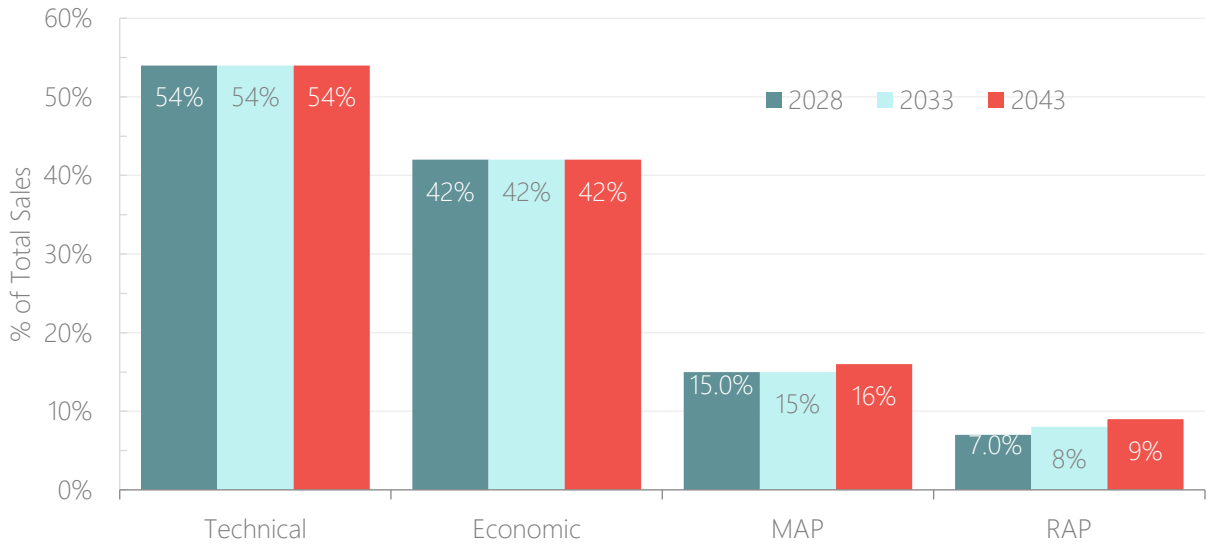
Order	Residential Hierarchy	Small Non-Residential Hierarchy	Large Non-Residential Hierarchy
1	Direct Load Control	Time of Use	Interruptible Rate
2	Time of Use	Critical Peak Pricing with Enabling Technology	
3	Critical Peak Pricing with Enabling Technology	Critical Peak Pricing without Enabling Technology	
4	Critical Peak Pricing without Enabling Technology		

5.2 DEMAND RESPONSE POTENTIAL RESULTS

This section provides the potential results for technical, economic, MAP and RAP for demand response. Program cost-effectiveness results are also provided.

Figure 5-2 provides the technical, economic, MAP and RAP results for the 5-year, 10-year, and 20-year timeframes. The respective 20-yr technical and economic potential is 54% and 42% of the demand forecast. Because the adoption forecast for DR enrollment is assumed to occur primarily over the initial 5-year window, the MAP reaches 15% in five years and grows to 16% over 20 years, while the RAP reaches 7% in five years and grows to 9% over 20 years.

FIGURE 5-2 DEMAND RESPONSE POTENTIAL OVERVIEW



5.2.1 Technical/Economic Potential

Table 5-3 provides cumulative annual technical and economic potential results across the 1-year, 2-year, 3-year, 4-year, 5-year, 10-year, and 20-year timeframes. The technical potential is nearly 1,211 MW by 2024 and decreases to 894 MW by 2043. Economic potential in 2036 is 694 MW. The cause for the decrease in technical and economic potential over time is due to the programs lower in the demand response hierarchy having less potential as other programs grow.

TABLE 5-3 TECHNICAL AND ECONOMIC DEMAND RESPONSE POTENTIAL

	2024	2025	2026	2027	2028	2033	2043
Summer Peak Demand (MW)							
Technical	1,211	1,100	943	890	874	878	894
Economic	994	890	745	699	685	685	694

5.2.2 Achievable Potential

Figure 5-3and **Figure 5-4** provides the MAP and RAP Demand Response potential by program and sector over the initial 5 years of the analysis, as well as the 10th and 20th year. Maximum achievable DR potential reaches 237 MW of summer demand by 2028 (and 264 MW by 2043). Residential sector savings account for more than 90% of the MAP potential, with Residential AC Direct Load Control and Peak Time Rebates as the largest contributors.

In the Realistic Achievable Potential, the 5-year potential is 122 MW of summer peak demand savings. The 20-year potential is 143 MW. In 2043, residential DLC programs account for roughly 40% of the total DR

potential, with residential rate options representing roughly 50% of the total DR potential. The remaining 10% is derived from the Interruptible C&I rate program and other C&I demand response rate options.

FIGURE 5-3 MAP DEMAND RESPONSE POTENTIAL BY PROGRAM

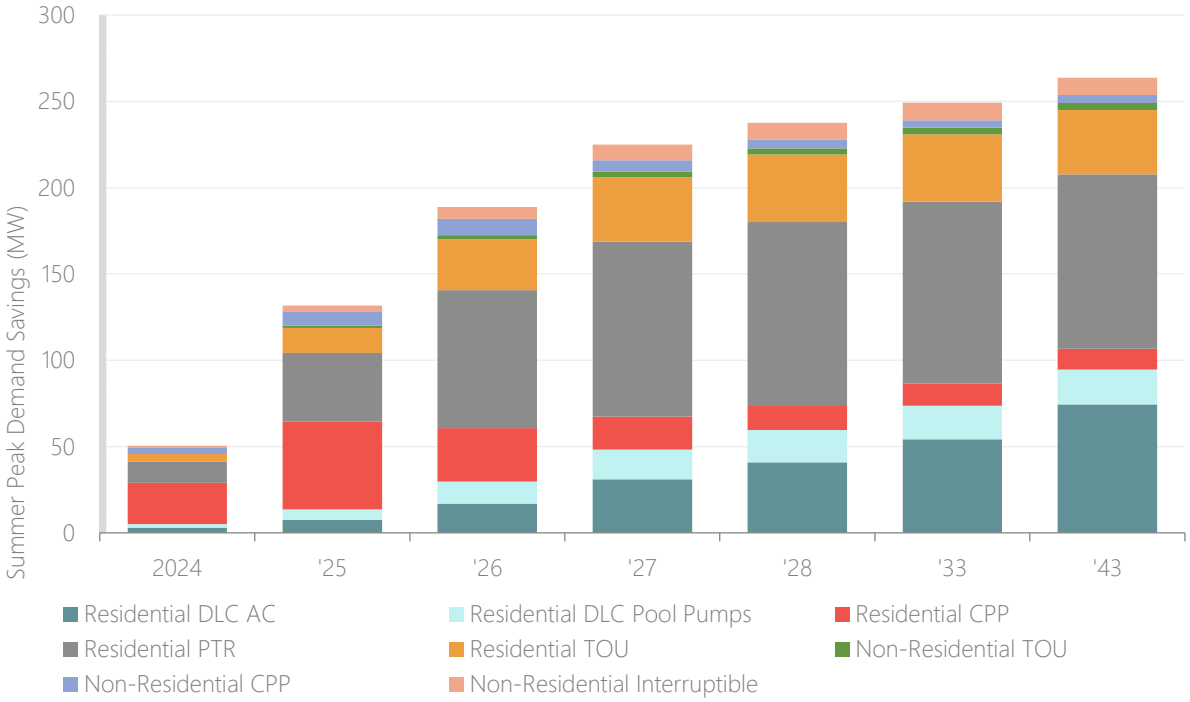
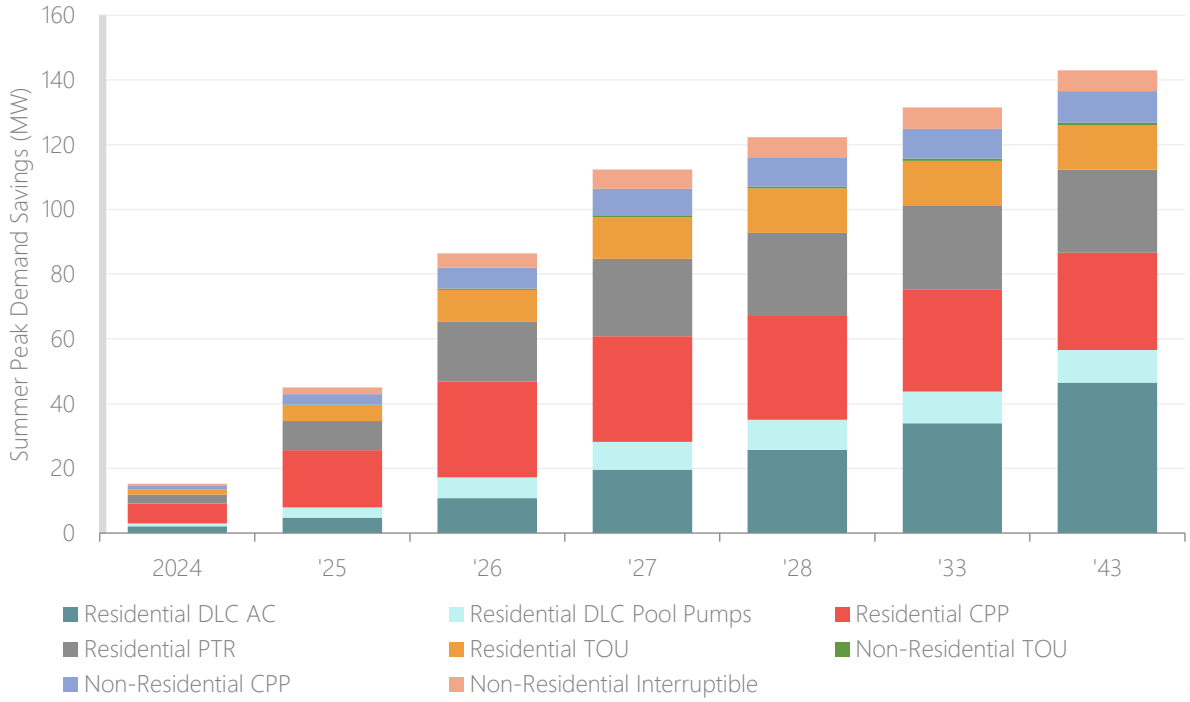


FIGURE 5-4 RAP DEMAND RESPONSE POTENTIAL BY PROGRAM



5.2.3 Demand Response Benefits & Costs

Table 5-4 and Table 5-5 show the MAP and RAP residential net present values of the total benefits, costs, and savings, along with the TRC ratio for each program for the length of the study. The study period is 2024 to 2043.

TABLE 5-4 MAP NPV BENEFITS, COSTS, AND TRC RATIOS FOR EACH DR PROGRAM

	Program	NPV Benefits	NPV Costs	TRC Ratio
Residential	DLC AC Thermostat (Utility Incentivized)	$29,710,517	$17,260,177	1.72
	DLC AC Thermostat (BYOT)	$49,905,901	$30,114,123	1.66
	DLC AC Switch	$26,201,298	$56,619,150	0.46
	DLC Water Heaters	$30,174,928	$61,043,279	0.494
	DLC Pool Pumps	$28,969,868	$13,484,562	2.15
	Critical Peak Pricing (with Enabling Technologies)	$4,938,607	$2,526,717	1.95
	Critical Peak Pricing (w/o Enabling Technologies)	$22,577,560	$4,758,606	4.74
	Peak Time Rebates	$151,898,226	$87,002,013	1.75
	Time of Use Rates	$55,135,652	$14,185,072	3.89
Non-Residential	DLC AC Thermostat (Utility Incentivized)	$351,784	$1,019,237	0.35
	DLC AC Thermostat (BYOT)	$279,321	$962,669	0.29
	DLC AC Switch	$151,017	$1,290,959	0.12
	DLC Water Heaters	$2,170,705	$2,364,535	0.92
	Critical Peak Pricing (with Enabling Technologies)	$5,878,357	$813,583	7.23
	Critical Peak Pricing (w/o Enabling Technologies)	$2,259,035	$822,665	2.75
	Real Time Pricing	$954,331	$1,233,425	0.77
	Peak Time Rebates	$1,884,317	$2,481,030	0.76
	Time of Use Rates	$5,437,801	$1,634,671	3.33
	Interruptible Rate	$14,399,682	$4,025,209	3.58

TABLE 5-5 RAP NPV BENEFITS, COSTS, AND TRC RATIOS FOR EACH DR PROGRAM

	Program	NPV Benefits	NPV Costs	TRC Ratio
Residential	DLC AC Thermostat (Utility Incentivized)	$18,735,181	$9,546,382	1.96
	DLC AC Thermostat (BYOT)	$31,160,440	$16,515,936	1.89
	DLC AC Switch	$16,904,063	$31,887,311	0.53
	DLC Water Heaters	$19,795,041	$36,602,819	0.541
	DLC Pool Pumps	$14,484,934	$6,582,069	2.20
	Critical Peak Pricing (with Enabling Technologies)	$28,268,139	$1,558,980	18.13
	Critical Peak Pricing (w/o Enabling Technologies)	$18,014,108	$2,083,023	8.65
	Peak Time Rebates	$37,141,515	$20,927,634	1.77
	Time of Use Rates	$19,669,301	$4,378,148	4.49
Non-Residential	DLC AC Thermostat (Utility Incentivized)	$962,646	$1,079,355	0.89

	Program	NPV Benefits	NPV Costs	TRC Ratio
	DLC AC Thermostat (BYOT)	$897,828	$1,083,288	0.83
	DLC AC Switch	$210,317	$1,204,818	0.17
	DLC Water Heaters	$949,683	$1,523,092	0.62
	Critical Peak Pricing (with Enabling Technologies)	$11,078,312	$769,896	14.39
	Critical Peak Pricing (w/o Enabling Technologies)	$2,084,070	$766,152	2.72
	Real Time Pricing	$954,331	$1,225,322	0.78
	Peak Time Rebates	$583,873	$1,289,422	0.45
	Time of Use Rates	$955,289	$944,458	1.01
	Interruptible Rate	$9,325,509	$3,079,947	3.03

6 DSM PROGRAM POTENTIAL OVERVIEW

Based on the results of the DSM savings potential analysis for realistic achievable potential, a review of energy efficiency programs currently offered by Hoosier Energy and other utility organizations in the Midwest, and coordination with Hoosier Energy staff on Member system preferences, GDS and Hoosier Energy developed the following estimates of energy efficiency and demand response program potential.

Energy Efficiency

- Residential HVAC Program
- Residential Smart Thermostat Program
- Residential HVAC Tune-Up Program
- Residential New Construction Pilot
- Residential Behavior Pilot
- Commercial Prescriptive Rebates Program
- Commercial Custom Rebates Program

Demand Response

- Residential Direct Load Control of ACs
- Residential Rates
- Non-Residential Interruptible Rate
- Non-Residential Other Rates

Table 6-1 provides an initial look at the 10-year summary of energy and capacity savings, as well as total NPV lifetime benefits and costs of the recommended EE&DR programs.

TABLE 6-1 RECOMMENDED PROGRAM SUMMARY

Sector / Program	Cumulative Annual MWh Savings – 2033	Cumulative Annual Summer MW Savings – 2033	NPV TRC Benefits ($2024)	NPV TRC Costs ($2024)	TRC B/C Ratio
TOTAL PORTFOLIO	253,698	120.8	$255.9 Mil	$67.9 Mil	3.77
Residential EE Programs	161,423	11.1	$125.8 Mil	$27.2 Mil	4.63
Residential HVAC	*144,636*	*9.3*	*$120.0 Mil*	*$24.1 Mil*	*4.62*
Smart Thermostat	*2,008*	*0.0*	*$1.2 Mil*	*$1.3 Mil*	*0.93*
HVAC Tune-Up	*547*	*0.2*	*$0.4 Mil*	*$0.8 Mil*	*0.53*
Residential New Construction Pilot	*201*	*0.0*	*$0.4 Mil*	*$0.2 Mil*	*2.20*
Residential Behavior Pilot	*14,031*	*1.6*	*$3.8 Mil*	*$0.8 Mil*	*4.72*
C&I EE Programs	92,275	13.9	$58.1 Mil	$17.6 Mil	3.30
Prescriptive Rebates	*56,977*	*8.6*	*$37.1 Mil*	*$9.2 Mil.*	*4.02*
Custom	*36,446*	*5.9*	*$21.0 Mil*	*$8.4 Mil*	*2.50*
Residential DR Programs	0	79.3	$60.0 Mil	$19.6 Mil	3..06
Direct Load Control of ACs	*0*	*33.9*	*$24.4 Mil*	*$12.4 Mil*	*1.97*
Rates	*0*	*45.4*	*$35.6 Mil*	*$7.2 Mil*	*4.95*
C&I DR Programs	0	16.5	$12.0 Mil	$3.5 Mil	3.43
Interruptible DR	*0*	*6.6*	*$4.9 Mil*	*$1.9 Mil*	*2.58*
Other C&I Rate DR	*0*	*9.9*	*$7.1 Mil*	*$1.6 Mil*	*4.36*

The *Residential HVAC Program* will continue to provide rebates for the installation of efficient geothermal heat pumps, air-source heat pumps, and heat pump water heaters or mini-split heat pump technologies. Homes with existing heat pumps or resistance heating/water heating can qualify for the program.

The *Smart Thermostat Program* is a continuation of the existing pilot/program. Participating customers receive a rebate for the installation of a smart thermostat, which can be used to deliver peak demand savings to the utility, as well as energy efficiency savings for the customer.

The *HVAC Tune-Up Program* provides incentives to homeowners for a tune-up of their existing HVAC equipment. Eligible measures include air conditioners, air source heat pumps, geothermal heat pumps, and mini-split heat pumps. This program helps customers through a cost-efficient method to reduce monthly bills on heating and air conditioning.

The *Residential New Construction Pilot* and the *Residential Behavior Pilot* offerings offer new opportunities for Hoosier to explore in the residential sector. The New Construction pilot offers builders an incentive for building homes that are more efficient than code, while providing new homeowners an energy efficient home that will reduce energy costs and lower their monthly bills. The Behavioral pilot leverages home energy reports and AMI data reports to provide customers will knowledge of their energy use which will motivate them to reduce their energy usage.

The *Commercial Prescriptive Rebates Program* will continue to provide standard rebates for typical LED fixture and/or bulb replacements, as well as energy efficient commercial HVAC equipment, cooking equipment, and refrigeration equipment. In the near term, prescriptive program savings will largely come from lighting upgrades, and overall program savings will decline as LED lighting becomes commonplace in commercial and industrial facilities.

As savings opportunities from the Commercial Prescriptive Rebates Program decline over time, the *Commercial Custom Program* is expected to ramp up. The Commercial Custom Program offers business customers incentives for qualifying energy efficiency upgrades not covered under the Commercial Prescriptive Rebate Program. This program encourages the purchase and installation of efficient technologies or implementation of process improvements. Included in this program are conventional custom projects, commercial new construction, building retro-commissioning (RCx) opportunities and strategic energy management (SEM).

Residential Direct Load Control of ACs includes Hoosier's existing Smart Thermostat Pilot program. This study assumed some thermostats would be provided by the customer with the utility paying a rebate (BYOT) and some would be provided fully by the utility. A system operator can remotely raise the AC's thermostat set point during peak load conditions, lowering the AC load.

The *Residential Rates* bundle includes a Time of Use Rate and Critical Peak Pricing Rate (with enabling technology, such as a smart thermostat, and without). The Time of Use Rate is a daily rate where blocks include on-peak and off-peak periods. The Critical Peak Pricing Rate is called during a limited number of critical periods. The on- and off-peak price differential is greater than the Time of Use Rate.

The *Non-Residential Interruptible Rate* is a rate program from large C&I customers. These customers would have a discounted rate for agreeing to interrupt their load during peak periods.

A *Non-Residential Rates* bundle includes a Time of Use Rate and Critical Peak Pricing Rate (with enabling technology, such as a smart thermostat, and without). The Time of Use Rate is a daily rate where blocks

include on-peak and off-peak periods. The Critical Peak Pricing Rate is called during a limited number of critical periods. The on- and off-peak price differential is greater than the Time of Use Rate.

Detailed 2024-2033 program tables, as well as sector and portfolio summary tables are provided below.

TABLE 6-2 2024-2033 PROGRAM POTENTIAL – PORTFOLIO SUMMARY

Total Portfolio	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	23,616	25,152	26,582	28,039	29,597	31,233	33,234	35,450	37,871	40,586
Cumulative Annual	23,616	47,346	71,970	96,752	122,207	148,035	174,209	200,745	227,637	254,847
Summer MW										
Incremental Annual	38.6	88.2	98.6	109.2	115.9	119.6	121.9	124.1	126.4	128.5
Cumulative Annual	13.8	37.5	68.4	89.0	99.3	104.9	109.4	113.3	117.3	121.4
Winter MW										
Incremental Annual	4.8	5.0	5.3	5.5	5.7	6.0	6.2	6.6	6.9	7.3
Cumulative Annual	4.8	9.6	14.6	19.6	24.7	29.8	35.0	40.2	45.4	50.7
Program Costs										
Incentives	$2,234,269	$2,369,326	$2,581,345	$2,856,582	$3,062,407	$3,181,075	$3,269,469	$3,346,597	$3,417,368	$3,490,736
Non-Incentives	$2,449,205	$3,315,147	$4,782,714	$4,276,127	$2,992,330	$2,221,241	$2,062,922	$2,144,465	$2,298,806	$2,481,745
Total Costs	$4,683,474	$5,684,474	$7,364,059	$7,132,707	$6,054,736	$5,402,316	$5,332,391	$5,491,063	$5,716,174	$5,972,481

TABLE 6-3 2024-2033 PROGRAM POTENTIAL – RESIDENTIAL SECTOR SUMMARY

Residential (EE&DR)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	15,709	16,670	17,618	18,585	19,777	21,151	22,808	24,711	26,802	28,996
Cumulative Annual	15,709	30,957	46,622	62,398	78,450	94,708	111,185	127,846	144,629	161,423
Summer MW										
Incremental Annual	32.7	74.3	78.5	88.9	96.0	99.7	102.1	104.2	106.3	108.3
Cumulative Annual	10.8	29.5	53.5	69.3	77.0	80.8	83.5	85.8	88.1	90.4
Winter MW										
Incremental Annual	3.8	4.0	4.1	4.3	4.5	4.7	4.9	5.2	5.5	5.9
Cumulative Annual	3.8	7.5	11.3	15.2	19.0	23.0	26.9	30.9	34.9	38.8
Program Costs										
Incentives	$1,566,304	$1,667,963	$1,844,914	$2,083,329	$2,250,492	$2,328,564	$2,374,332	$2,406,703	$2,430,480	$2,454,503
Non-Incentives	$1,697,698	$2,796,284	$4,147,312	$3,629,843	$2,361,338	$1,583,945	$1,405,253	$1,462,475	$1,589,963	$1,740,164
Total Costs	$3,264,002	$4,464,247	$5,992,226	$5,713,170	$4,611,829	$3,912,508	$3,779,585	$3,869,179	$4,020,443	$4,194,666

TABLE 6-4 2024-2033 PROGRAM POTENTIAL – C&I SECTOR SUMMARY

C&I (EE & DR)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	7,908	8,482	8,963	9,454	9,819	10,082	10,426	10,739	11,070	11,590
Cumulative Annual	7,908	16,389	25,348	34,354	43,757	53,327	63,024	72,899	83,008	93,424
Summer MW										
Incremental Annual	5.9	14.0	20.1	20.3	19.9	19.9	19.9	19.9	20.1	20.2
Cumulative Annual	3.0	8.0	15.0	19.7	22.4	24.1	25.9	27.5	29.3	31.0
Winter MW										
Incremental Annual	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.5
Cumulative Annual	1.0	2.1	3.3	4.4	5.6	6.8	8.1	9.3	10.6	11.9
Program Costs										
Incentives	$667,965	$701,363	$736,431	$773,253	$811,916	$852,511	$895,137	$939,894	$986,888	$1,036,233
Non-Incentives	$751,507	$518,863	$635,402	$646,284	$630,992	$637,296	$657,669	$681,990	$708,843	$741,582
Total Costs	$1,419,472	$1,220,227	$1,371,833	$1,419,537	$1,442,908	$1,489,808	$1,552,806	$1,621,884	$1,695,732	$1,777,814

TABLE 6-5 2024-2033 PROGRAM POTENTIAL – RESIDENTIAL HVAC REBATES SUMMARY

Res. HVAC Rebates	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	13,935	14,378	14,642	14,719	14,779	14,747	14,714	14,678	14,644	14,610
Cumulative Annual	13,935	28,297	42,902	57,557	72,241	86,852	101,392	115,862	130,279	144,636
Summer MW										
Incremental Annual	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0
Cumulative Annual	0.9	1.8	2.7	3.7	4.6	5.5	6.5	7.4	8.3	9.3
Winter MW										
Incremental Annual	3.5	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Cumulative Annual	3.5	7.1	10.7	14.4	18.1	21.7	25.4	29.0	32.6	36.3
Program Costs										
Incentives	$1,419,689	$1,447,782	$1,463,620	$1,466,063	$1,468,949	$1,469,271	$1,469,620	$1,469,958	$1,470,430	$1,470,960
Non-Incentives	$209,246	$220,910	$230,220	$236,896	$243,517	$248,830	$254,262	$259,798	$265,463	$271,239
Total Costs	$1,628,935	$1,668,692	$1,693,841	$1,702,959	$1,712,466	$1,718,101	$1,723,882	$1,729,756	$1,735,893	$1,742,200

TABLE 6-6 2024-2033 PROGRAM POTENTIAL – RESIDENTIAL SMART THERMOSTAT SUMMARY

Smart Thermostat	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	197	201	205	210	215	219	224	213	179	146
Cumulative Annual	197	398	603	813	1,027	1,247	1,471	1,683	1,862	2,008
Summer MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Winter MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Annual	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3
Program Costs										
Incentives	$60,000	$61,320	$62,669	$64,048	$65,457	$66,897	$68,369	$64,844	$54,472	$44,611
Non-Incentives	$2,950	$3,081	$3,218	$3,361	$3,511	$3,667	$3,830	$3,712	$3,187	$2,668
Total Costs	$62,950	$64,401	$65,887	$67,409	$68,967	$70,564	$72,199	$68,556	$57,659	$47,278

TABLE 6-7 2024-2033 PROGRAM POTENTIAL – RESIDENTIAL HVAC TUNE-UP SUMMARY

HVAC Tune-Up	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	153	157	160	164	167	171	175	178	182	186
Cumulative Annual	153	310	470	480	491	501	512	524	535	547
Summer MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Cumulative Annual	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Winter MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Annual	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Program Costs										
Incentives	$20,000	$20,440	$20,890	$21,349	$21,819	$22,299	$22,790	$23,291	$23,803	$24,327
Non-Incentives	$2,298	$2,400	$2,507	$2,618	$2,734	$2,856	$2,983	$3,116	$3,254	$3,399
Total Costs	$22,298	$22,840	$23,396	$23,967	$24,553	$25,155	$25,773	$26,407	$27,058	$27,726

TABLE 6-8 2024-2033 PROGRAM POTENTIAL – RESIDENTIAL NEW CONSTRUCTION PILOT SUMMARY

Residential NC Pilot	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	18	19	19	19	20	20	21	21	22	22
Cumulative Annual	18	37	56	75	95	115	136	157	178	201
Summer MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Winter MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Program Costs										
Incentives	$10,000	$10,220	$10,445	$10,675	$10,909	$11,149	$11,395	$11,645	$11,902	$12,163
Non-Incentives	$272	$284	$297	$310	$324	$338	$353	$369	$386	$403
Total Costs	$10,272	$10,504	$10,742	$10,985	$11,233	$11,488	$11,748	$12,015	$12,287	$12,566

TABLE 6-9 2024-2033 PROGRAM POTENTIAL – RESIDENTIAL BEHAVIOR PILOT SUMMARY

Behavior Pilot	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	1,406	1,916	2,592	3,473	4,596	5,993	7,675	9,621	11,775	14,031
Cumulative Annual	1,406	1,916	2,592	3,473	4,596	5,993	7,675	9,621	11,775	14,031
Summer MW										
Incremental Annual	0.2	0.2	0.3	0.4	0.5	0.7	0.9	1.1	1.3	1.6
Cumulative Annual	0.2	0.2	0.3	0.4	0.5	0.7	0.9	1.1	1.3	1.6
Winter MW										
Incremental Annual	0.2	0.3	0.4	0.5	0.7	0.9	1.2	1.5	1.8	2.1
Cumulative Annual	0.2	0.3	0.4	0.5	0.7	0.9	1.2	1.5	1.8	2.1
Program Costs										
Incentives	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Non-Incentives	$21,263	$29,892	$41,726	$57,680	$78,771	$105,979	$139,992	$180,940	$228,154	$280,093
Total Costs	$21,263	$29,892	$41,726	$57,680	$78,771	$105,979	$139,992	$180,940	$228,154	$280,093

TABLE 6-10 2024-2033 PROGRAM POTENTIAL – RESIDENTIAL DLC DR PROGRAM SUMMARY

Residential DLC (DR)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	0	0	0	0	0	0	0	0	0	0
Cumulative Annual	0	0	0	0	0	0	0	0	0	0
Summer MW										
Incremental Annual	3.1	7.4	17.0	31.1	40.9	45.5	48.1	50.2	52.2	54.2
Cumulative Annual	2.1	4.8	10.8	19.6	25.7	28.5	30.2	31.5	32.7	33.9
Winter MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Program Costs										
Incentives	$56,615	$128,201	$287,290	$521,194	$683,358	$758,947	$802,159	$836,965	$869,873	$902,441
Non-Incentives	$351,083	$627,200	$1,363,123	$2,033,624	$1,587,323	$1,000,862	$829,096	$848,220	$922,272	$1,011,759
Total Costs	$407,698	$755,401	$1,650,413	$2,554,817	$2,270,680	$1,759,809	$1,631,255	$1,685,186	$1,792,145	$1,914,200

TABLE 6-11 2024-2033 PROGRAM POTENTIAL – RESIDENTIAL DR RATE PROGRAM SUMMARY

Residential DR Rates	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	0	0	0	0	0	0	0	0	0	0
Cumulative Annual	0	0	0	0	0	0	0	0	0	0
Summer MW										
Incremental Annual	28.5	65.7	60.2	56.4	53.6	52.5	52.1	51.9	51.7	51.5
Cumulative Annual	7.6	22.6	39.5	45.5	46.0	45.9	45.8	45.6	45.5	45.4
Winter MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Program Costs										
Incentives	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Non-Incentives	$1,110,587	$1,912,517	$2,506,222	$1,295,353	$445,158	$221,413	$174,737	$166,320	$167,246	$170,602
Total Costs	$1,110,587	$1,912,517	$2,506,222	$1,295,353	$445,158	$221,413	$174,737	$166,320	$167,246	$170,602

TABLE 6-12 2024-2033 PROGRAM POTENTIAL – COMMERCIAL PRESCRIPTIVE REBATES SUMMARY

C&I Prescriptive Rebates	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	5,488	6,080	6,374	6,422	6,307	6,061	5,771	5,393	4,980	4,647
Cumulative Annual	5,488	11,568	17,942	24,339	30,617	36,625	42,311	47,615	52,500	56,977
Summer MW										
Incremental Annual	0.8	0.9	0.9	1.0	0.9	0.9	0.9	0.9	0.8	0.8
Cumulative Annual	0.8	1.6	2.6	3.5	4.4	5.4	6.2	7.1	7.8	8.6
Winter MW										
Incremental Annual	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6
Cumulative Annual	0.7	1.5	2.3	3.1	4.0	4.7	5.4	6.1	6.7	7.3
Program Costs										
Incentives	$412,220	$447,775	$465,217	$469,798	$465,934	$453,350	$437,607	$415,428	$389,898	$364,865
Non-Incentives	$82,380	$93,376	$100,157	$103,285	$103,884	$102,332	$99,907	$95,769	$90,694	$86,708
Total Costs	$494,601	$541,151	$565,374	$573,083	$569,818	$555,681	$537,514	$511,198	$480,591	$451,573

TABLE 6-13 2024-2033 PROGRAM POTENTIAL – COMMERCIAL CUSTOM SUMMARY

C&I Custom	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	2,420	2,402	2,589	3,032	3,513	4,021	4,655	5,346	6,090	6,943
Cumulative Annual	2,420	4,822	7,406	10,016	13,140	16,702	20,713	25,284	30,508	36,446
Summer MW										
Incremental Annual	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Cumulative Annual	0.4	0.8	1.2	1.6	2.1	2.7	3.3	4.1	4.9	5.9
Winter MW										
Incremental Annual	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9
Cumulative Annual	0.3	0.6	0.9	1.3	1.7	2.1	2.6	3.2	3.9	4.7
Program Costs										
Incentives	$255,745	$253,589	$271,214	$303,455	$345,981	$399,162	$457,529	$524,465	$596,991	$671,368
Non-Incentives	$60,673	$61,735	$68,204	$81,811	$97,071	$113,892	$135,107	$158,955	$185,504	$216,525
Total Costs	$316,418	$315,323	$339,418	$385,266	$443,053	$513,053	$592,637	$683,420	$782,495	$887,892

TABLE 6-14 2024-2033 PROGRAM POTENTIAL – C&I INTERRUPTIBLE DR SUMMARY

C&I Interruptible (DR)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	0	0	0	0	0	0	0	0	0	0
Cumulative Annual	0	0	0	0	0	0	0	0	0	0
Summer MW										
Incremental Annual	1.0	3.3	6.8	9.1	9.9	10.1	10.1	10.1	10.1	10.1
Cumulative Annual	0.7	2.1	4.4	5.9	6.4	6.5	6.6	6.6	6.6	6.6
Winter MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Program Costs										
Incentives	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Non-Incentives	$298,462	$139,948	$202,867	$240,513	$252,528	$256,721	$259,192	$261,313	$263,389	$265,490
Total Costs	$298,462	$139,948	$202,867	$240,513	$252,528	$256,721	$259,192	$261,313	$263,389	$265,490

TABLE 6-15 2024-2033 PROGRAM POTENTIAL – COMMERCIAL OTHER DR RATE SUMMARY

Commercial Rates (DR)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Energy Savings										
Incremental Annual	0	0	0	0	0	0	0	0	0	0
Cumulative Annual	0	0	0	0	0	0	0	0	0	0
Summer MW										
Incremental Annual	3.7	9.4	12.0	9.8	8.5	8.2	8.1	8.1	8.2	8.2
Cumulative Annual	1.1	3.5	6.8	8.7	9.4	9.6	9.7	9.8	9.9	9.9
Winter MW										
Incremental Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Annual	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Program Costs										
Incentives	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Non-Incentives	$309,991	$223,805	$264,174	$220,675	$177,509	$164,352	$163,463	$165,953	$169,256	$172,859
Total Costs	$309,991	$223,805	$264,174	$220,675	$177,509	$164,352	$163,463	$165,953	$169,256	$172,859

APPENDIX A. Residential Measure Detail

Appendix A-1: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Home Type	Income Type	Replacement Type	Base Annual Electric kWh	% Elec Savings	Per Unit Elec Savings (kWh)	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1001	Appliances	ENERGY STAR Air Purifier	No program	SF	N/A	MO	533	57%	303	0.03	9	$92	100%	40%	40%	PUR-1	15%	29%	83.2%	33.8%	33.8%	2.0
1002	Appliances	ENERGY STAR Air Purifier	No program	SF	N/A	NC	533	57%	303	0.03	9	$92	100%	40%	40%	PUR-2	15%	0%	85.7%	36.6%	36.6%	2.0
1003	Appliances	ENERGY STAR Air Purifier	No program	MF	N/A	MO	533	57%	303	0.03	9	$92	100%	40%	40%	PUR-3	15%	29%	83.2%	33.8%	33.8%	2.1
1004	Appliances	ENERGY STAR Air Purifier	No program	MF	N/A	NC	533	57%	303	0.03	9	$92	100%	40%	40%	PUR-4	15%	0%	85.7%	36.6%	36.6%	2.1
1005	Appliances	ENERGY STAR Refrigerator	No program	SF	NLI	MO	349	10%	35	0.01	15	$28	100%	40%	40%	REF-1	142%	42%	81.9%	41.1%	41.1%	1.1
1006	Appliances	ENERGY STAR Refrigerator	No program	SF	N/A	NC	349	10%	35	0.01	15	$28	100%	40%	40%	REF-2	142%	0%	85.7%	36.6%	36.6%	1.1
1007	Appliances	ENERGY STAR Refrigerator	No program	MF	NLI	MO	349	10%	35	0.01	15	$28	100%	40%	40%	REF-3	142%	42%	81.9%	41.1%	41.1%	1.1
1008	Appliances	ENERGY STAR Refrigerator	No program	MF	N/A	NC	349	10%	35	0.01	15	$28	100%	40%	40%	REF-4	142%	0%	85.7%	36.6%	36.6%	1.1
1009	Appliances	CEE Tier 2 Refrigerator	No program	SF	NLI	MO	349	15%	52	0.01	15	$112	100%	40%	40%	REF-1	142%	42%	81.9%	41.1%	41.1%	0.4
1010	Appliances	CEE Tier 2 Refrigerator	No program	SF	N/A	NC	349	15%	52	0.01	15	$112	100%	40%	40%	REF-2	142%	0%	85.7%	36.6%	36.6%	0.4
1011	Appliances	CEE Tier 2 Refrigerator	No program	MF	NLI	MO	349	15%	52	0.01	15	$112	100%	40%	40%	REF-3	142%	42%	81.9%	41.1%	41.1%	0.4
1012	Appliances	CEE Tier 2 Refrigerator	No program	MF	N/A	NC	349	15%	52	0.01	15	$112	100%	40%	40%	REF-4	142%	0%	85.7%	36.6%	36.6%	0.4
1013	Appliances	Smart Refrigerator	No program	SF	NLI	MO	349	20%	70	0.01	15	$134	100%	40%	40%	REF-1	142%	42%	81.9%	41.1%	41.1%	0.5
1014	Appliances	Smart Refrigerator	No program	SF	N/A	NC	349	20%	70	0.01	15	$134	100%	40%	40%	REF-2	142%	0%	85.7%	36.6%	36.6%	0.5
1015	Appliances	Smart Refrigerator	No program	MF	NLI	MO	349	20%	70	0.01	15	$134	100%	40%	40%	REF-3	142%	42%	81.9%	41.1%	41.1%	0.5
1016	Appliances	Smart Refrigerator	No program	MF	N/A	NC	349	20%	70	0.01	15	$134	100%	40%	40%	REF-4	142%	0%	85.7%	36.6%	36.6%	0.5
1017	Appliances	Refrigerator Recycling	No program	SF	N/A	Recycle	901	100%	901	0.11	7	$50	100%	40%	40%	REF REC-1	7%	0%	85.7%	36.6%	36.6%	8.8
1018	Appliances	Refrigerator Recycling	No program	MF	N/A	Recycle	901	100%	901	0.11	7	$50	100%	40%	40%	REF REC-2	7%	0%	85.7%	36.6%	36.6%	8.8
1019	Appliances	Freezer Recycling	No program	SF	N/A	Recycle	905	100%	905	0.11	7	$50	100%	40%	40%	FRZ REC-1	5%	0%	85.7%	36.6%	36.6%	8.6
1020	Appliances	Freezer Recycling	No program	MF	N/A	Recycle	905	100%	905	0.11	7	$50	100%	40%	40%	FRZ REC-2	5%	0%	85.7%	36.6%	36.6%	8.6
1021	Appliances	Dehumidifier Recycling	No program	SF	N/A	Recycle	1,000	100%	1,000	0.00	7	$20	100%	40%	40%	DEH-1	30%	0%	85.7%	36.6%	36.6%	23.2
1022	Appliances	Dehumidifier Recycling	No program	MF	N/A	Recycle	1,000	100%	1,000	0.00	7	$20	100%	40%	40%	DEH-3	30%	0%	85.7%	36.6%	36.6%	23.9
1023	Appliances	ENERGY STAR Freezer - Chest	No program	SF	N/A	MO	272	10%	27	0.00	21	$5	100%	40%	40%	FRZ-1	62%	17%	84.3%	30.6%	30.6%	6.0
1024	Appliances	ENERGY STAR Freezer - Chest	No program	SF	N/A	NC	272	10%	27	0.00	21	$5	100%	40%	40%	FRZ-2	62%	0%	85.7%	36.6%	36.6%	6.0
1025	Appliances	ENERGY STAR Freezer - Chest	No program	MF	N/A	MO	272	10%	27	0.00	21	$5	100%	40%	40%	FRZ-3	62%	17%	84.3%	30.6%	30.6%	6.0
1026	Appliances	ENERGY STAR Freezer - Chest	No program	MF	N/A	NC	272	10%	27	0.00	21	$5	100%	40%	40%	FRZ-4	62%	0%	85.7%	36.6%	36.6%	6.0
1027	Appliances	ENERGY STAR Freezer - Compact Upright	No program	SF	N/A	MO	273	10%	27	0.00	10	$5	100%	40%	40%	FRZ-1	62%	17%	84.3%	30.6%	30.6%	3.6
1028	Appliances	ENERGY STAR Freezer - Compact Upright	No program	SF	N/A	NC	273	10%	27	0.00	10	$5	100%	40%	40%	FRZ-2	62%	0%	85.7%	36.6%	36.6%	3.6
1029	Appliances	ENERGY STAR Freezer - Compact Upright	No program	MF	N/A	MO	273	10%	27	0.00	10	$5	100%	40%	40%	FRZ-3	62%	17%	84.3%	30.6%	30.6%	3.6
1030	Appliances	ENERGY STAR Freezer - Compact Upright	No program	MF	N/A	NC	273	10%	27	0.00	10	$5	100%	40%	40%	FRZ-4	62%	0%	85.7%	36.6%	36.6%	3.6
1031	Appliances	ENERGY STAR Dehumidifier	No program	SF	N/A	MO	1,095	12%	134	0.03	10	$10	100%	40%	40%	DEH-1	30%	87%	84.0%	81.7%	81.7%	9.9
1032	Appliances	ENERGY STAR Dehumidifier	No program	SF	N/A	NC	1,095	12%	134	0.03	10	$10	100%	40%	40%	DEH-2	30%	0%	85.7%	36.6%	36.6%	9.9
1033	Appliances	ENERGY STAR Dehumidifier	No program	MF	N/A	MO	1,095	12%	134	0.03	10	$10	100%	40%	40%	DEH-3	30%	87%	84.0%	81.7%	81.7%	10.1
1034	Appliances	ENERGY STAR Dehumidifier	No program	MF	N/A	NC	1,095	12%	134	0.03	10	$10	100%	40%	40%	DEH-4	30%	0%	85.7%	36.6%	36.6%	10.1
1035	Appliances	ENERGY STAR Most Efficient Dehumidifier	No program	SF	N/A	MO	1,095	17%	188	0.04	10	$75	100%	40%	40%	DEH-1	30%	87%	84.0%	81.7%	81.7%	1.9
1036	Appliances	ENERGY STAR Most Efficient Dehumidifier	No program	SF	N/A	NC	1,095	17%	188	0.04	10	$75	100%	40%	40%	DEH-2	30%	0%	85.7%	36.6%	36.6%	1.9
1037	Appliances	ENERGY STAR Most Efficient Dehumidifier	No program	MF	N/A	MO	1,095	17%	188	0.04	10	$75	100%	40%	40%	DEH-3	30%	87%	84.0%	81.7%	81.7%	1.9
1038	Appliances	ENERGY STAR Most Efficient Dehumidifier	No program	MF	N/A	NC	1,095	17%	188	0.04	10	$75	100%	40%	40%	DEH-4	30%	0%	85.7%	36.6%	36.6%	1.9
1039	Appliances	ENERGY STAR Dishwasher (E WH)	No program	SF	N/A	MO	307	12%	37	0.00	11	$76	100%	40%	40%	DISH-1	51%	91%	88.7%	87.0%	87.0%	0.7
1040	Appliances	ENERGY STAR Dishwasher (E WH)	No program	SF	N/A	NC	307	12%	37	0.00	11	$76	100%	40%	40%	DISH-3	51%	0%	85.7%	36.6%	36.6%	0.7
1041	Appliances	ENERGY STAR Dishwasher (E WH)	No program	MF	N/A	MO	307	12%	37	0.00	11	$76	100%	40%	40%	DISH-5	51%	91%	88.7%	87.0%	87.0%	0.7
1042	Appliances	ENERGY STAR Dishwasher (E WH)	No program	MF	N/A	NC	307	12%	37	0.00	11	$76	100%	40%	40%	DISH-6	51%	0%	85.7%	36.6%	36.6%	0.7
1043	Appliances	ENERGY STAR Dishwasher (NG WH)	No program	SF	N/A	MO	135	12%	16	0.00	11	$76	100%	40%	40%	DISH-2	21%	91%	88.7%	87.0%	87.0%	1.1
1044	Appliances	ENERGY STAR Dishwasher (NG WH)	No program	SF	N/A	NC	135	12%	16	0.00	11	$76	100%	40%	40%	DISH-4	21%	0%	85.7%	36.6%	36.6%	1.1
1045	Appliances	ENERGY STAR Dishwasher (NG WH)	No program	MF	N/A	MO	135	12%	16	0.00	11	$76	100%	40%	40%	DISH-7	21%	91%	88.7%	87.0%	87.0%	1.1
1046	Appliances	ENERGY STAR Dishwasher (NG WH)	No program	MF	N/A	NC	135	12%	16	0.00	11	$76	100%	40%	40%	DISH-8	21%	0%	85.7%	36.6%	36.6%	1.1
1047	Appliances	Smart Dishwasher (E WH)	No program	SF	N/A	MO	307	8%	24	0.00	11	$76	100%	40%	40%	DISH-1	51%	91%	88.7%	87.0%	87.0%	0.6
1048	Appliances	Smart Dishwasher (E WH)	No program	SF	N/A	NC	307	8%	24	0.00	11	$76	100%	40%	40%	DISH-3	51%	0%	85.7%	36.6%	36.6%	0.6
1049	Appliances	Smart Dishwasher (E WH)	No program	MF	N/A	MO	307	8%	24	0.00	11	$76	100%	40%	40%	DISH-5	51%	91%	88.7%	87.0%	87.0%	0.6
1050	Appliances	Smart Dishwasher (E WH)	No program	MF	N/A	NC	307	8%	24	0.00	11	$76	100%	40%	40%	DISH-6	51%	0%	85.7%	36.6%	36.6%	0.6
1051	Appliances	Smart Dishwasher (NG WH)	No program	SF	N/A	MO	135	8%	11	0.00	11	$76	100%	40%	40%	DISH-2	21%	91%	88.7%	87.0%	87.0%	0.8
1052	Appliances	Smart Dishwasher (NG WH)	No program	SF	N/A	NC	135	8%	11	0.00	11	$76	100%	40%	40%	DISH-4	21%	0%	85.7%	36.6%	36.6%	0.8
1053	Appliances	Smart Dishwasher (NG WH)	No program	MF	N/A	MO	135	8%	11	0.00	11	$76	100%	40%	40%	DISH-7	21%	91%	88.7%	87.0%	87.0%	0.8
1054	Appliances	Smart Dishwasher (NG WH)	No program	MF	N/A	NC	135	8%	11	0.00	11	$76	100%	40%	40%	DISH-8	21%	0%	85.7%	36.6%	36.6%	0.8
1055	Appliances	ENERGY STAR Clothes Washer (Electrc WH/Dryer)	No program	SF	N/A	MO	590	24%	139	0.02	14	$87	100%	40%	40%	CW-1	64%	55%	80.2%	50.6%	50.6%	3.2
1056	Appliances	ENERGY STAR Clothes Washer (Electrc WH/Dryer)	No program	SF	N/A	NC	590	24%	139	0.02	14	$87	100%	40%	40%	CW-2	64%	0%	85.7%	36.6%	36.6%	3.2
1057	Appliances	ENERGY STAR Clothes Washer (Electrc WH/Dryer)	No program	MF	N/A	MO	590	24%	139	0.02	14	$87	100%	40%	40%	CW-3	64%	55%	80.2%	50.6%	50.6%	3.2
1058	Appliances	ENERGY STAR Clothes Washer (Electrc WH/Dryer)	No program	MF	N/A	NC	590	24%	139	0.02	14	$87	100%	40%	40%	CW-4	64%	0%	85.7%	36.6%	36.6%	3.2
1059	Appliances	ENERGY STAR Clothes Washer (NG WH/E Dryer)	No program	SF	N/A	MO	434	24%	104	0.01	14	$87	100%	40%	40%	CW-5	25%	55%	80.2%	50.6%	50.6%	2.8
1060	Appliances	ENERGY STAR Clothes Washer (NG WH/E Dryer)	No program	SF	N/A	NC	434	24%	104	0.01	14	$87	100%	40%	40%	CW-6	25%	0%	85.7%	36.6%	36.6%	2.8
1061	Appliances	ENERGY STAR Clothes Washer (NG WH/E Dryer)	No program	MF	N/A	MO	434	24%	104	0.01	14	$87	100%	40%	40%	CW-7	25%	55%	80.2%	50.6%	50.6%	2.8
1062	Appliances	ENERGY STAR Clothes Washer (NG WH/E Dryer)	No program	MF	N/A	NC	434	24%	104	0.01	14	$87	100%	40%	40%	CW-8	25%	0%	85.7%	36.6%	36.6%	2.8
1063	Appliances	Smart/CEE Tier 2 Clothes Washer (Electrc WH/Dryer)	No program	SF	N/A	MO	590	47%	276	0.04	14	$99	100%	40%	40%	CW-1	64%	55%	80.2%	50.6%	50.6%	5.0
1064	Appliances	Smart/CEE Tier 2 Clothes Washer (Electrc WH/Dryer)	No program	SF	N/A	NC	590	47%	276	0.04	14	$99	100%	40%	40%	CW-2	64%	0%	85.7%	36.6%	36.6%	5.0
1065	Appliances	Smart/CEE Tier 2 Clothes Washer (Electrc WH/Dryer)	No program	MF	N/A	MO	590	47%	276	0.04	14	$99	100%	40%	40%	CW-3	64%	55%	80.2%	50.6%	50.6%	5.0
1066	Appliances	Smart/CEE Tier 2 Clothes Washer (Electrc WH/Dryer)	No program	MF	N/A	NC	590	47%	276	0.04	14	$99	100%	40%	40%	CW-4	64%	0%	85.7%	36.6%	36.6%	5.0
1067	Appliances	Smart/CEE Tier 2 Clothes Washer (NG WH/E Dryer)	No program	SF	N/A	MO	434	47%	202	0.03	14	$99	100%	40%	40%	CW-5	25%	55%	80.2%	50.6%	50.6%	4.7
1068	Appliances	Smart/CEE Tier 2 Clothes Washer (NG WH/E Dryer)	No program	SF	N/A	NC	434	47%	202	0.03	14	$99	100%	40%	40%	CW-6	25%	0%	85.7%	36.6%	36.6%	4.7
1069	Appliances	Smart/CEE Tier 2 Clothes Washer (NG WH/E Dryer)	No program	MF	N/A	MO	434	47%	202	0.03	14	$99	100%	40%	40%	CW-7	25%	55%	80.2%	50.6%	50.6%	4.7
1070	Appliances	Smart/CEE Tier 2 Clothes Washer (NG WH/E Dryer)	No program	MF	N/A	NC	434	47%	202	0.03	14	$99	100%	40%	40%	CW-8	25%	0%	85.7%	36.6%	36.6%	4.7
1071	Appliances	ENERGY STAR Clothes Dryer (Electric)	No program	SF	N/A	MO	769	21%	160	0.02	16	$152	100%	40%	40%	CD-1	91%	21%	84.0%	29.5%	29.5%	1.0
1072	Appliances	ENERGY STAR Clothes Dryer (Electric)	No program	SF	N/A	NC	769	21%	160	0.02	16	$152	100%	40%	40%	CD-2	91%	0%	85.7%	36.6%	36.6%	1.0

Appendix A-1: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Home Type	Income Type	Replacement Type	Base Annual Electric kWh	% Elec Savings	Per Unit Elec Savings (kWh)	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1073	Appliances	ENERGY STAR Clothes Dryer (Electric)	No program	MF	N/A	MO	769	21%	160	0.02	16	$152	100%	40%	40%	CD-3	91%	21%	84.0%	29.5%	29.5%	1.0
1074	Appliances	ENERGY STAR Clothes Dryer (Electric)	No program	MF	N/A	NC	769	21%	160	0.02	16	$152	100%	40%	40%	CD-4	91%	0%	85.7%	36.6%	36.6%	1.0
1075	Appliances	ENERGY STAR Most Efficient Clothes Dryer (Electric)	No program	SF	N/A	MO	769	28%	213	0.03	16	$405	100%	40%	40%	CD-1	91%	21%	84.0%	29.5%	29.5%	0.5
1076	Appliances	ENERGY STAR Most Efficient Clothes Dryer (Electric)	No program	SF	N/A	NC	769	28%	213	0.03	16	$405	100%	40%	40%	CD-2	91%	0%	85.7%	36.6%	36.6%	0.5
1077	Appliances	ENERGY STAR Most Efficient Clothes Dryer (Electric)	No program	MF	N/A	MO	769	28%	213	0.03	16	$405	100%	40%	40%	CD-3	91%	21%	84.0%	29.5%	29.5%	0.5
1078	Appliances	ENERGY STAR Most Efficient Clothes Dryer (Electric)	No program	MF	N/A	NC	769	28%	213	0.03	16	$405	100%	40%	40%	CD-4	91%	0%	85.7%	36.6%	36.6%	0.5
1079	Appliances	Heat Pump Dryer	No program	SF	N/A	MO	769	49%	378	0.14	16	$900	100%	40%	40%	CD-1	91%	21%	84.0%	29.5%	29.5%	0.5
1080	Appliances	Heat Pump Dryer	No program	SF	N/A	NC	769	49%	378	0.14	16	$900	100%	40%	40%	CD-2	91%	0%	85.7%	36.6%	36.6%	0.5
1081	Appliances	Heat Pump Dryer	No program	MF	N/A	MO	769	49%	378	0.14	16	$900	100%	40%	40%	CD-3	91%	21%	84.0%	29.5%	29.5%	0.5
1082	Appliances	Heat Pump Dryer	No program	MF	N/A	NC	769	49%	378	0.14	16	$900	100%	40%	40%	CD-4	91%	0%	85.7%	36.6%	36.6%	0.5
2001	Behavior	Home Energy Reports	esidential Behavior Pilo	SF	N/A	MO	14,286	1%	152	0.02	1	$0	100%	40%	40%	HER-1	100%	0%	90.0%	80.0%	80.0%	1.0
2002	Behavior	Home Energy Reports	esidential Behavior Pilo	SF	N/A	NC	14,286	1%	152	0.02	1	$0	100%	40%	40%	HER-2	100%	0%	90.0%	80.0%	80.0%	1.0
2003	Behavior	Home Energy Reports	esidential Behavior Pilo	MF	N/A	MO	14,286	1%	152	0.02	1	$0	100%	40%	40%	HER-3	100%	0%	90.0%	80.0%	80.0%	1.0
2004	Behavior	Home Energy Reports	esidential Behavior Pilo	MF	N/A	NC	14,286	1%	152	0.02	1	$0	100%	40%	40%	HER-4	100%	0%	90.0%	80.0%	80.0%	1.0
2005	Behavior	AMI Data Portal	esidential Behavior Pilo	SF	N/A	MO	14,286	1%	143	0.02	1	$0	100%	40%	40%	AMI-1	100%	0%	90.0%	80.0%	80.0%	1.0
2006	Behavior	AMI Data Portal	esidential Behavior Pilo	SF	N/A	NC	14,286	1%	143	0.02	1	$0	100%	40%	40%	AMI-2	100%	0%	90.0%	80.0%	80.0%	1.0
2007	Behavior	AMI Data Portal	esidential Behavior Pilo	MF	N/A	MO	14,286	1%	143	0.02	1	$0	100%	40%	40%	AMI-3	100%	0%	90.0%	80.0%	80.0%	1.0
2008	Behavior	AMI Data Portal	esidential Behavior Pilo	MF	N/A	NC	14,286	1%	143	0.02	1	$0	100%	40%	40%	AMI-4	100%	0%	90.0%	80.0%	80.0%	1.0
3001	HVAC	ASHP Tune Up	HVAC Tune-Up	SF	N/A	Retrofit	7,805	5%	390	0.11	3	$225	100%	22%	22%	HP TUNE-1	21%	49%	0.0%	0.0%	0.0%	0.5
3002	HVAC	ASHP Tune Up	HVAC Tune-Up	MF	N/A	Retrofit	2,364	5%	118	0.08	3	$225	100%	22%	22%	HP TUNE-2	21%	49%	0.0%	0.0%	0.0%	0.2
3003	HVAC	GSHP Tune-Up	HVAC Tune-Up	SF	N/A	Retrofit	7,805	5%	390	0.11	3	$225	100%	22%	22%	HP TUNE-3	21%	49%	0.0%	0.0%	0.0%	0.5
3004	HVAC	GSHP Tune-Up	HVAC Tune-Up	MF	N/A	Retrofit	2,364	5%	118	0.08	3	$225	100%	22%	22%	HP TUNE-4	21%	49%	0.0%	0.0%	0.0%	0.2
3005	HVAC	Minisplit Tune-Up	HVAC Tune-Up	SF	N/A	Retrofit	7,805	5%	390	0.11	3	$225	100%	22%	22%	HP TUNE-5	21%	49%	0.0%	0.0%	0.0%	0.5
3006	HVAC	Minisplit Tune-Up	HVAC Tune-Up	MF	N/A	Retrofit	2,364	5%	118	0.08	3	$225	100%	22%	22%	HP TUNE-6	21%	49%	0.0%	0.0%	0.0%	0.2
3007	HVAC	Air Source Heat Pump 15 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	6%	461	0.00	18	$200	100%	100%	100%	HP-1	21%	36%	75.7%	64.9%	64.9%	1.6
3008	HVAC	Air Source Heat Pump 15 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	5%	119	0.00	18	$200	100%	100%	100%	HP-2	21%	0%	80.1%	71.2%	71.2%	0.4
3009	HVAC	Air Source Heat Pump 15 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	6%	461	0.00	18	$200	100%	100%	100%	HP-3	21%	36%	75.7%	64.9%	64.9%	1.6
3010	HVAC	Air Source Heat Pump 15 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	5%	119	0.00	18	$200	100%	100%	100%	HP-4	21%	0%	80.1%	71.2%	71.2%	0.4
3011	HVAC	Air Source Heat Pump 16 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	7%	558	0.13	18	$315	100%	95%	95%	HP-1	21%	36%	75.7%	58.5%	58.5%	2.3
3012	HVAC	Air Source Heat Pump 16 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	NC	7,805	7%	558	0.13	18	$315	100%	95%	95%	HP-2	21%	0%	80.1%	66.0%	66.0%	2.3
3013	HVAC	Air Source Heat Pump 16 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	MO	2,364	7%	166	0.09	18	$315	100%	95%	95%	HP-3	21%	36%	75.7%	58.5%	58.5%	0.8
3014	HVAC	Air Source Heat Pump 16 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	7%	166	0.09	18	$315	100%	95%	95%	HP-4	21%	0%	80.1%	66.0%	66.0%	0.8
3015	HVAC	Air Source Heat Pump 17 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	10%	792	0.25	18	$601	100%	50%	50%	HP-1	21%	36%	75.7%	37.6%	37.6%	1.8
3016	HVAC	Air Source Heat Pump 17 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	NC	7,805	10%	792	0.25	18	$601	100%	50%	50%	HP-2	21%	0%	80.1%	34.7%	34.7%	1.8
3017	HVAC	Air Source Heat Pump 17 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	MO	2,364	10%	246	0.17	18	$601	100%	50%	50%	HP-3	21%	36%	75.7%	37.6%	37.6%	0.7
3018	HVAC	Air Source Heat Pump 17 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	10%	246	0.17	18	$601	100%	50%	50%	HP-4	21%	0%	80.1%	34.7%	34.7%	0.7
3019	HVAC	Air Source Heat Pump 18 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	16%	1,271	0.35	18	$810	100%	37%	37%	HP-1	21%	36%	75.7%	37.6%	37.6%	2.1
3020	HVAC	Air Source Heat Pump 18 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	NC	7,805	16%	1,271	0.35	18	$810	100%	37%	37%	HP-2	21%	0%	80.1%	31.7%	31.7%	2.1
3021	HVAC	Air Source Heat Pump 18 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	MO	2,364	16%	386	0.23	18	$810	100%	37%	37%	HP-3	21%	36%	75.7%	37.6%	37.6%	0.8
3022	HVAC	Air Source Heat Pump 18 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	16%	386	0.23	18	$810	100%	37%	37%	HP-4	21%	0%	80.1%	31.7%	31.7%	0.8
3023	HVAC	Ground Source Heat Pump	esidential HVAC - Equi	SF	N/A	MO	7,805	15%	1,139	0.53	18	$11,871	100%	3%	3%	HP-1	21%	36%	75.7%	36.3%	36.3%	0.3
3024	HVAC	Ground Source Heat Pump	esidential HVAC - Equi	SF	N/A	NC	7,805	15%	1,139	0.53	18	$11,871	100%	3%	3%	HP-2	21%	0%	80.1%	18.3%	18.3%	0.3
3025	HVAC	Ductless Heat Pump 16 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	7%	558	0.13	18	$186	100%	100%	100%	HP-1	21%	36%	75.7%	64.9%	64.9%	2.4
3026	HVAC	Ductless Heat Pump 16 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	NC	7,805	7%	558	0.13	18	$186	100%	100%	100%	HP-2	21%	0%	80.1%	71.2%	71.2%	2.4
3027	HVAC	Ductless Heat Pump 16 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	MO	2,364	7%	166	0.09	18	$124	100%	100%	100%	HP-3	21%	36%	75.7%	64.9%	64.9%	0.8
3028	HVAC	Ductless Heat Pump 16 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	7%	166	0.09	18	$124	100%	100%	100%	HP-4	21%	0%	80.1%	71.2%	71.2%	0.8
3029	HVAC	Ductless Heat Pump 17 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	8%	643	0.25	18	$438	100%	68%	68%	HP-1	21%	36%	75.7%	37.6%	37.6%	2.1
3030	HVAC	Ductless Heat Pump 17 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	NC	7,805	8%	643	0.25	18	$438	100%	68%	68%	HP-2	21%	0%	80.1%	44.0%	44.0%	2.1
3031	HVAC	Ductless Heat Pump 17 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	MO	2,364	9%	207	0.17	18	$292	100%	100%	100%	HP-3	21%	36%	75.7%	64.9%	64.9%	1.2
3032	HVAC	Ductless Heat Pump 17 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	9%	207	0.17	18	$292	100%	100%	100%	HP-4	21%	0%	80.1%	71.2%	71.2%	1.2
3033	HVAC	Ductless Heat Pump 18 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	9%	720	0.35	18	$672	100%	45%	45%	HP-1	21%	36%	75.7%	37.6%	37.6%	1.6
3034	HVAC	Ductless Heat Pump 18 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	NC	7,805	9%	720	0.35	18	$672	100%	45%	45%	HP-2	21%	0%	80.1%	33.4%	33.4%	1.6
3035	HVAC	Ductless Heat Pump 18 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	MO	2,364	10%	244	0.23	18	$448	100%	67%	67%	HP-3	21%	36%	75.7%	37.6%	37.6%	1.0
3036	HVAC	Ductless Heat Pump 18 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	12%	278	0.30	18	$448	100%	67%	67%	HP-4	21%	0%	80.1%	43.2%	43.2%	1.2
3037	HVAC	Ductless Heat Pump 19 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	10%	788	0.44	18	$1,002	100%	30%	30%	HP-1	21%	36%	75.7%	37.6%	37.6%	1.2
3038	HVAC	Ductless Heat Pump 19 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	NC	7,805	10%	788	0.44	18	$1,002	100%	30%	30%	HP-2	21%	0%	80.1%	30.1%	30.1%	1.2
3039	HVAC	Ductless Heat Pump 19 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	MO	2,364	12%	278	0.30	18	$668	100%	45%	45%	HP-3	21%	36%	75.7%	37.6%	37.6%	0.8
3040	HVAC	Ductless Heat Pump 19 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	12%	278	0.30	18	$668	100%	45%	45%	HP-4	21%	0%	80.1%	33.5%	33.5%	0.8
3041	HVAC	Ductless Heat Pump 20 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	MO	7,805	15%	1,139	0.53	18	$1,980	100%	15%	15%	HP-1	21%	36%	75.7%	37.6%	37.6%	0.8
3042	HVAC	Ductless Heat Pump 20 SEER - Heat pump baseline	esidential HVAC - Equi	SF	N/A	NC	7,805	15%	1,139	0.53	18	$1,980	100%	15%	15%	HP-2	21%	0%	80.1%	23.7%	23.7%	0.8
3043	HVAC	Ductless Heat Pump 20 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	MO	2,364	16%	382	0.35	18	$1,320	100%	23%	23%	HP-3	21%	36%	75.7%	37.6%	37.6%	0.5
3044	HVAC	Ductless Heat Pump 20 SEER - Heat pump baseline	esidential HVAC - Equi	MF	N/A	NC	2,364	16%	382	0.35	18	$1,320	100%	23%	23%	HP-4	21%	0%	80.1%	27.7%	27.7%	0.5
3045	HVAC	Air Source Heat Pump 15 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	MO	13,668	58%	7,881	0.15	18	$200	100%	100%	100%	HP-5	14%	0%	80.1%	71.2%	71.2%	28.4
3046	HVAC	Air Source Heat Pump 15 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	NC	13,668	58%	7,881	0.15	18	$200	100%	100%	100%	HP-6	14%	0%	80.1%	71.2%	71.2%	28.4
3047	HVAC	Air Source Heat Pump 15 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	MO	3,481	54%	1,864	0.10	18	$200	100%	100%	100%	HP-7	14%	0%	80.1%	71.2%	71.2%	6.9
3048	HVAC	Air Source Heat Pump 15 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	NC	3,481	54%	1,864	0.10	18	$200	100%	100%	100%	HP-8	14%	0%	80.1%	71.2%	71.2%	6.9
3049	HVAC	Air Source Heat Pump 16 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	MO	13,668	58%	7,971	0.28	18	$315	100%	95%	95%	HP-5	14%	0%	80.1%	66.0%	66.0%	27.7
3050	HVAC	Air Source Heat Pump 16 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	NC	13,668	58%	7,971	0.28	18	$315	100%	95%	95%	HP-6	14%	0%	80.1%	66.0%	66.0%	27.7
3051	HVAC	Air Source Heat Pump 16 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	MO	3,481	55%	1,901	0.19	18	$315	100%	95%	95%	HP-7	14%	0%	80.1%	66.0%	66.0%	7.0
3052	HVAC	Air Source Heat Pump 16 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	NC	3,481	55%	1,901	0.19	18	$315	100%	95%	95%	HP-8	14%	0%	80.1%	66.0%	66.0%	7.0
3053	HVAC	Air Source Heat Pump 17 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	MO	13,668	60%	8,161	0.40	18	$601	100%	50%	50%	HP-5	14%	0%	80.1%	34.7%	34.7%	15.0
3054	HVAC	Air Source Heat Pump 17 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	NC	13,668	60%	8,161	0.40	18	$601	100%	50%	50%	HP-6	14%	0%	80.1%	34.7%	34.7%	15.0

Appendix A-1: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Home Type	Income Type	Replacement Type	Base Annual Electric kWh	% Elec Savings	Per Unit Elec Savings (kWh)	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
3055	HVAC	Air Source Heat Pump 17 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	MO	3,481	56%	1,960	0.27	18	$601	100%	50%	50%	HP-7	14%	0%	80.1%	34.7%	34.7%	3.9
3056	HVAC	Air Source Heat Pump 17 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	NC	3,481	56%	1,960	0.27	18	$601	100%	50%	50%	HP-8	14%	0%	80.1%	34.7%	34.7%	3.9
3057	HVAC	Air Source Heat Pump 18 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	MO	13,668	62%	8,534	0.50	18	$810	100%	37%	37%	HP-5	14%	0%	80.1%	31.7%	31.7%	11.8
3058	HVAC	Air Source Heat Pump 18 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	NC	13,668	62%	8,534	0.50	18	$810	100%	37%	37%	HP-6	14%	0%	80.1%	31.7%	31.7%	11.8
3059	HVAC	Air Source Heat Pump 18 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	MO	3,481	59%	2,061	0.34	18	$810	100%	37%	37%	HP-7	14%	0%	80.1%	31.7%	31.7%	3.1
3060	HVAC	Air Source Heat Pump 18 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	NC	3,481	59%	2,061	0.34	18	$810	100%	37%	37%	HP-8	14%	0%	80.1%	31.7%	31.7%	3.1
3061	HVAC	Ductless Heat Pump 16 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	MO	13,668	58%	7,971	0.28	18	$186	100%	100%	100%	HP-5	14%	0%	80.1%	71.2%	71.2%	29.1
3062	HVAC	Ductless Heat Pump 16 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	NC	13,668	58%	7,971	0.28	18	$186	100%	100%	100%	HP-6	14%	0%	80.1%	71.2%	71.2%	29.1
3063	HVAC	Ductless Heat Pump 16 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	MO	3,481	55%	1,901	0.19	18	$124	100%	100%	100%	HP-7	14%	0%	80.1%	71.2%	71.2%	7.3
3064	HVAC	Ductless Heat Pump 16 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	NC	3,481	55%	1,901	0.19	18	$124	100%	100%	100%	HP-8	14%	0%	80.1%	71.2%	71.2%	7.3
3065	HVAC	Ductless Heat Pump 17 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	MO	13,668	59%	8,049	0.40	18	$438	100%	68%	68%	HP-5	14%	0%	80.1%	44.0%	44.0%	20.4
3066	HVAC	Ductless Heat Pump 17 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	NC	13,668	59%	8,049	0.40	18	$438	100%	68%	68%	HP-6	14%	0%	80.1%	44.0%	44.0%	20.4
3067	HVAC	Ductless Heat Pump 17 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	MO	3,481	56%	1,934	0.27	18	$292	100%	100%	100%	HP-7	14%	0%	80.1%	71.2%	71.2%	7.7
3068	HVAC	Ductless Heat Pump 17 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	NC	3,481	56%	1,934	0.27	18	$292	100%	100%	100%	HP-8	14%	0%	80.1%	71.2%	71.2%	7.7
3069	HVAC	Ductless Heat Pump 18 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	MO	13,668	59%	8,119	0.50	18	$672	100%	45%	45%	HP-5	14%	0%	80.1%	33.4%	33.4%	13.5
3070	HVAC	Ductless Heat Pump 18 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	NC	13,668	59%	8,119	0.50	18	$672	100%	45%	45%	HP-6	14%	0%	80.1%	33.4%	33.4%	13.5
3071	HVAC	Ductless Heat Pump 18 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	MO	3,481	56%	1,963	0.34	18	$448	100%	67%	67%	HP-7	14%	0%	80.1%	43.2%	43.2%	5.3
3072	HVAC	Ductless Heat Pump 18 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	NC	3,481	57%	1,989	0.40	18	$448	100%	67%	67%	HP-8	14%	0%	80.1%	43.2%	43.2%	5.5
3073	HVAC	Ductless Heat Pump 19 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	MO	13,668	60%	8,182	0.60	18	$1,002	100%	30%	30%	HP-5	14%	0%	80.1%	30.1%	30.1%	9.2
3074	HVAC	Ductless Heat Pump 19 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	NC	13,668	60%	8,182	0.60	18	$1,002	100%	30%	30%	HP-6	14%	0%	80.1%	30.1%	30.1%	9.2
3075	HVAC	Ductless Heat Pump 19 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	MO	3,481	57%	1,989	0.40	18	$668	100%	45%	45%	HP-7	14%	0%	80.1%	33.5%	33.5%	3.7
3076	HVAC	Ductless Heat Pump 19 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	NC	3,481	57%	1,989	0.40	18	$668	100%	45%	45%	HP-8	14%	0%	80.1%	33.5%	33.5%	3.7
3077	HVAC	Ductless Heat Pump 20 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	MO	13,668	62%	8,456	0.68	18	$1,980	100%	15%	15%	HP-5	14%	0%	80.1%	23.7%	23.7%	4.8
3078	HVAC	Ductless Heat Pump 20 SEER - Furnace baseline	esidential HVAC - Equi	SF	N/A	NC	13,668	62%	8,456	0.68	18	$1,980	100%	15%	15%	HP-6	14%	0%	80.1%	23.7%	23.7%	4.8
3079	HVAC	Ductless Heat Pump 20 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	MO	3,481	59%	2,064	0.45	18	$1,320	100%	23%	23%	HP-7	14%	0%	80.1%	27.7%	27.7%	2.0
3080	HVAC	Ductless Heat Pump 20 SEER - Furnace baseline	esidential HVAC - Equi	MF	N/A	NC	3,481	59%	2,064	0.45	18	$1,320	100%	23%	23%	HP-8	14%	0%	80.1%	27.7%	27.7%	2.0
3081	HVAC	AC Tune Up	HVAC Tune-Up	SF	N/A	Retrofit	1,529	5%	76	0.11	3	$225	100%	22%	22%	AC TUNE-1	69%	44%	0.0%	0.0%	0.0%	0.1
3082	HVAC	AC Tune Up	HVAC Tune-Up	MF	N/A	Retrofit	639	5%	32	0.08	3	$225	100%	22%	22%	AC TUNE-2	69%	44%	0.0%	0.0%	0.0%	0.1
3083	HVAC	Ductless Heat Pump 16 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	MO	13,579	59%	7,959	0.28	18	$186	100%	100%	100%	HP-9	2%	0%	80.1%	71.2%	71.2%	29.1
3084	HVAC	Ductless Heat Pump 16 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	NC	13,579	59%	7,959	0.28	18	$186	100%	100%	100%	HP-10	2%	0%	80.1%	71.2%	71.2%	29.1
3085	HVAC	Ductless Heat Pump 16 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	MO	3,368	55%	1,848	0.19	18	$124	100%	100%	100%	HP-11	2%	0%	80.1%	71.2%	71.2%	7.1
3086	HVAC	Ductless Heat Pump 16 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	NC	3,368	55%	1,848	0.19	18	$124	100%	100%	100%	HP-12	2%	0%	80.1%	71.2%	71.2%	7.1
3087	HVAC	Ductless Heat Pump 17 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	MO	13,579	59%	8,033	0.40	18	$438	100%	68%	68%	HP-9	2%	0%	80.1%	44.0%	44.0%	20.3
3088	HVAC	Ductless Heat Pump 17 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	NC	13,579	59%	8,033	0.40	18	$438	100%	68%	68%	HP-10	2%	0%	80.1%	44.0%	44.0%	20.3
3089	HVAC	Ductless Heat Pump 17 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	MO	3,368	56%	1,879	0.27	18	$292	100%	100%	100%	HP-11	2%	0%	80.1%	71.2%	71.2%	7.5
3090	HVAC	Ductless Heat Pump 17 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	NC	3,368	56%	1,879	0.27	18	$292	100%	100%	100%	HP-12	2%	0%	80.1%	71.2%	71.2%	7.5
3091	HVAC	Ductless Heat Pump 18 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	MO	13,579	60%	8,099	0.50	18	$672	100%	45%	45%	HP-9	2%	0%	80.1%	33.4%	33.4%	13.5
3092	HVAC	Ductless Heat Pump 18 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	NC	13,579	60%	8,099	0.50	18	$672	100%	45%	45%	HP-10	2%	0%	80.1%	33.4%	33.4%	13.5
3093	HVAC	Ductless Heat Pump 18 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	MO	3,368	57%	1,906	0.34	18	$448	100%	67%	67%	HP-11	2%	0%	80.1%	43.2%	43.2%	5.2
3094	HVAC	Ductless Heat Pump 18 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	NC	3,368	57%	1,931	0.40	18	$448	100%	67%	67%	HP-12	2%	0%	80.1%	43.2%	43.2%	5.4
3095	HVAC	Ductless Heat Pump 19 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	MO	13,579	60%	8,158	0.60	18	$1,002	100%	30%	30%	HP-9	2%	0%	80.1%	30.1%	30.1%	9.2
3096	HVAC	Ductless Heat Pump 19 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	NC	13,579	60%	8,158	0.60	18	$1,002	100%	30%	30%	HP-10	2%	0%	80.1%	30.1%	30.1%	9.2
3097	HVAC	Ductless Heat Pump 19 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	MO	3,368	57%	1,931	0.40	18	$668	100%	45%	45%	HP-11	2%	0%	80.1%	33.5%	33.5%	3.6
3098	HVAC	Ductless Heat Pump 19 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	NC	3,368	57%	1,931	0.40	18	$668	100%	45%	45%	HP-12	2%	0%	80.1%	33.5%	33.5%	3.6
3099	HVAC	Ductless Heat Pump 20 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	MO	13,579	62%	8,429	0.68	18	$1,980	100%	15%	15%	HP-9	2%	0%	80.1%	23.7%	23.7%	4.8
3100	HVAC	Ductless Heat Pump 20 SEER - Electric baseboard baseline	esidential HVAC - Equi	SF	N/A	NC	13,579	62%	8,429	0.68	18	$1,980	100%	15%	15%	HP-10	2%	0%	80.1%	23.7%	23.7%	4.8
3101	HVAC	Ductless Heat Pump 20 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	MO	3,368	59%	2,003	0.68	18	$1,320	100%	23%	23%	HP-11	2%	0%	80.1%	27.7%	27.7%	2.1
3102	HVAC	Ductless Heat Pump 20 SEER - Electric baseboard baseline	esidential HVAC - Equi	MF	N/A	NC	3,368	59%	2,003	0.68	18	$1,320	100%	23%	23%	HP-12	2%	0%	80.1%	27.7%	27.7%	2.1
3103	HVAC	Central Air Conditioner 15 SEER	No program	SF	N/A	MO	1,529	7%	102	0.15	18	$104	100%	40%	40%	CAC-1	69%	21%	77.8%	29.2%	29.2%	2.0
3104	HVAC	Central Air Conditioner 15 SEER	No program	SF	N/A	NC	1,529	7%	102	0.15	18	$104	100%	40%	40%	CAC-2	69%	0%	80.1%	32.3%	32.3%	2.0
3105	HVAC	Central Air Conditioner 15 SEER	No program	MF	N/A	MO	639	7%	43	0.10	18	$104	100%	40%	40%	CAC-3	69%	21%	77.8%	29.2%	29.2%	1.1
3106	HVAC	Central Air Conditioner 15 SEER	No program	MF	N/A	NC	639	7%	43	0.10	18	$104	100%	40%	40%	CAC-4	69%	0%	80.1%	32.3%	32.3%	1.1
3107	HVAC	Central Air Conditioner 16 SEER	No program	SF	N/A	MO	1,529	13%	191	0.28	18	$221	100%	40%	40%	CAC-1	69%	21%	77.8%	29.2%	29.2%	1.8
3108	HVAC	Central Air Conditioner 16 SEER	No program	SF	N/A	NC	1,529	13%	191	0.28	18	$221	100%	40%	40%	CAC-2	69%	0%	80.1%	32.3%	32.3%	1.8
3109	HVAC	Central Air Conditioner 16 SEER	No program	MF	N/A	MO	639	13%	80	0.19	18	$221	100%	40%	40%	CAC-3	69%	21%	77.8%	29.2%	29.2%	1.0
3110	HVAC	Central Air Conditioner 16 SEER	No program	MF	N/A	NC	639	13%	80	0.19	18	$221	100%	40%	40%	CAC-4	69%	0%	80.1%	32.3%	32.3%	1.0
3111	HVAC	Central Air Conditioner 17 SEER	No program	SF	N/A	MO	1,529	18%	270	0.40	18	$620	100%	40%	40%	CAC-1	69%	21%	77.8%	29.2%	29.2%	0.9
3112	HVAC	Central Air Conditioner 17 SEER	No program	SF	N/A	NC	1,529	18%	270	0.40	18	$620	100%	40%	40%	CAC-2	69%	0%	80.1%	32.3%	32.3%	0.9
3113	HVAC	Central Air Conditioner 17 SEER	No program	MF	N/A	MO	639	18%	113	0.27	18	$620	100%	40%	40%	CAC-3	69%	21%	77.8%	29.2%	29.2%	0.5
3114	HVAC	Central Air Conditioner 17 SEER	No program	MF	N/A	NC	639	18%	113	0.27	18	$620	100%	40%	40%	CAC-4	69%	0%	80.1%	32.3%	32.3%	0.5
3115	HVAC	Central Air Conditioner 18 SEER	No program	SF	N/A	MO	1,529	22%	340	0.50	18	$620	100%	40%	40%	CAC-1	69%	21%	77.8%	29.2%	29.2%	1.1
3116	HVAC	Central Air Conditioner 18 SEER	No program	SF	N/A	NC	1,529	22%	340	0.50	18	$620	100%	40%	40%	CAC-2	69%	0%	80.1%	32.3%	32.3%	1.1
3117	HVAC	Central Air Conditioner 18 SEER	No program	MF	N/A	MO	639	22%	142	0.34	18	$620	100%	40%	40%	CAC-3	69%	21%	77.8%	29.2%	29.2%	0.6
3118	HVAC	Central Air Conditioner 18 SEER	No program	MF	N/A	NC	639	22%	142	0.34	18	$620	100%	40%	40%	CAC-4	69%	0%	80.1%	32.3%	32.3%	0.6
3119	HVAC	Smart Thermostat - Elec/AC	Smart Thermostat	SF	N/A	Retrofit	1,946	8%	164	0.00	15	$129	100%	39%	39%	T-STAT-1	16%	49%	0.0%	0.0%	0.0%	1.0
3120	HVAC	Smart Thermostat - Elec/AC	Smart Thermostat	SF	N/A	NC	1,946	8%	164	0.00	15	$129	100%	39%	39%	T-STAT-2	16%	0%	80.1%	32.1%	32.1%	1.0
3121	HVAC	Smart Thermostat - Elec/AC	Smart Thermostat	MF	N/A	Retrofit	738	8%	62	0.00	15	$129	100%	39%	39%	T-STAT-3	16%	49%	0.0%	0.0%	0.0%	0.4
3122	HVAC	Smart Thermostat - Elec/AC	Smart Thermostat	MF	N/A	NC	738	8%	62	0.00	15	$129	100%	39%	39%	T-STAT-4	16%	0%	80.1%	32.1%	32.1%	0.4
3123	HVAC	Smart Thermostat - HP/HP	Smart Thermostat	SF	N/A	Retrofit	1,946	8%	164	0.00	15	$129	100%	39%	39%	T-STAT-5	21%	49%	0.0%	0.0%	0.0%	1.0
3124	HVAC	Smart Thermostat - HP/HP	Smart Thermostat	SF	N/A	NC	1,946	8%	164	0.00	15	$129	100%	39%	39%	T-STAT-6	21%	0%	80.1%	32.1%	32.1%	1.0
3125	HVAC	Smart Thermostat - HP/HP	Smart Thermostat	MF	N/A	Retrofit	738	8%	62	0.00	15	$129	100%	39%	39%	T-STAT-7	21%	49%	0.0%	0.0%	0.0%	0.4
3126	HVAC	Smart Thermostat - HP/HP	Smart Thermostat	MF	N/A	NC	738	8%	62	0.00	15	$129	100%	39%	39%	T-STAT-8	21%	0%	80.1%	32.1%	32.1%	0.4

Appendix A-1: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Home Type	Income Type	Replacement Type	Base Annual Electric kWh	% Elec Savings	Per Unit Elec Savings (kWh)	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
3127	HVAC	Smart Thermostat - non-electric/AC	Smart Thermostat	SF	N/A	Retrofit	1,946	8%	164	0.00	15	$129	100%	39%	39%	T-STAT-9	59%	49%	0.0%	0.0%	0.0%	0.8
3128	HVAC	Smart Thermostat - non-electric/AC	Smart Thermostat	SF	N/A	NC	1,946	8%	164	0.00	15	$129	100%	39%	39%	T-STAT-10	59%	0%	80.1%	32.1%	32.1%	0.8
3129	HVAC	Smart Thermostat - non-electric/AC	Smart Thermostat	MF	N/A	Retrofit	738	8%	62	0.00	15	$129	100%	39%	39%	T-STAT-11	59%	0%	1.4%	1.4%	1.4%	0.3
3130	HVAC	Smart Thermostat - non-electric/AC	Smart Thermostat	MF	N/A	NC	738	8%	62	0.00	15	$129	100%	39%	39%	T-STAT-12	59%	0%	80.1%	32.1%	32.1%	0.3
3131	HVAC	Filter whistle	No program	SF	N/A	Retrofit	7,805	1%	46	0.07	5	$3	100%	40%	40%	FW-1	92%	49%	0.0%	0.0%	0.0%	12.3
3132	HVAC	Filter whistle	No program	SF	N/A	NC	7,805	1%	46	0.07	5	$3	100%	40%	40%	FW-2	92%	0%	80.1%	32.3%	32.3%	12.3
3133	HVAC	Filter whistle	No program	MF	N/A	Retrofit	2,364	1%	19	0.03	5	$3	100%	40%	40%	FW-3	92%	49%	0.0%	0.0%	0.0%	5.1
3134	HVAC	Filter whistle	No program	MF	N/A	NC	2,364	1%	19	0.03	5	$3	100%	40%	40%	FW-4	92%	0%	80.1%	32.3%	32.3%	5.1
3135	HVAC	ENERGY STAR Room Air Conditioner	No program	SF	N/A	MO	408	8%	32	0.07	12	$40	100%	40%	40%	RAC-1	15%	53%	72.9%	49.1%	49.1%	1.6
3136	HVAC	ENERGY STAR Room Air Conditioner	No program	SF	N/A	NC	408	8%	32	0.07	12	$40	100%	40%	40%	RAC-2	15%	0%	80.1%	32.3%	32.3%	1.6
3137	HVAC	ENERGY STAR Room Air Conditioner	No program	MF	N/A	MO	408	8%	32	0.07	12	$40	100%	40%	40%	RAC-3	15%	53%	72.9%	49.1%	49.1%	1.6
3138	HVAC	ENERGY STAR Room Air Conditioner	No program	MF	N/A	NC	408	8%	32	0.07	12	$40	100%	40%	40%	RAC-4	15%	0%	80.1%	32.3%	32.3%	1.6
3139	HVAC	Smart Room AC	No program	SF	N/A	MO	408	3%	12	0.02	12	$40	100%	40%	40%	RAC-1	15%	53%	72.9%	49.1%	49.1%	0.5
3140	HVAC	Smart Room AC	No program	SF	N/A	NC	408	3%	12	0.02	12	$40	100%	40%	40%	RAC-2	15%	0%	80.1%	32.3%	32.3%	0.5
3141	HVAC	Smart Room AC	No program	MF	N/A	MO	408	3%	12	0.02	12	$40	100%	40%	40%	RAC-3	15%	53%	72.9%	49.1%	49.1%	0.5
3142	HVAC	Smart Room AC	No program	MF	N/A	NC	408	3%	12	0.02	12	$40	100%	40%	40%	RAC-4	15%	0%	80.1%	32.3%	32.3%	0.5
3143	HVAC	Room AC Recycling	No program	SF	N/A	Recycle	314	100%	314	0.21	4	$25	100%	40%	40%	RACR-1	4%	0%	80.1%	32.3%	32.3%	4.8
3144	HVAC	Room AC Recycling	No program	MF	N/A	Recycle	314	100%	314	0.21	4	$25	100%	40%	40%	RACR-2	4%	0%	80.1%	32.3%	32.3%	4.8
3145	HVAC	Smart Vents/Sensors - Heat pump baseline	No program	SF	N/A	Retrofit	7,805	5%	390	0.11	15	$1,625	100%	40%	40%	SVS-1	21%	23%	0.0%	0.0%	0.0%	0.2
3146	HVAC	Smart Vents/Sensors - Heat pump baseline	No program	SF	N/A	NC	7,805	5%	390	0.11	15	$1,625	100%	40%	40%	SVS-2	21%	0%	80.1%	32.3%	32.3%	0.2
3147	HVAC	Smart Vents/Sensors - Heat pump baseline	No program	MF	N/A	Retrofit	2,364	5%	118	0.08	15	$1,040	100%	40%	40%	SVS-3	21%	23%	0.0%	0.0%	0.0%	0.1
3148	HVAC	Smart Vents/Sensors - Heat pump baseline	No program	MF	N/A	NC	2,364	5%	118	0.08	15	$1,040	100%	40%	40%	SVS-4	21%	0%	80.1%	32.3%	32.3%	0.1
3149	HVAC	Smart Vents/Sensors - Furnace baseline	No program	SF	N/A	Retrofit	13,668	5%	683	0.11	15	$1,625	100%	40%	40%	SVS-5	16%	23%	0.0%	0.0%	0.0%	0.5
3150	HVAC	Smart Vents/Sensors - Furnace baseline	No program	SF	N/A	NC	13,668	5%	683	0.11	15	$1,625	100%	40%	40%	SVS-6	16%	0%	80.1%	32.3%	32.3%	0.5
3151	HVAC	Smart Vents/Sensors - Furnace baseline	No program	MF	N/A	Retrofit	3,481	5%	174	0.08	15	$1,040	100%	40%	40%	SVS-7	16%	23%	0.0%	0.0%	0.0%	0.2
3152	HVAC	Smart Vents/Sensors - Furnace baseline	No program	MF	N/A	NC	3,481	5%	174	0.08	15	$1,040	100%	40%	40%	SVS-8	16%	0%	80.1%	32.3%	32.3%	0.2
3153	HVAC	Smart Vents/Sensors - Gas/CAC baseline	No program	SF	N/A	Retrofit	1,946	5%	97	0.11	15	$1,625	100%	40%	40%	SVS-9	59%	23%	0.0%	0.0%	0.0%	0.1
3154	HVAC	Smart Vents/Sensors - Gas/CAC baseline	No program	SF	N/A	NC	1,946	5%	97	0.11	15	$1,625	100%	40%	40%	SVS-10	59%	0%	80.1%	32.3%	32.3%	0.1
3155	HVAC	Smart Vents/Sensors - Gas/CAC baseline	No program	MF	N/A	Retrofit	738	5%	37	0.08	15	$1,040	100%	40%	40%	SVS-11	59%	23%	0.0%	0.0%	0.0%	0.1
3156	HVAC	Smart Vents/Sensors - Gas/CAC baseline	No program	MF	N/A	NC	738	5%	37	0.08	15	$1,040	100%	40%	40%	SVS-12	59%	0%	80.1%	32.3%	32.3%	0.1
3157	HVAC	Whole House Attic Fan	No program	SF	N/A	Retrofit	1,529	18%	275	0.41	15	$711	100%	40%	40%	WHAF-1	94%	7%	0.0%	0.0%	0.0%	0.7
3158	HVAC	Whole House Attic Fan	No program	SF	N/A	NC	1,529	18%	275	0.41	15	$711	100%	40%	40%	WHAF-2	94%	0%	80.1%	32.3%	32.3%	0.7
3159	HVAC	Whole House Attic Fan	No program	MF	N/A	Retrofit	639	18%	115	0.27	15	$711	100%	40%	40%	WHAF-3	94%	7%	0.0%	0.0%	0.0%	0.4
3160	HVAC	Whole House Attic Fan	No program	MF	N/A	NC	639	18%	115	0.27	15	$711	100%	40%	40%	WHAF-4	94%	0%	80.1%	32.3%	32.3%	0.4
3161	HVAC	Attic Fan	No program	SF	N/A	Retrofit	1,529	8%	122	0.18	15	$125	100%	40%	40%	WHAF-1	94%	8%	0.0%	0.0%	0.0%	1.7
3162	HVAC	Attic Fan	No program	SF	N/A	NC	1,529	8%	122	0.18	15	$125	100%	40%	40%	WHAF-2	94%	0%	80.1%	32.3%	32.3%	1.7
3163	HVAC	Attic Fan	No program	MF	N/A	Retrofit	639	8%	51	0.12	15	$125	100%	40%	40%	WHAF-3	94%	8%	0.0%	0.0%	0.0%	1.0
3164	HVAC	Attic Fan	No program	MF	N/A	NC	639	8%	51	0.12	15	$125	100%	40%	40%	WHAF-4	90%	0%	80.1%	32.3%	32.3%	1.0
3165	HVAC	ENERGY STAR Bath Vent Fan	No program	SF	N/A	Retrofit	49	61%	30	0.02	19	$44	100%	40%	40%	BATH FAN-1	100%	51%	0.0%	0.0%	0.0%	1.1
3166	HVAC	ENERGY STAR Bath Vent Fan	No program	SF	N/A	NC	49	61%	30	0.02	19	$44	100%	40%	40%	BATH FAN-2	100%	0%	80.1%	32.3%	32.3%	1.1
3167	HVAC	ENERGY STAR Bath Vent Fan	No program	MF	N/A	Retrofit	49	61%	30	0.02	19	$44	100%	40%	40%	BATH FAN-3	100%	51%	0.0%	0.0%	0.0%	1.1
3168	HVAC	ENERGY STAR Bath Vent Fan	No program	MF	N/A	NC	49	61%	30	0.02	19	$44	100%	40%	40%	BATH FAN-4	100%	0%	80.1%	32.3%	32.3%	1.1
3169	HVAC	Energy Recovery Ventilator - Heat Pump	No program	SF	N/A	Retrofit	7,805	42%	3,317	0.26	15	$3,000	100%	40%	40%	ERV-1	21%	0%	1.4%	1.4%	1.4%	0.9
3170	HVAC	Energy Recovery Ventilator - Electric Resistance	No program	SF	N/A	Retrofit	13,668	32%	4,396	0.34	15	$3,000	100%	40%	40%	ERV-2	16%	0%	1.4%	1.4%	1.4%	1.5
3171	HVAC	Energy Recovery Ventilator - Heat Pump	No program	SF	N/A	NC	7,805	42%	3,317	0.26	15	$3,000	100%	40%	40%	ERV-3	21%	0%	80.1%	32.3%	32.3%	0.9
3172	HVAC	Energy Recovery Ventilator - Electric Resistance	No program	SF	N/A	NC	13,668	32%	4,396	0.34	15	$3,000	100%	40%	40%	ERV-4	16%	0%	80.1%	32.3%	32.3%	1.5
3173	HVAC	Energy Recovery Ventilator - Heat Pump	No program	MF	N/A	Retrofit	2,364	77%	1,815	0.14	15	$3,000	100%	40%	40%	ERV-5	21%	0%	1.4%	1.4%	1.4%	0.5
3174	HVAC	Energy Recovery Ventilator - Electric Resistance	No program	MF	N/A	Retrofit	3,481	69%	2,404	0.19	15	$3,000	100%	40%	40%	ERV-6	16%	0%	1.4%	1.4%	1.4%	0.8
3175	HVAC	Energy Recovery Ventilator - Heat Pump	No program	MF	N/A	NC	2,364	77%	1,815	0.14	15	$3,000	100%	40%	40%	ERV-7	21%	0%	80.1%	32.3%	32.3%	0.5
3176	HVAC	Energy Recovery Ventilator - Electric Resistance	No program	MF	N/A	NC	3,481	69%	2,404	0.19	15	$3,000	100%	40%	40%	ERV-8	16%	0%	80.1%	32.3%	32.3%	0.8
4001	Lighting	LED Standard	No program	SF	N/A	Retrofit	37	43%	16	0.00	15	$2	100%	59%	59%	STAN-1	3003%	47%	0.0%	0.0%	0.0%	7.5
4002	Lighting	LED Standard	No program	SF	N/A	Retrofit	37	43%	16	0.00	15	$2	100%	59%	59%	STAN-1	3003%	0%	1.4%	1.4%	1.4%	7.5
4003	Lighting	LED Standard	No program	SF	N/A	NC	37	43%	16	0.00	15	$2	100%	59%	59%	STAN-2	1915%	0%	85.7%	46.3%	46.3%	7.5
4004	Lighting	LED Standard	No program	SF	N/A	NC	37	43%	16	0.00	15	$2	100%	59%	59%	STAN-2	1915%	0%	85.7%	46.3%	46.3%	7.5
4005	Lighting	LED Standard	No program	MF	N/A	Retrofit	37	43%	16	0.00	15	$2	100%	59%	59%	STAN-3	738%	47%	0.0%	0.0%	0.0%	8.3
4006	Lighting	LED Standard	No program	MF	N/A	Retrofit	37	43%	16	0.00	15	$2	100%	59%	59%	STAN-3	738%	47%	0.0%	0.0%	0.0%	8.3
4007	Lighting	LED Standard	No program	MF	N/A	NC	37	43%	16	0.00	15	$2	100%	59%	59%	STAN-4	738%	0%	85.7%	46.3%	46.3%	8.3
4008	Lighting	LED Standard	No program	MF	N/A	NC	37	43%	16	0.00	15	$2	100%	59%	59%	STAN-4	738%	0%	85.7%	46.3%	46.3%	8.3
4009	Lighting	LED Reflector	No program	SF	N/A	Retrofit	65	75%	49	0.04	15	$3	100%	40%	40%	REFL-1	738%	47%	0.0%	0.0%	0.0%	25.4
4010	Lighting	LED Reflector	No program	SF	N/A	Retrofit	65	75%	49	0.04	15	$3	100%	40%	40%	REFL-1	738%	47%	0.0%	0.0%	0.0%	25.3
4011	Lighting	LED Reflector	No program	SF	N/A	NC	65	75%	49	0.04	15	$3	100%	40%	40%	REFL-2	738%	0%	85.7%	36.6%	36.6%	25.3
4012	Lighting	LED Reflector	No program	SF	N/A	NC	65	75%	49	0.04	15	$3	100%	40%	40%	REFL-2	738%	0%	85.7%	36.6%	36.6%	25.3
4013	Lighting	LED Reflector	No program	MF	N/A	Retrofit	65	75%	49	0.04	15	$3	100%	40%	40%	REFL-3	738%	0%	1.4%	1.4%	1.4%	25.3
4014	Lighting	LED Reflector	No program	MF	N/A	Retrofit	65	75%	49	0.04	15	$3	100%	40%	40%	REFL-3	738%	0%	1.4%	1.4%	1.4%	25.3
4015	Lighting	LED Reflector	No program	MF	N/A	NC	65	75%	49	0.04	15	$3	100%	40%	40%	REFL-4	471%	0%	85.7%	36.6%	36.6%	25.3
4016	Lighting	LED Reflector	No program	MF	N/A	NC	65	75%	49	0.04	15	$3	100%	40%	40%	REFL-4	471%	0%	85.7%	36.6%	36.6%	25.3
4017	Lighting	LED Specialty	No program	SF	N/A	Retrofit	44	75%	33	0.02	15	$2	100%	100%	100%	SPEC-1	471%	47%	0.0%	0.0%	0.0%	24.1
4018	Lighting	LED Specialty	No program	SF	N/A	Retrofit	44	75%	33	0.02	15	$2	100%	100%	100%	SPEC-1	471%	47%	0.0%	0.0%	0.0%	24.3
4019	Lighting	LED Specialty	No program	SF	N/A	NC	44	75%	33	0.02	15	$2	100%	100%	100%	SPEC-2	471%	0%	85.7%	76.2%	76.2%	24.1
4020	Lighting	LED Specialty	No program	SF	N/A	NC	44	75%	33	0.02	15	$2	100%	100%	100%	SPEC-2	471%	0%	85.7%	76.2%	76.2%	24.1
4021	Lighting	LED Specialty	No program	MF	N/A	Retrofit	44	75%	33	0.02	15	$2	100%	100%	100%	SPEC-3	471%	47%	0.0%	0.0%	0.0%	24.1
4022	Lighting	LED Specialty	No program	MF	N/A	Retrofit	44	75%	33	0.02	15	$2	100%	100%	100%	SPEC-3	471%	0%	1.4%	1.4%	1.4%	24.1

Appendix A-1: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Home Type	Income Type	Replacement Type	Base Annual Electric kWh	% Elec Savings	Per Unit Elec Savings (kWh)	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
4023	Lighting	LED Specialty	No program	MF	N/A	NC	44	75%	33	0.02	15	$2	100%	100%	100%	SPEC-4	471%	0%	85.7%	76.2%	76.2%	24.1
4024	Lighting	LED Specialty	No program	MF	N/A	NC	44	75%	33	0.02	15	$2	100%	100%	100%	SPEC-4	471%	0%	85.7%	76.2%	76.2%	24.1
4025	Lighting	Exterior LED Lamp	No program	SF	N/A	MO	197	77%	152	0.00	20	$26	100%	40%	40%	EXT-1	503%	47%	81.3%	44.6%	44.6%	6.4
4026	Lighting	Exterior LED Lamp	No program	SF	N/A	NC	60	25%	15	0.00	20	$3	100%	40%	40%	EXT-2	503%	0%	85.7%	36.6%	36.6%	6.8
4027	Lighting	Exterior LED Lamp	No program	MF	N/A	MO	197	77%	152	0.00	20	$26	100%	40%	40%	EXT-3	289%	47%	81.3%	44.6%	44.6%	6.1
4028	Lighting	Exterior LED Lamp	No program	MF	N/A	NC	60	25%	15	0.00	20	$3	100%	40%	40%	EXT-4	289%	0%	85.7%	36.6%	36.6%	7.8
4029	Lighting	LED Nightlights	No program	SF	N/A	MO	31	96%	30	0.00	8	$3	100%	40%	40%	NIGHT-1	40%	47%	81.3%	44.6%	44.6%	5.0
4030	Lighting	LED Nightlights	No program	SF	N/A	NC	31	96%	30	0.00	8	$3	100%	40%	40%	NIGHT-2	40%	0%	85.7%	36.6%	36.6%	5.0
4031	Lighting	LED Nightlights	No program	MF	N/A	MO	31	96%	30	0.00	8	$3	100%	40%	40%	NIGHT-3	40%	47%	81.3%	44.6%	44.6%	5.0
4032	Lighting	LED Nightlights	No program	MF	N/A	NC	31	96%	30	0.00	8	$3	100%	40%	40%	NIGHT-4	40%	0%	85.7%	36.6%	36.6%	5.0
4033	Lighting	Ceiling Fan	No program	SF	N/A	MO	110	75%	82	0.00	10	$46	100%	40%	40%	CEIL-1	94%	47%	81.3%	44.6%	44.6%	0.9
4034	Lighting	Ceiling Fan	No program	SF	N/A	NC	110	75%	82	0.00	10	$46	100%	40%	40%	CEIL-2	94%	0%	85.7%	36.6%	36.6%	0.9
4035	Lighting	Ceiling Fan	No program	MF	N/A	MO	110	75%	82	0.00	10	$46	100%	40%	40%	CEIL-3	94%	47%	81.3%	44.6%	44.6%	1.1
4036	Lighting	Ceiling Fan	No program	MF	N/A	NC	110	75%	82	0.00	10	$46	100%	40%	40%	CEIL-4	94%	0%	85.7%	36.6%	36.6%	1.1
4037	Lighting	LED 3-Way Bulb	No program	SF	N/A	MO	11	75%	9	0.00	15	$3	100%	40%	40%	STAN-1	3003%	47%	81.3%	44.6%	44.6%	3.0
4038	Lighting	LED 3-Way Bulb	No program	SF	N/A	NC	11	75%	9	0.00	15	$3	100%	40%	40%	STAN-2	3003%	0%	85.7%	36.6%	36.6%	3.0
4039	Lighting	LED 3-Way Bulb	No program	MF	N/A	MO	11	75%	9	0.00	15	$3	100%	40%	40%	STAN-3	1915%	47%	81.3%	44.6%	44.6%	3.0
4040	Lighting	LED 3-Way Bulb	No program	MF	N/A	NC	11	75%	9	0.00	15	$3	100%	40%	40%	STAN-4	1915%	0%	85.7%	36.6%	36.6%	3.0
4041	Lighting	Linear LED	No program	SF	N/A	MO	23	44%	10	0.01	9	$7	100%	40%	40%	LINEAR-1	509%	47%	81.3%	44.6%	44.6%	1.9
4042	Lighting	Linear LED	No program	SF	N/A	NC	23	44%	10	0.01	9	$3	100%	40%	40%	LINEAR-2	509%	0%	85.7%	36.6%	36.6%	5.3
4043	Lighting	Linear LED	No program	MF	N/A	MO	23	44%	10	0.01	9	$7	100%	40%	40%	LINEAR-3	325%	47%	81.3%	44.6%	44.6%	1.9
4044	Lighting	Linear LED	No program	MF	N/A	NC	23	44%	10	0.01	9	$3	100%	40%	40%	LINEAR-4	325%	0%	85.7%	36.6%	36.6%	5.3
4045	Lighting	Smart LED	No program	SF	N/A	MO	19	10%	2	0.00	10	$2	100%	40%	40%	STAN-1	3003%	47%	81.3%	44.6%	44.6%	0.7
4046	Lighting	Smart LED	No program	SF	N/A	NC	19	10%	2	0.00	10	$2	100%	40%	40%	STAN-2	3003%	0%	85.7%	36.6%	36.6%	0.7
4047	Lighting	Smart LED	No program	MF	N/A	MO	19	10%	2	0.00	10	$2	100%	40%	40%	STAN-3	1915%	47%	81.3%	44.6%	44.6%	0.7
4048	Lighting	Smart LED	No program	MF	N/A	NC	19	10%	2	0.00	10	$2	100%	40%	40%	STAN-4	1915%	0%	85.7%	36.6%	36.6%	0.7
4049	Lighting	Occupancy Sensor	No program	SF	N/A	Retrofit	124	30%	37	0.05	10	$30	100%	40%	40%	OCC-1	1047%	31%	0.0%	0.0%	0.0%	1.7
4050	Lighting	Occupancy Sensor	No program	SF	N/A	NC	124	30%	37	0.05	10	$30	100%	40%	40%	OCC-2	1047%	0%	85.7%	36.6%	36.6%	1.7
4051	Lighting	Occupancy Sensor	No program	MF	N/A	Retrofit	124	30%	37	0.05	10	$30	100%	40%	40%	OCC-3	1047%	31%	0.0%	0.0%	0.0%	1.7
4052	Lighting	Occupancy Sensor	No program	MF	N/A	NC	124	30%	37	0.05	10	$30	100%	40%	40%	OCC-4	1047%	0%	85.7%	36.6%	36.6%	1.7
4053	Lighting	Smart Lighting Switch	No program	SF	N/A	Retrofit	124	17%	21	0.05	10	$43	100%	40%	40%	OCC-1	668%	31%	0.0%	0.0%	0.0%	0.9
4054	Lighting	Smart Lighting Switch	No program	SF	N/A	NC	124	17%	21	0.05	10	$43	100%	40%	40%	OCC-2	668%	0%	85.7%	36.6%	36.6%	0.9
4055	Lighting	Smart Lighting Switch	No program	MF	N/A	Retrofit	124	17%	21	0.05	10	$43	100%	40%	40%	OCC-3	668%	31%	0.0%	0.0%	0.0%	0.9
4056	Lighting	Smart Lighting Switch	No program	MF	N/A	NC	124	17%	21	0.05	10	$43	100%	40%	40%	OCC-4	668%	0%	85.7%	36.6%	36.6%	0.9
4057	Lighting	Exterior Lighting Controls	No program	SF	N/A	Retrofit	146	44%	65	0.03	10	$30	100%	40%	40%	ELC-1	252%	31%	0.0%	0.0%	0.0%	2.1
4058	Lighting	Exterior Lighting Controls	No program	SF	N/A	NC	146	44%	65	0.03	10	$30	100%	40%	40%	ELC-2	252%	0%	85.7%	36.6%	36.6%	2.1
4059	Lighting	Exterior Lighting Controls	No program	MF	N/A	Retrofit	146	44%	65	0.03	10	$30	100%	40%	40%	ELC-3	145%	31%	0.0%	0.0%	0.0%	1.8
4060	Lighting	Exterior Lighting Controls	No program	MF	N/A	NC	146	44%	65	0.03	10	$30	100%	40%	40%	ELC-4	145%	0%	85.7%	36.6%	36.6%	1.8
5001	Pool/Pump	Variable Speed Pool Pump	No program	SF	N/A	MO	1,167	26%	308	0.22	7	$314	100%	40%	40%	PUMP-1	12%	29%	83.3%	33.3%	33.3%	0.7
5002	Pool/Pump	Variable Speed Pool Pump	No program	SF	N/A	NC	1,167	26%	308	0.22	7	$314	100%	40%	40%	PUMP-2	12%	0%	85.7%	36.6%	36.6%	0.7
5003	Pool/Pump	Variable Speed Pool Pump	No program	MF	N/A	MO	1,167	26%	308	0.22	7	$314	100%	40%	40%	PUMP-3	12%	29%	83.3%	33.3%	33.3%	0.7
5004	Pool/Pump	Variable Speed Pool Pump	No program	MF	N/A	NC	1,167	26%	308	0.22	7	$314	100%	40%	40%	PUMP-4	12%	0%	85.7%	36.6%	36.6%	0.7
5005	Pool/Pump	Pool Timer	No program	SF	N/A	MO	1,167	40%	467	0.00	2	$25	100%	40%	40%	PTIMER-1	12%	29%	83.3%	33.3%	33.3%	2.8
5006	Pool/Pump	Pool Timer	No program	SF	N/A	NC	1,167	40%	467	0.00	2	$25	100%	40%	40%	PTIMER-2	12%	0%	85.7%	36.6%	36.6%	2.8
5007	Pool/Pump	Pool Timer	No program	MF	N/A	MO	1,167	40%	467	0.00	2	$25	100%	40%	40%	PTIMER-3	12%	29%	83.3%	33.3%	33.3%	2.8
5008	Pool/Pump	Pool Timer	No program	MF	N/A	NC	1,167	40%	467	0.00	2	$25	100%	40%	40%	PTIMER-4	12%	0%	85.7%	36.6%	36.6%	2.8
5009	Pool/Pump	Pool Heater (COP 5.5-5.9)	No program	SF	N/A	MO	2,364	38%	900	0.00	8	$1,250	100%	40%	40%	POOL HEATER	1%	1%	85.6%	36.2%	36.2%	0.4
5010	Pool/Pump	Pool Heater (COP >= 6.0)	No program	SF	N/A	MO	2,364	52%	1,234	0.00	8	$1,250	100%	40%	40%	POOL HEATER	1%	1%	85.6%	36.2%	36.2%	0.5
5011	Pool/Pump	Pool Heater (COP 5.5-5.9)	No program	SF	N/A	NC	2,364	38%	900	0.00	8	$1,250	100%	40%	40%	POOL HEATER	1%	0%	85.7%	36.6%	36.6%	0.4
5012	Pool/Pump	Pool Heater (COP >= 6.0)	No program	SF	N/A	NC	2,364	52%	1,234	0.00	8	$1,250	100%	40%	40%	POOL HEATER	1%	0%	85.7%	36.6%	36.6%	0.5
5013	Pool/Pump	Pool Heater (COP 5.5-5.9)	No program	MF	N/A	MO	2,364	38%	900	0.00	8	$1,250	100%	40%	40%	POOL HEATER	1%	1%	85.6%	36.2%	36.2%	0.4
5014	Pool/Pump	Pool Heater (COP >= 6.0)	No program	MF	N/A	MO	2,364	52%	1,234	0.00	8	$1,250	100%	40%	40%	POOL HEATER	1%	1%	85.6%	36.2%	36.2%	0.5
5015	Pool/Pump	Pool Heater (COP 5.5-5.9)	No program	MF	N/A	NC	2,364	38%	900	0.00	8	$1,250	100%	40%	40%	POOL HEATER	1%	0%	85.7%	36.6%	36.6%	0.4
5016	Pool/Pump	Pool Heater (COP >= 6.0)	No program	MF	N/A	NC	2,364	52%	1,234	0.00	8	$1,250	100%	40%	40%	POOL HEATER	1%	0%	85.7%	36.6%	36.6%	0.5
5017	Pool/Pump	Well Pump	No program	SF	N/A	MO	411	33%	136	0.02	20	$110	100%	40%	40%	WELL-1	5%	29%	83.3%	33.3%	33.3%	1.4
5018	Pool/Pump	Well Pump	No program	SF	N/A	NC	411	33%	136	0.02	20	$110	100%	40%	40%	WELL-2	5%	0%	85.7%	36.6%	36.6%	1.4
5019	Pool/Pump	Well Pump	No program	MF	N/A	MO	411	33%	136	0.02	20	$110	100%	40%	40%	WELL-3	0%	29%	4.2%	4.2%	4.2%	1.4
5020	Pool/Pump	Well Pump	No program	MF	N/A	NC	411	33%	136	0.02	20	$110	100%	40%	40%	WELL-4	0%	0%	0.0%	0.0%	0.0%	1.4
6001	New Construction	Platinum Plus (Electric)	ential New Constructio	SF	N/A	NC	18,348	22%	4,027	1.06	25	$2,696	100%	40%	40%	NC-1	40%	0%	81.9%	34.0%	34.0%	2.1
6002	New Construction	Platinum Plus (Dual Fuel)	ential New Constructio	SF	N/A	NC	12,488	5%	565	0.25	25	$2,696	100%	40%	40%	NC-2	60%	0%	81.9%	34.0%	34.0%	1.1
6003	New Construction	Platinum Plus (Electric)	ential New Constructio	MF	N/A	NC	12,059	33%	4,027	1.06	25	$2,696	100%	40%	40%	NC-3	40%	0%	81.9%	34.0%	34.0%	2.2
6004	New Construction	Platinum Plus (Dual Fuel)	ential New Constructio	MF	N/A	NC	10,433	5%	565	0.25	25	$2,696	100%	40%	40%	NC-4	60%	0%	81.9%	34.0%	34.0%	1.1
7001	Plug Loads	Smart Power Strips - Tier 1	No program	SF	N/A	Retrofit	466	5%	25	0.00	4	$10	100%	40%	40%	POWER STRIP	150%	23%	0.0%	0.0%	0.0%	0.8
7002	Plug Loads	Smart Power Strips - Tier 1	No program	SF	N/A	NC	466	5%	25	0.00	4	$10	100%	40%	40%	POWER STRIP	150%	0%	85.7%	36.6%	36.6%	0.8
7003	Plug Loads	Smart Power Strips - Tier 1	No program	MF	N/A	Retrofit	466	5%	25	0.00	4	$10	100%	40%	40%	POWER STRIP	150%	23%	0.0%	0.0%	0.0%	0.8
7004	Plug Loads	Smart Power Strips - Tier 1	No program	MF	N/A	NC	466	5%	25	0.00	4	$10	100%	40%	40%	POWER STRIP	150%	0%	85.7%	36.6%	36.6%	0.8
7005	Plug Loads	Smart Power Strips - Tier 2	No program	SF	N/A	Retrofit	466	29%	136	0.02	4	$60	100%	40%	40%	POWER STRIP	100%	23%	0.0%	0.0%	0.0%	0.7
7006	Plug Loads	Smart Power Strips - Tier 2	No program	SF	N/A	NC	466	29%	136	0.02	4	$60	100%	40%	40%	POWER STRIP	100%	0%	85.7%	36.6%	36.6%	0.7
7007	Plug Loads	Smart Power Strips - Tier 2	No program	MF	N/A	Retrofit	466	29%	136	0.02	4	$60	100%	40%	40%	POWER STRIP	100%	23%	0.0%	0.0%	0.0%	0.7
7008	Plug Loads	Smart Power Strips - Tier 2	No program	MF	N/A	NC	466	29%	136	0.02	4	$60	100%	40%	40%	POWER STRIP	100%	0%	85.7%	36.6%	36.6%	0.7
7009	Plug Loads	Smart Television	No program	SF	N/A	MO	83	20%	17	0.00	6	$0	100%	40%	40%	TV-1	255%	40%	76.3%	20.0%	20.0%	1.0
7010	Plug Loads	Smart Television	No program	SF	N/A	NC	83	20%	17	0.00	6	$0	100%	40%	40%	TV-2	255%	0%	85.7%	36.6%	36.6%	1.0

Appendix A-1: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Home Type	Income Type	Replacement Type	Base Annual Electric kWh	% Elec Savings	Per Unit Elec Savings (kWh)	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
7011	Plug Loads	Smart Television	No program	MF	N/A	MO	83	20%	17	0.00	6	$0	100%	40%	40%	TV-3	255%	40%	76.3%	20.0%	20.0%	1.0
7012	Plug Loads	Smart Television	No program	MF	N/A	NC	83	20%	17	0.00	6	$0	100%	40%	40%	TV-4	255%	0%	85.7%	36.6%	36.6%	1.0
7013	Plug Loads	Smart Outlets	No program	SF	N/A	Retrofit	466	6%	28	0.00	7	$50	100%	40%	40%	OUTLET-1	100%	23%	0.0%	0.0%	0.0%	0.3
7014	Plug Loads	Smart Outlets	No program	SF	N/A	NC	466	6%	28	0.00	7	$50	100%	40%	40%	OUTLET-2	100%	0%	85.7%	36.6%	36.6%	0.3
7015	Plug Loads	Smart Outlets	No program	MF	N/A	Retrofit	466	6%	28	0.00	7	$50	100%	40%	40%	OUTLET-3	100%	23%	0.0%	0.0%	0.0%	0.3
7016	Plug Loads	Smart Outlets	No program	MF	N/A	NC	466	6%	28	0.00	7	$50	100%	40%	40%	OUTLET-4	100%	0%	85.7%	36.6%	36.6%	0.3
8001	Shell	Advanced Walls - Electric Only	Residential HVAC - Shel	SF	N/A	Retrofit	11,777	10%	1,178	0.23	20	$2,470	100%	40%	40%	WALL-1	40%	80%	0.0%	0.0%	0.0%	0.6
8002	Shell	Advanced Walls - Electric Only	Residential HVAC - Shel	MF	N/A	Retrofit	3,034	10%	303	0.23	20	$1,581	100%	40%	40%	WALL-2	40%	80%	0.0%	0.0%	0.0%	0.4
8003	Shell	Advanced Walls - Dual (non-electric heated)	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	10%	195	0.23	20	$2,470	100%	40%	40%	WALL-3	59%	80%	0.0%	0.0%	0.0%	0.1
8004	Shell	Advanced Walls - Dual (non-electric heated)	Residential HVAC - Shel	MF	N/A	Retrofit	738	10%	74	0.23	20	$1,581	100%	40%	40%	WALL-4	59%	80%	0.0%	0.0%	0.0%	0.2
8005	Shell	Air Sealing Average Sealing - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	11%	876	0.18	15	$200	100%	40%	40%	AIR SEAL-1	21%	76%	0.0%	0.0%	0.0%	4.2
8006	Shell	Air Sealing Average Sealing - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	17%	405	0.09	15	$200	100%	40%	40%	AIR SEAL-2	21%	76%	0.0%	0.0%	0.0%	2.0
8007	Shell	Air Sealing Inadequate Sealing - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	13%	1,032	0.25	15	$200	100%	40%	40%	AIR SEAL-3	21%	90%	0.0%	0.0%	0.0%	5.1
8008	Shell	Air Sealing Inadequate Sealing - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	20%	477	0.13	15	$200	100%	40%	40%	AIR SEAL-4	21%	90%	0.0%	0.0%	0.0%	2.4
8009	Shell	Air Sealing Poor Sealing - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	19%	1,452	0.39	15	$200	100%	40%	40%	AIR SEAL-5	21%	96%	0.0%	0.0%	0.0%	7.3
8010	Shell	Air Sealing Poor Sealing - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	28%	671	0.19	15	$200	100%	40%	40%	AIR SEAL-6	21%	96%	0.0%	0.0%	0.0%	3.4
8011	Shell	Air Sealing Average Sealing - Electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	11,777	14%	1,611	0.21	15	$200	100%	40%	40%	AIR SEAL-7	16%	76%	0.0%	0.0%	0.0%	8.4
8012	Shell	Air Sealing Average Sealing - Electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	3,034	24%	737	0.11	15	$200	100%	40%	40%	AIR SEAL-8	16%	76%	0.0%	0.0%	0.0%	3.9
8013	Shell	Air Sealing Inadequate Sealing - Electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	11,777	16%	1,860	0.29	15	$200	100%	40%	40%	AIR SEAL-9	16%	90%	0.0%	0.0%	0.0%	9.9
8014	Shell	Air Sealing Inadequate Sealing - Electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	3,034	28%	851	0.15	15	$200	100%	40%	40%	AIR SEAL-10	16%	90%	0.0%	0.0%	0.0%	4.6
8015	Shell	Air Sealing Poor Sealing - Electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	11,777	20%	2,328	0.38	15	$200	100%	40%	40%	AIR SEAL-11	16%	96%	0.0%	0.0%	0.0%	12.4
8016	Shell	Air Sealing Poor Sealing - Electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	3,034	35%	1,065	0.19	15	$200	100%	40%	40%	AIR SEAL-12	16%	96%	0.0%	0.0%	0.0%	5.8
8017	Shell	Air Sealing - Average Sealing - non-electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	7%	137	0.35	15	$200	100%	40%	40%	AIR SEAL-13	59%	76%	0.0%	0.0%	0.0%	1.8
8018	Shell	Air Sealing - Average Sealing - non-electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	738	10%	72	0.18	15	$200	100%	40%	40%	AIR SEAL-14	59%	76%	0.0%	0.0%	0.0%	0.9
8019	Shell	Air Sealing - Inadequate Sealing - non-electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	13%	245	0.39	15	$200	100%	40%	40%	AIR SEAL-15	59%	90%	0.0%	0.0%	0.0%	2.3
8020	Shell	Air Sealing - Inadequate Sealing - non-electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	738	18%	129	0.20	15	$200	100%	40%	40%	AIR SEAL-16	59%	90%	0.0%	0.0%	0.0%	1.2
8021	Shell	Air Sealing - Poor Sealing - non-electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	9%	170	0.31	15	$200	100%	40%	40%	AIR SEAL-17	59%	96%	0.0%	0.0%	0.0%	1.7
8022	Shell	Air Sealing - Poor Sealing - non-electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	738	12%	89	0.16	15	$200	100%	40%	40%	AIR SEAL-18	59%	96%	0.0%	0.0%	0.0%	0.9
8023	Shell	Attic Insulation - Electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	11,777	18%	2,175	0.05	20	$898	100%	40%	40%	ATTIC-1	40%	73%	0.0%	0.0%	0.0%	2.8
8024	Shell	Attic Insulation - Electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	3,034	18%	560	0.01	20	$575	100%	40%	40%	ATTIC-2	40%	73%	0.0%	0.0%	0.0%	1.1
8025	Shell	Duct Sealing - Electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	11,777	9%	1,014	0.04	20	$450	100%	40%	40%	DUCT-1	40%	76%	0.0%	0.0%	0.0%	2.6
8026	Shell	Duct Sealing - Electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	3,034	9%	261	0.01	20	$288	100%	40%	40%	DUCT-2	40%	76%	0.0%	0.0%	0.0%	1.1
8027	Shell	Wall Insulation - Electric Only	Residential HVAC - Shel	SF	N/A	Retrofit	11,777	9%	1,050	0.07	25	$1,235	100%	40%	40%	WALL-1	40%	80%	0.0%	0.0%	0.0%	1.2
8028	Shell	Wall Insulation - Electric Only	Residential HVAC - Shel	MF	N/A	Retrofit	3,034	9%	271	0.07	25	$790	100%	40%	40%	WALL-2	40%	80%	0.0%	0.0%	0.0%	0.5
8029	Shell	Wall Insulation - Dual (non-electric heated)	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	4%	75	0.09	25	$1,235	100%	40%	40%	WALL-3	59%	80%	0.0%	0.0%	0.0%	0.1
8030	Shell	Wall Insulation - Dual (non-electric heated)	Residential HVAC - Shel	MF	N/A	Retrofit	738	4%	29	0.09	25	$790	100%	40%	40%	WALL-4	59%	80%	0.0%	0.0%	0.0%	0.2
8031	Shell	Basement Sidewall Insulation - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	6%	430	0.03	25	$1,204	100%	40%	40%	BSI-1	21%	80%	0.0%	0.0%	0.0%	0.4
8032	Shell	Basement Sidewall Insulation - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	8%	198	0.02	25	$1,204	100%	40%	40%	BSI-2	21%	80%	0.0%	0.0%	0.0%	0.2
8033	Shell	Basement Sidewall Insulation - Electric furnace	Residential HVAC - Shel	SF	N/A	Retrofit	13,668	8%	1,069	0.03	25	$1,204	100%	40%	40%	BSI-3	16%	80%	0.0%	0.0%	0.0%	1.2
8034	Shell	Basement Sidewall Insulation - Electric furnace	Residential HVAC - Shel	MF	N/A	Retrofit	3,481	15%	514	0.02	25	$1,204	100%	40%	40%	BSI-4	16%	80%	0.0%	0.0%	0.0%	0.6
8035	Shell	Basement Sidewall Insulation - non-electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	-1%	-24	-0.04	25	$1,204	100%	40%	40%	BSI-5	59%	80%	0.0%	0.0%	0.0%	0.0
8036	Shell	Basement Sidewall Insulation - non-electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	738	-2%	-13	-0.02	25	$1,204	100%	40%	40%	BSI-6	59%	80%	0.0%	0.0%	0.0%	0.0
8037	Shell	Floor Insulation Above Crawlspace - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	1%	46	-0.04	25	$1,204	100%	40%	40%	FLOOR-1	21%	80%	0.0%	0.0%	0.0%	0.0
8038	Shell	Floor Insulation Above Crawlspace - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	1%	21	-0.02	25	$1,204	100%	40%	40%	FLOOR-2	21%	80%	0.0%	0.0%	0.0%	0.0
8039	Shell	Floor Insulation Above Crawlspace - Electric furnace	Residential HVAC - Shel	SF	N/A	Retrofit	13,668	2%	273	-0.03	25	$1,204	100%	40%	40%	FLOOR-3	16%	80%	0.0%	0.0%	0.0%	0.3
8040	Shell	Floor Insulation Above Crawlspace - Electric furnace	Residential HVAC - Shel	MF	N/A	Retrofit	3,481	4%	131	-0.01	25	$1,204	100%	40%	40%	FLOOR-4	16%	80%	0.0%	0.0%	0.0%	0.1
8041	Shell	Floor Insulation Above Crawlspace - non-electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	-1%	-16	0.00	25	$1,204	100%	40%	40%	FLOOR-5	59%	80%	0.0%	0.0%	0.0%	0.0
8042	Shell	Floor Insulation Above Crawlspace - non-electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	738	-1%	-9	0.00	25	$1,204	100%	40%	40%	FLOOR-6	59%	80%	0.0%	0.0%	0.0%	0.0
8043	Shell	Radiant Barrier - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	13%	978	0.14	25	$720	100%	40%	40%	RB-1	21%	75%	0.0%	0.0%	0.0%	1.7
8044	Shell	Radiant Barrier - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	20%	474	0.07	25	$720	100%	40%	40%	RB-2	21%	75%	0.0%	0.0%	0.0%	0.8
8045	Shell	Radiant Barrier - Electric furnace	Residential HVAC - Shel	SF	N/A	Retrofit	13,668	7%	978	0.14	25	$720	100%	40%	40%	RB-3	16%	75%	0.0%	0.0%	0.0%	2.0
8046	Shell	Radiant Barrier - Electric furnace	Residential HVAC - Shel	MF	N/A	Retrofit	3,481	14%	474	0.07	25	$720	100%	40%	40%	RB-4	16%	75%	0.0%	0.0%	0.0%	1.0
8047	Shell	ENERGY STAR Door - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	5%	384	0.02	20	$1,275	100%	40%	40%	ES DOOR-1	21%	75%	0.0%	0.0%	0.0%	0.3
8048	Shell	ENERGY STAR Door - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	8%	177	0.01	20	$1,275	100%	40%	40%	ES DOOR-2	21%	75%	0.0%	0.0%	0.0%	0.1
8049	Shell	ENERGY STAR Door - Electric furnace	Residential HVAC - Shel	SF	N/A	Retrofit	13,668	2%	226	0.01	20	$1,275	100%	40%	40%	ES DOOR-3	16%	75%	0.0%	0.0%	0.0%	0.2
8050	Shell	ENERGY STAR Door - Electric furnace	Residential HVAC - Shel	MF	N/A	Retrofit	3,481	3%	109	0.01	20	$1,275	100%	40%	40%	ES DOOR-4	16%	75%	0.0%	0.0%	0.0%	0.1
8051	Shell	ENERGY STAR Door - non-electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	1%	17	0.02	20	$1,275	100%	40%	40%	ES DOOR-5	59%	75%	0.0%	0.0%	0.0%	0.0
8052	Shell	ENERGY STAR Door - non-electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	738	1%	9	0.01	20	$1,275	100%	40%	40%	ES DOOR-6	59%	75%	0.0%	0.0%	0.0%	0.0
8053	Shell	ENERGY STAR Windows - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	5%	400	0.25	20	$11,300	100%	40%	40%	WIND-1	21%	69%	0.0%	0.0%	0.0%	0.1
8054	Shell	ENERGY STAR Windows - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	8%	194	0.12	20	$7,232	100%	40%	40%	WIND-2	21%	69%	0.0%	0.0%	0.0%	0.0
8055	Shell	ENERGY STAR Windows - Electric furnace	Residential HVAC - Shel	SF	N/A	Retrofit	13,668	4%	611	0.25	20	$11,300	100%	40%	40%	WIND-3	16%	69%	0.0%	0.0%	0.0%	0.1
8056	Shell	ENERGY STAR Windows - Electric furnace	Residential HVAC - Shel	MF	N/A	Retrofit	3,481	9%	296	0.12	20	$7,232	100%	40%	40%	WIND-4	16%	69%	0.0%	0.0%	0.0%	0.1
8057	Shell	ENERGY STAR Windows - non-electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	7%	137	0.25	20	$11,300	100%	40%	40%	WIND-5	59%	69%	0.0%	0.0%	0.0%	0.0
8058	Shell	ENERGY STAR Windows - non-electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	738	9%	67	0.12	20	$7,232	100%	40%	40%	WIND-6	59%	69%	0.0%	0.0%	0.0%	0.0
8059	Shell	Smart Window Coverings - Film/Transformer - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	16%	1,210	0.35	7	$6,780	100%	40%	40%	WINDOW FILM	21%	69%	0.0%	0.0%	0.0%	0.1
8060	Shell	Smart Window Coverings - Film/Transformer - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	16%	366	0.23	7	$4,339	100%	40%	40%	WINDOW FILM	21%	69%	0.0%	0.0%	0.0%	0.1
8061	Shell	Smart Window Coverings - Film/Transformer - Electric furnace	Residential HVAC - Shel	SF	N/A	Retrofit	13,668	16%	2,119	0.35	7	$6,780	100%	40%	40%	WINDOW FILM	16%	69%	0.0%	0.0%	0.0%	0.2
8062	Shell	Smart Window Coverings - Film/Transformer - Electric furnace	Residential HVAC - Shel	MF	N/A	Retrofit	3,481	16%	540	0.23	7	$4,339	100%	40%	40%	WINDOW FILM	16%	69%	0.0%	0.0%	0.0%	0.1
8063	Shell	Smart Window Coverings - Film/Transformer - non-electric Heating	Residential HVAC - Shel	SF	N/A	Retrofit	1,946	16%	302	0.35	7	$6,780	100%	40%	40%	WINDOW FILM	59%	69%	0.0%	0.0%	0.0%	0.0
8064	Shell	Smart Window Coverings - Film/Transformer - non-electric Heating	Residential HVAC - Shel	MF	N/A	Retrofit	738	16%	114	0.23	7	$4,339	100%	40%	40%	WINDOW FILM	59%	69%	0.0%	0.0%	0.0%	0.0
8065	Shell	Thin Triple Windows - Heat pump	Residential HVAC - Shel	SF	N/A	Retrofit	7,805	29%	2,247	0.67	40	$12,964	100%	40%	40%	WIND-1	21%	69%	0.0%	0.0%	0.0%	0.3
8066	Shell	Thin Triple Windows - Heat pump	Residential HVAC - Shel	MF	N/A	Retrofit	2,364	61%	1,439	0.43	40	$8,297	100%	40%	40%	WIND-2	21%	69%	0.0%	0.0%	0.0%	0.3

Appendix A-1: Residential Measure Assumptions

Measure #	End-Use	Measure Name	Program	Home Type	Income Type	Replacement Type	Base Annual Electric kWh	% Elec Savings	Per Unit Elec Savings (kWh)	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
8067	Shell	Thin Triple Windows - Electric furnace	esidential HVAC - Shel	SF	N/A	Retrofit	13,668	16%	2,182	0.67	40	$12,964	100%	40%	40%	WIND-3	16%	69%	0.0%	0.0%	0.0%	0.3
8068	Shell	Thin Triple Windows - Electric furnace	esidential HVAC - Shel	MF	N/A	Retrofit	3,481	40%	1,397	0.43	40	$8,297	100%	40%	40%	WIND-4	16%	69%	0.0%	0.0%	0.0%	0.3
8069	Shell	Thin Triple Windows - non-electric heating	esidential HVAC - Shel	SF	N/A	Retrofit	1,946	19%	369	0.67	40	$12,964	100%	40%	40%	WIND-5	59%	69%	0.0%	0.0%	0.0%	0.1
8070	Shell	Thin Triple Windows - non-electric heating	esidential HVAC - Shel	MF	N/A	Retrofit	738	32%	236	0.43	40	$8,297	100%	40%	40%	WIND-6	59%	69%	0.0%	0.0%	0.0%	0.1
9001	Water Heating	Heat Pump Water Heater-electric resistance heat	esidential HVAC - Equi	SF	N/A	MO	2,942	59%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-1	16%	1%	83.4%	28.7%	28.7%	1.3
9002	Water Heating	Heat Pump Water Heater-electric resistance heat	esidential HVAC - Equi	SF	N/A	NC	2,942	59%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-2	16%	0%	83.5%	29.2%	29.2%	1.3
9003	Water Heating	Heat Pump Water Heater-electric resistance heat	esidential HVAC - Equi	MF	N/A	MO	3,045	57%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-3	16%	1%	83.4%	28.7%	28.7%	1.3
9004	Water Heating	Heat Pump Water Heater-electric resistance heat	esidential HVAC - Equi	MF	N/A	NC	3,045	57%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-4	16%	0%	83.5%	29.2%	29.2%	1.3
9005	Water Heating	Heat Pump Water Heater-heat pump heat	esidential HVAC - Equi	SF	N/A	MO	2,942	59%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-5	21%	1%	83.4%	28.7%	28.7%	1.3
9006	Water Heating	Heat Pump Water Heater-heat pump heat	esidential HVAC - Equi	SF	N/A	NC	2,942	59%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-6	21%	0%	83.5%	29.2%	29.2%	1.3
9007	Water Heating	Heat Pump Water Heater-heat pump heat	esidential HVAC - Equi	MF	N/A	MO	3,045	57%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-7	21%	1%	83.4%	28.7%	28.7%	1.3
9008	Water Heating	Heat Pump Water Heater-heat pump heat	esidential HVAC - Equi	MF	N/A	NC	3,045	57%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-8	21%	0%	83.5%	29.2%	29.2%	1.3
9009	Water Heating	Heat Pump Water Heater-non-electric heat	esidential HVAC - Equi	SF	N/A	MO	2,942	59%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-9	35%	1%	83.4%	28.7%	28.7%	1.3
9010	Water Heating	Heat Pump Water Heater-non-electric heat	esidential HVAC - Equi	SF	N/A	NC	2,942	59%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-10	35%	0%	83.5%	29.2%	29.2%	1.3
9011	Water Heating	Heat Pump Water Heater-non-electric heat	esidential HVAC - Equi	MF	N/A	MO	3,045	57%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-11	35%	1%	83.4%	28.7%	28.7%	1.3
9012	Water Heating	Heat Pump Water Heater-non-electric heat	esidential HVAC - Equi	MF	N/A	NC	3,045	57%	1,750	0.08	15	$1,199	100%	25%	25%	HPWH-12	35%	0%	83.5%	29.2%	29.2%	1.3
9013	Water Heating	Smart Water Heater - Tank Controls and Sensors - electric resistance heat	No program	SF	N/A	MO	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-1	16%	1%	83.4%	34.3%	34.3%	3.2
9014	Water Heating	Smart Water Heater - Tank Controls and Sensors - electric resistance heat	No program	SF	N/A	NC	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-2	16%	0%	83.5%	34.7%	34.7%	3.2
9015	Water Heating	Smart Water Heater - Tank Controls and Sensors - electric resistance heat	No program	MF	N/A	MO	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-3	16%	1%	83.4%	34.3%	34.3%	3.2
9016	Water Heating	Smart Water Heater - Tank Controls and Sensors - electric resistance heat	No program	MF	N/A	NC	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-4	16%	0%	83.5%	34.7%	34.7%	3.2
9017	Water Heating	Smart Water Heater - Tank Controls and Sensors - heat pump heat	No program	SF	N/A	MO	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-5	21%	1%	83.4%	34.3%	34.3%	3.2
9018	Water Heating	Smart Water Heater - Tank Controls and Sensors - heat pump heat	No program	SF	N/A	NC	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-6	21%	0%	83.5%	34.7%	34.7%	3.2
9019	Water Heating	Smart Water Heater - Tank Controls and Sensors - heat pump heat	No program	MF	N/A	MO	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-7	21%	1%	83.4%	34.3%	34.3%	3.2
9020	Water Heating	Smart Water Heater - Tank Controls and Sensors - heat pump heat	No program	MF	N/A	NC	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-8	21%	0%	83.5%	34.7%	34.7%	3.2
9021	Water Heating	Smart Water Heater - Tank Controls and Sensors - non-electric heat	No program	SF	N/A	MO	3,045	15%	457	0.02	15	$120	100%	40%	40%	HPWH-9	35%	1%	83.4%	34.3%	34.3%	3.3
9022	Water Heating	Smart Water Heater - Tank Controls and Sensors - non-electric heat	No program	SF	N/A	NC	3,045	15%	457	0.02	15	$120	100%	40%	40%	HPWH-10	35%	0%	83.5%	34.7%	34.7%	3.3
9023	Water Heating	Smart Water Heater - Tank Controls and Sensors - non-electric heat	No program	MF	N/A	MO	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-11	35%	1%	83.4%	34.3%	34.3%	3.2
9024	Water Heating	Smart Water Heater - Tank Controls and Sensors - non-electric heat	No program	MF	N/A	NC	2,942	15%	441	0.02	15	$120	100%	40%	40%	HPWH-12	35%	0%	83.5%	34.7%	34.7%	3.2
9025	Water Heating	Thermostatic Restrictor Shower Valve	No program	SF	N/A	Retrofit	3,045	3%	77	0.01	10	$30	100%	40%	40%	TRSV-1	135%	14%	0.0%	0.0%	0.0%	3.6
9026	Water Heating	Thermostatic Restrictor Shower Valve	No program	SF	N/A	NC	3,045	3%	77	0.01	10	$30	100%	40%	40%	TRSV-2	135%	0%	83.5%	34.7%	34.7%	3.6
9027	Water Heating	Thermostatic Restrictor Shower Valve	No program	MF	N/A	Retrofit	2,942	3%	77	0.01	10	$30	100%	40%	40%	TRSV-3	92%	14%	0.0%	0.0%	0.0%	3.6
9028	Water Heating	Thermostatic Restrictor Shower Valve	No program	MF	N/A	NC	2,942	3%	77	0.01	10	$30	100%	40%	40%	TRSV-4	92%	0%	83.5%	34.7%	34.7%	3.6
9029	Water Heating	Water Heater Timer	No program	SF	N/A	Retrofit	3,045	5%	152	0.02	2	$60	100%	40%	40%	WHT-1	71%	35%	0.0%	0.0%	0.0%	0.4
9030	Water Heating	Water Heater Timer	No program	SF	N/A	NC	3,045	5%	152	0.02	2	$60	100%	40%	40%	WHT-2	71%	0%	83.5%	34.7%	34.7%	0.4
9031	Water Heating	Water Heater Timer	No program	MF	N/A	Retrofit	2,942	5%	147	0.02	2	$60	100%	40%	40%	WHT-3	71%	35%	0.0%	0.0%	0.0%	0.4
9032	Water Heating	Water Heater Timer	No program	MF	N/A	NC	2,942	5%	147	0.02	2	$60	100%	40%	40%	WHT-4	71%	0%	83.5%	34.7%	34.7%	0.4
9033	Water Heating	Drain Water Heat Recovery	No program	SF	N/A	Retrofit	3,045	14%	422	0.04	30	$744	100%	40%	40%	DWHR-1	71%	1%	1.4%	1.4%	1.4%	0.8
9034	Water Heating	Drain Water Heat Recovery	No program	SF	N/A	NC	3,045	14%	422	0.04	30	$744	100%	40%	40%	DWHR-2	71%	0%	83.5%	34.7%	34.7%	0.8
9035	Water Heating	Drain Water Heat Recovery	No program	MF	N/A	Retrofit	2,942	15%	437	0.05	30	$744	100%	40%	40%	DWHR-3	71%	1%	1.4%	1.4%	1.4%	0.8
9036	Water Heating	Drain Water Heat Recovery	No program	MF	N/A	NC	2,942	15%	437	0.05	30	$744	100%	40%	40%	DWHR-4	71%	1%	83.3%	34.0%	34.0%	0.8
9037	Water Heating	Shower Timer	No program	SF	N/A	Retrofit	2,942	1%	15	0.01	2	$5	100%	40%	40%	ST-1	135%	5%	1.4%	1.4%	1.4%	3.7
9038	Water Heating	Shower Timer	No program	SF	N/A	NC	3,045	0%	15	0.01	2	$5	100%	40%	40%	ST-2	135%	1%	83.3%	34.0%	34.0%	3.7
9039	Water Heating	Shower Timer	No program	MF	N/A	Retrofit	3,045	0%	15	0.01	2	$5	100%	40%	40%	ST-3	92%	5%	1.4%	1.4%	1.4%	3.7
9040	Water Heating	Shower Timer	No program	MF	N/A	NC	3,045	0%	15	0.01	2	$5	100%	40%	40%	ST-4	92%	1%	83.3%	34.0%	34.0%	3.7
9041	Water Heating	Low Flow Showerhead 1.5 gpm	No program	SF	N/A	Retrofit	2,942	7%	217	0.02	10	$7	100%	100%	100%	LFSH-1	135%	61%	0.0%	0.0%	0.0%	44.0
9042	Water Heating	Low Flow Showerhead 1.5 gpm	No program	SF	N/A	NC	2,942	7%	217	0.02	10	$7	100%	100%	100%	LFSH-2	135%	1%	83.3%	74.0%	74.0%	44.0
9043	Water Heating	Low Flow Showerhead 1.5 gpm	No program	MF	N/A	Retrofit	2,942	7%	217	0.02	10	$7	100%	100%	100%	LFSH-3	92%	51%	0.0%	0.0%	0.0%	43.8
9044	Water Heating	Low Flow Showerhead 1.5 gpm	No program	MF	N/A	NC	3,045	7%	217	0.02	10	$7	100%	100%	100%	LFSH-4	92%	1%	83.3%	74.0%	74.0%	43.8
9045	Water Heating	Kitchen Faucet Aerator 1.5 gpm	No program	SF	N/A	Retrofit	3,045	7%	213	0.04	10	$3	100%	100%	100%	KITCH-1	71%	49%	0.0%	0.0%	0.0%	114.3
9046	Water Heating	Kitchen Faucet Aerator 1.5 gpm	No program	SF	N/A	NC	3,045	7%	213	0.04	10	$3	100%	100%	100%	KITCH-2	71%	1%	83.3%	74.0%	74.0%	114.3
9047	Water Heating	Kitchen Faucet Aerator 1.5 gpm	No program	MF	N/A	Retrofit	2,942	7%	213	0.04	10	$3	100%	100%	100%	KITCH-3	71%	49%	0.0%	0.0%	0.0%	114.1
9048	Water Heating	Kitchen Faucet Aerator 1.5 gpm	No program	MF	N/A	NC	2,942	7%	213	0.04	10	$3	100%	100%	100%	KITCH-4	71%	1%	83.3%	74.0%	74.0%	114.1
9049	Water Heating	Bathroom Aerator 1.0 gpm	No program	SF	N/A	Retrofit	2,942	3%	78	0.11	10	$3	100%	100%	100%	BATH-1	164%	38%	0.0%	0.0%	0.0%	58.5
9050	Water Heating	Bathroom Aerator 1.0 gpm	No program	SF	N/A	NC	3,045	3%	78	0.11	10	$3	100%	100%	100%	BATH-2	164%	1%	83.3%	74.0%	74.0%	58.5
9051	Water Heating	Bathroom Aerator 1.0 gpm	No program	MF	N/A	Retrofit	3,045	3%	78	0.11	10	$3	100%	100%	100%	BATH-3	100%	38%	0.0%	0.0%	0.0%	58.4
9052	Water Heating	Bathroom Aerator 1.0 gpm	No program	MF	N/A	NC	3,045	3%	78	0.11	10	$3	100%	100%	100%	BATH-4	100%	1%	83.3%	74.0%	74.0%	58.4
9053	Water Heating	Pipe Wrap	No program	SF	N/A	Retrofit	2,942	3%	89	0.01	15	$9	100%	100%	100%	PIPE-1	71%	17%	0.0%	0.0%	0.0%	9.1
9054	Water Heating	Pipe Wrap	No program	MF	N/A	Retrofit	3,045	3%	89	0.01	15	$9	100%	100%	100%	PIPE-2	71%	17%	0.0%	0.0%	0.0%	9.1
9055	Water Heating	Water Heater Temperature Setback	No program	SF	N/A	Retrofit	2,942	3%	82	0.01	2	$5	100%	100%	100%	WHTS-1	71%	54%	0.0%	0.0%	0.0%	2.8
9056	Water Heating	Water Heater Temperature Setback	No program	MF	N/A	Retrofit	3,045	3%	82	0.01	2	$5	100%	100%	100%	WHTS-2	71%	54%	0.0%	0.0%	0.0%	2.8

Appendix A-2: 10-YR Program Potential Energy Savings (Incremental & Cumulative Annual) - Measure Level

					Incremental Annual Energy Savings (MWh)										*Cumulative Annual Energy Savings (MWh)*									
Measure #	**Sector**	End-Use	Measure Name	Program	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
-	Residential	HVAC	Air Source Heat Pump 15 SEER - Heat pump baseline	Residential HVAC - Equip	426	426	426	426	426	426	426	426	426	426	426	853	1,279	1,705	2,131	2,558	2,984	3,410	3,837	4,263
-	Residential	HVAC	Air Source Heat Pump 16 SEER - Heat pump baseline	Residential HVAC - Equip	153	154	153	151	149	149	149	148	148	147	153	306	459	610	759	908	1,057	1,205	1,353	1,500
-	Residential	HVAC	Air Source Heat Pump 17 SEER - Heat pump baseline	Residential HVAC - Equip	107	107	107	106	105	104	104	104	104	103	107	214	320	426	531	635	739	843	947	1,050
-	Residential	HVAC	Air Source Heat Pump 18 SEER - Heat pump baseline	Residential HVAC - Equip	197	198	197	195	194	193	193	192	192	192	197	395	592	787	981	1,174	1,366	1,559	1,751	1,942
-	Residential	HVAC	Ground Source Heat Pump	Residential HVAC - Equip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	HVAC	Ductless Heat Pump 16 SEER - Heat pump baseline	Residential HVAC - Equip	177	178	178	175	173	173	172	172	171	171	177	355	533	708	881	1,054	1,226	1,398	1,570	1,741
-	Residential	HVAC	Ductless Heat Pump 17 SEER - Heat pump baseline	Residential HVAC - Equip	108	109	108	107	105	105	105	105	104	104	108	216	325	431	537	642	747	851	956	1,060
-	Residential	HVAC	Ductless Heat Pump 18 SEER - Heat pump baseline	Residential HVAC - Equip	90	90	90	89	88	88	88	88	87	87	90	180	270	359	447	535	623	710	798	885
-	Residential	HVAC	Ductless Heat Pump 19 SEER - Heat pump baseline	Residential HVAC - Equip	73	73	73	72	71	71	71	71	71	71	73	145	218	290	361	433	504	575	646	716
-	Residential	HVAC	Ductless Heat Pump 20 SEER - Heat pump baseline	Residential HVAC - Equip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	HVAC	Air Source Heat Pump 15 SEER - Furnace baseline	Residential HVAC - Equip	2,160	2,238	2,286	2,302	2,315	2,311	2,307	2,302	2,298	2,294	2,160	4,399	6,685	8,987	11,301	13,612	15,919	18,221	20,520	22,814
-	Residential	HVAC	Air Source Heat Pump 16 SEER - Furnace baseline	Residential HVAC - Equip	1,977	2,048	2,092	2,107	2,118	2,115	2,111	2,107	2,103	2,099	1,977	4,025	6,117	8,224	10,342	12,456	14,567	16,674	18,777	20,877
-	Residential	HVAC	Air Source Heat Pump 17 SEER - Furnace baseline	Residential HVAC - Equip	578	599	612	616	620	618	617	616	615	614	578	1,177	1,789	2,405	3,025	3,643	4,260	4,877	5,492	6,106
-	Residential	HVAC	Air Source Heat Pump 18 SEER - Furnace baseline	Residential HVAC - Equip	431	446	456	459	462	461	460	459	458	458	431	877	1,333	1,792	2,254	2,715	3,175	3,634	4,092	4,550
-	Residential	HVAC	Ductless Heat Pump 16 SEER - Furnace baseline	Residential HVAC - Equip	2,239	2,320	2,370	2,386	2,399	2,395	2,391	2,387	2,382	2,378	2,239	4,560	6,929	9,315	11,715	14,110	16,501	18,888	21,270	23,648
-	Residential	HVAC	Ductless Heat Pump 17 SEER - Furnace baseline	Residential HVAC - Equip	986	1,021	1,043	1,050	1,056	1,054	1,052	1,050	1,049	1,047	986	2,007	3,050	4,100	5,156	6,211	7,263	8,314	9,362	10,409
-	Residential	HVAC	Ductless Heat Pump 18 SEER - Furnace baseline	Residential HVAC - Equip	501	519	530	533	536	535	535	534	533	532	501	1,019	1,549	2,083	2,619	3,154	3,689	4,222	4,755	5,287
-	Residential	HVAC	Ductless Heat Pump 19 SEER - Furnace baseline	Residential HVAC - Equip	309	320	327	329	331	330	330	329	328	328	309	629	955	1,284	1,615	1,945	2,275	2,604	2,932	3,260
-	Residential	HVAC	Ductless Heat Pump 20 SEER - Furnace baseline	Residential HVAC - Equip	133	137	140	141	142	142	142	141	141	141	133	270	410	551	694	835	977	1,118	1,259	1,400
-	Residential	HVAC	Ductless Heat Pump 16 SEER - Electric baseboard baseline	Residential HVAC - Equip	756	784	800	806	810	809	808	806	805	803	756	1,540	2,340	3,146	3,957	4,766	5,573	6,380	7,184	7,988
-	Residential	HVAC	Ductless Heat Pump 17 SEER - Electric baseboard baseline	Residential HVAC - Equip	332	344	351	354	356	355	355	354	353	353	332	676	1,028	1,382	1,738	2,093	2,447	2,801	3,155	3,507
-	Residential	HVAC	Ductless Heat Pump 18 SEER - Electric baseboard baseline	Residential HVAC - Equip	169	175	178	180	181	180	180	180	179	179	169	343	522	701	882	1,062	1,242	1,422	1,601	1,780
-	Residential	HVAC	Ductless Heat Pump 19 SEER - Electric baseboard baseline	Residential HVAC - Equip	104	108	110	111	111	111	111	111	111	110	104	212	322	432	544	655	766	876	987	1,097
-	Residential	HVAC	Ductless Heat Pump 20 SEER - Electric baseboard baseline	Residential HVAC - Equip	45	46	47	48	48	48	48	48	47	47	45	91	138	186	233	281	329	376	424	471
-	Residential	Water Heating	Heat Pump Water Heater-electric resistance heat	Residential HVAC - Equip	319	328	332	331	329	323	317	311	305	299	319	645	970	1,290	1,601	1,899	2,184	2,456	2,719	2,972
-	Residential	Water Heating	Heat Pump Water Heater-heat pump heat	Residential HVAC - Equip	423	435	440	438	435	428	420	412	404	397	423	854	1,286	1,709	2,122	2,516	2,894	3,254	3,602	3,937
-	Residential	Water Heating	Heat Pump Water Heater-non-electric heat	Residential HVAC - Equip	687	706	714	712	707	695	682	669	656	644	687	1,387	2,087	2,775	3,445	4,086	4,698	5,283	5,849	6,393
-	Residential	Shell	Advanced Walls - Electric Only	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Advanced Walls - Dual (non-electric heated)	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Air Sealing Average Sealing - Heat pump	Residential HVAC - Shell	24	24	24	24	24	24	24	23	23	23	24	49	72	96	119	142	164	186	207	228
-	Residential	Shell	Air Sealing Inadequate Sealing - Heat pump	Residential HVAC - Shell	16	18	20	22	24	26	29	31	32	34	16	34	54	75	99	124	151	180	211	242
-	Residential	Shell	Air Sealing Poor Sealing - Heat pump	Residential HVAC - Shell	17	19	22	26	30	35	40	45	49	53	17	36	58	84	113	147	186	229	275	326
-	Residential	Shell	Air Sealing Average Sealing - Electric Heating	Residential HVAC - Shell	34	34	34	34	33	33	33	32	32	32	34	67	101	133	165	197	227	257	287	317
-	Residential	Shell	Air Sealing Inadequate Sealing - Electric Heating	Residential HVAC - Shell	22	24	27	30	33	36	39	42	44	46	22	46	73	102	134	169	206	245	287	330
-	Residential	Shell	Air Sealing Poor Sealing - Electric Heating	Residential HVAC - Shell	20	23	27	32	37	42	48	54	59	64	20	44	70	101	137	178	225	277	333	394
-	Residential	Shell	Air Sealing - Average Sealing - non-electric Heating	Residential HVAC - Shell	11	11	11	11	11	10	10	10	10	10	11	21	32	42	52	62	72	82	91	100
-	Residential	Shell	Air Sealing - Inadequate Sealing - non-electric Heating	Residential HVAC - Shell	11	12	13	15	16	18	19	21	22	23	11	23	36	51	67	84	103	122	143	165
-	Residential	Shell	Air Sealing - Poor Sealing - non-electric Heating	Residential HVAC - Shell	6	6	7	9	10	12	13	15	16	17	6	12	19	28	37	48	61	75	90	107
-	Residential	Shell	Attic Insulation - Electric Heating	Residential HVAC - Shell	119	119	119	118	117	116	115	115	114	114	119	238	354	469	582	693	801	907	1,013	1,116
-	Residential	Shell	Duct Sealing - Electric Heating	Residential HVAC - Shell	54	54	54	54	53	53	52	52	52	52	54	108	161	213	265	315	364	413	460	507
-	Residential	Shell	Wall Insulation - Electric Only	Residential HVAC - Shell	54	54	54	53	53	53	52	52	51	51	54	107	160	212	263	313	362	410	458	504
-	Residential	Shell	Wall Insulation - Dual (non-electric heated)	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Basement Sidewall Insulation - Heat pump	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Basement Sidewall Insulation - Electric furnace	Residential HVAC - Shell	21	21	21	21	21	21	21	21	20	20	21	43	64	84	105	124	144	163	182	200
-	Residential	Shell	Basement Sidewall Insulation - non-electric Heating	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Floor Insulation Above Crawlspace - Heat pump	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Floor Insulation Above Crawlspace - Electric furnace	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Floor Insulation Above Crawlspace - non-electric Heating	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Radiant Barrier - Heat pump	Residential HVAC - Shell	27	27	27	27	27	26	26	26	26	26	27	54	81	107	132	158	182	206	230	254
-	Residential	Shell	Radiant Barrier - Electric furnace	Residential HVAC - Shell	20	21	20	20	20	20	20	20	20	20	20	41	61	81	100	119	138	156	174	192
-	Residential	Shell	ENERGY STAR Door - Heat pump	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	ENERGY STAR Door - Electric furnace	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	ENERGY STAR Door - non-electric Heating	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	ENERGY STAR Windows - Heat pump	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	ENERGY STAR Windows - Electric furnace	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	ENERGY STAR Windows - non-electric Heating	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Smart Window Coverings - Film/Transformer - Heat pump	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Smart Window Coverings - Film/Transformer - Electric furnace	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Smart Window Coverings - Film/Transformer - non-electric Heating	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Thin Triple Windows - Heat pump	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Thin Triple Windows - Electric furnace	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	Shell	Thin Triple Windows - non-electric heating	Residential HVAC - Shell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	HVAC	Smart Thermostat - Elec/AC	Smart Thermostat	85	86	88	90	92	94	96	91	77	63	85	171	259	350	442	536	633	724	801	864
-	Residential	HVAC	Smart Thermostat - HP/HP	Smart Thermostat	112	115	117	120	122	125	128	121	102	83	112	227	344	463	586	710	838	959	1,061	1,144
-	Residential	HVAC	Smart Thermostat - non-electric/AC	Smart Thermostat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	HVAC	ASHP Tune Up	HVAC Tune-Up	51	52	53	55	56	57	58	59	61	62	51	103	157	160	164	167	171	175	178	182
-	Residential	HVAC	GSHP Tune-Up	HVAC Tune-Up	51	52	53	55	56	57	58	59	61	62	51	103	157	160	164	167	171	175	178	182
-	Residential	HVAC	Minisplit Tune-Up	HVAC Tune-Up	51	52	53	55	56	57	58	59	61	62	51	103	157	160	164	167	171	175	178	182
-	Residential	HVAC	AC Tune Up	HVAC Tune-Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	Residential	New Construction	Platinum Plus (Electric)	idential New Construction Pilo	15	15	16	16	16	17	17	17	18	18	15	30	46	62	78	95	112	130	148	166
-	Residential	New Construction	Platinum Plus (Dual Fuel)	idential New Construction Pilo	3	3	3	3	3	3	4	4	4	4	3	6	10	13	16	20	23	27	31	35
-	Residential	Behavior	Home Energy Reports	Residential Behavior Pilot	1,239	1,689	2,285	3,062	4,052	5,284	6,766	8,482	10,381	12,370	1,239	1,689	2,285	3,062	4,052	5,284	6,766	8,482	10,381	12,370
-	Residential	Behavior	AMI Data Portal	Residential Behavior Pilot	166	227	307	411	544	709	908	1,139	1,394	1,661	166	227	307	411	544	709	908	1,139	1,394	1,661

Appendix A-3: 10-YR Program Potential Summer Peak Demand Savings (Incremental & Cumulative Annual) - Measure Level

					Incremental Summer Peak Demand Savings (MW)										*Cumulative Annual Summer Peak Demand Savings (MW)*									
Measure #	**Sector**	End-Use	Measure Name	Program	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
-	Residential	HVAC	Air Source Heat Pump 15 SEER - Heat pump baseline	Residential HVAC - Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	HVAC	Air Source Heat Pump 16 SEER - Heat pump baseline	Residential HVAC - Equip	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.04	0.07	0.11	0.14	0.18	0.21	0.25	0.29	0.32	0.36
-	Residential	HVAC	Air Source Heat Pump 17 SEER - Heat pump baseline	Residential HVAC - Equip	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.07	0.10	0.13	0.17	0.20	0.23	0.26	0.30	0.33
-	Residential	HVAC	Air Source Heat Pump 18 SEER - Heat pump baseline	Residential HVAC - Equip	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.11	0.16	0.22	0.27	0.33	0.38	0.43	0.48	0.54
-	Residential	HVAC	Ground Source Heat Pump	Residential HVAC - Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	HVAC	Ductless Heat Pump 16 SEER - Heat pump baseline	Residential HVAC - Equip	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.13	0.17	0.21	0.25	0.29	0.33	0.37	0.41
-	Residential	HVAC	Ductless Heat Pump 17 SEER - Heat pump baseline	Residential HVAC - Equip	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.09	0.13	0.17	0.22	0.26	0.30	0.34	0.38	0.42
-	Residential	HVAC	Ductless Heat Pump 18 SEER - Heat pump baseline	Residential HVAC - Equip	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.09	0.14	0.18	0.22	0.27	0.31	0.36	0.40	0.44
-	Residential	HVAC	Ductless Heat Pump 19 SEER - Heat pump baseline	Residential HVAC - Equip	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40
-	Residential	HVAC	Ductless Heat Pump 20 SEER - Heat pump baseline	Residential HVAC - Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	HVAC	Air Source Heat Pump 15 SEER - Furnace baseline	Residential HVAC - Equip	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.09	0.13	0.17	0.22	0.26	0.31	0.35	0.40	0.44
-	Residential	HVAC	Air Source Heat Pump 16 SEER - Furnace baseline	Residential HVAC - Equip	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.14	0.22	0.29	0.37	0.45	0.52	0.60	0.67	0.75
-	Residential	HVAC	Air Source Heat Pump 17 SEER - Furnace baseline	Residential HVAC - Equip	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.06	0.09	0.12	0.15	0.18	0.21	0.24	0.27	0.30
-	Residential	HVAC	Air Source Heat Pump 18 SEER - Furnace baseline	Residential HVAC - Equip	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.08	0.11	0.13	0.16	0.19	0.22	0.24	0.27
-	Residential	HVAC	Ductless Heat Pump 16 SEER - Furnace baseline	Residential HVAC - Equip	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.16	0.25	0.33	0.42	0.51	0.59	0.68	0.76	0.85
-	Residential	HVAC	Ductless Heat Pump 17 SEER - Furnace baseline	Residential HVAC - Equip	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.10	0.15	0.21	0.26	0.32	0.37	0.42	0.48	0.53
-	Residential	HVAC	Ductless Heat Pump 18 SEER - Furnace baseline	Residential HVAC - Equip	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.06	0.10	0.13	0.17	0.20	0.23	0.27	0.30	0.33
-	Residential	HVAC	Ductless Heat Pump 19 SEER - Furnace baseline	Residential HVAC - Equip	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.07	0.10	0.12	0.14	0.17	0.19	0.22	0.24
-	Residential	HVAC	Ductless Heat Pump 20 SEER - Furnace baseline	Residential HVAC - Equip	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.05	0.06	0.07	0.08	0.09	0.10	0.11
-	Residential	HVAC	Ductless Heat Pump 16 SEER - Electric baseboard baseline	Residential HVAC - Equip	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.06	0.08	0.11	0.14	0.17	0.20	0.23	0.26	0.29
-	Residential	HVAC	Ductless Heat Pump 17 SEER - Electric baseboard baseline	Residential HVAC - Equip	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.05	0.07	0.09	0.11	0.12	0.14	0.16	0.18
-	Residential	HVAC	Ductless Heat Pump 18 SEER - Electric baseboard baseline	Residential HVAC - Equip	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.04	0.06	0.07	0.08	0.09	0.10	0.11
-	Residential	HVAC	Ductless Heat Pump 19 SEER - Electric baseboard baseline	Residential HVAC - Equip	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.06	0.07	0.08
-	Residential	HVAC	Ductless Heat Pump 20 SEER - Electric baseboard baseline	Residential HVAC - Equip	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.04
-	Residential	Water Heating	Heat Pump Water Heater-electric resistance heat	Residential HVAC - Equip	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.03	0.05	0.06	0.08	0.09	0.10	0.12	0.13	0.14
-	Residential	Water Heating	Heat Pump Water Heater-heat pump heat	Residential HVAC - Equip	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.15	0.17	0.19
-	Residential	Water Heating	Heat Pump Water Heater-non-electric heat	Residential HVAC - Equip	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.07	0.10	0.13	0.16	0.19	0.22	0.25	0.28	0.30
-	Residential	Shell	Advanced Walls - Electric Only	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Advanced Walls - Dual (non-electric heated)	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Air Sealing Average Sealing - Heat pump	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05
-	Residential	Shell	Air Sealing Inadequate Sealing - Heat pump	Residential HVAC - Shell	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.06
-	Residential	Shell	Air Sealing Poor Sealing - Heat pump	Residential HVAC - Shell	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.09
-	Residential	Shell	Air Sealing Average Sealing - Electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04
-	Residential	Shell	Air Sealing Inadequate Sealing - Electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.05
-	Residential	Shell	Air Sealing Poor Sealing - Electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.06
-	Residential	Shell	Air Sealing - Average Sealing - non-electric Heating	Residential HVAC - Shell	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.06	0.08	0.11	0.14	0.16	0.19	0.21	0.23	0.26
-	Residential	Shell	Air Sealing - Inadequate Sealing - non-electric Heating	Residential HVAC - Shell	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.02	0.04	0.06	0.08	0.11	0.13	0.16	0.20	0.23	0.26
-	Residential	Shell	Air Sealing - Poor Sealing - non-electric Heating	Residential HVAC - Shell	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.01	0.02	0.04	0.05	0.07	0.09	0.11	0.14	0.17	0.20
-	Residential	Shell	Attic Insulation - Electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03
-	Residential	Shell	Duct Sealing - Electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02
-	Residential	Shell	Wall Insulation - Electric Only	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03
-	Residential	Shell	Wall Insulation - Dual (non-electric heated)	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Basement Sidewall Insulation - Heat pump	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Basement Sidewall Insulation - Electric furnace	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
-	Residential	Shell	Basement Sidewall Insulation - non-electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Floor Insulation Above Crawlspace - Heat pump	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Floor Insulation Above Crawlspace - Electric furnace	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Floor Insulation Above Crawlspace - non-electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Radiant Barrier - Heat pump	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04
-	Residential	Shell	Radiant Barrier - Electric furnace	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03
-	Residential	Shell	ENERGY STAR Door - Heat pump	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	ENERGY STAR Door - Electric furnace	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	ENERGY STAR Door - non-electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	ENERGY STAR Windows - Heat pump	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	ENERGY STAR Windows - Electric furnace	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	ENERGY STAR Windows - non-electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Smart Window Coverings - Film/Transformer - Heat pump	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Smart Window Coverings - Film/Transformer - Electric furnace	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Smart Window Coverings - Film/Transformer - non-electric Heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Thin Triple Windows - Heat pump	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Thin Triple Windows - Electric furnace	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	Shell	Thin Triple Windows - non-electric heating	Residential HVAC - Shell	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	HVAC	Smart Thermostat - Elec/AC	Smart Thermostat	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	HVAC	Smart Thermostat - HP/HP	Smart Thermostat	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	HVAC	Smart Thermostat - non-electric/AC	Smart Thermostat	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	HVAC	ASHP Tune Up	HVAC Tune-Up	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
-	Residential	HVAC	GSHP Tune-Up	HVAC Tune-Up	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
-	Residential	HVAC	Minisplit Tune-Up	HVAC Tune-Up	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
-	Residential	HVAC	AC Tune Up	HVAC Tune-Up	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-	Residential	New Construction	Platinum Plus (Electric)	idential New Construction Pilo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04
-	Residential	New Construction	Platinum Plus (Dual Fuel)	idential New Construction Pilo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02
-	Residential	Behavior	Home Energy Reports	Residential Behavior Pilot	0.14	0.19	0.26	0.35	0.46	0.60	0.77	0.97	1.19	1.41	0.14	0.19	0.26	0.35	0.46	0.60	0.77	0.97	1.19	1.41
-	Residential	Behavior	AMI Data Portal	Residential Behavior Pilot	0.02	0.03	0.04	0.05	0.06	0.08	0.10	0.13	0.16	0.19	0.02	0.03	0.04	0.05	0.06	0.08	0.10	0.13	0.16	0.19

Appendix A-4: 10-YR Program Potential Energy Budgets (Incentives & Admin) - Measure Level

					Incentives										*Admin*									
Measure #	Sector	End-Use	Measure Name	Program	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
-	Residential	HVAC	Air Source Heat Pump 15 SEER - Heat pump baseline	Residential HVAC - Equip	$277,619	$277,619	$277,619	$277,619	$277,619	$277,619	$277,619	$277,619	$277,619	$277,619	$6,394	$6,535	$6,679	$6,826	$6,976	$7,129	$7,286	$7,447	$7,610	$7,778
-	Residential	HVAC	Air Source Heat Pump 16 SEER - Heat pump baseline	Residential HVAC - Equip	$82,091	$82,587	$82,347	$81,156	$80,317	$80,109	$79,897	$79,679	$79,469	$79,259	$2,289	$2,354	$2,399	$2,416	$2,444	$2,491	$2,539	$2,588	$2,638	$2,689
-	Residential	HVAC	Air Source Heat Pump 17 SEER - Heat pump baseline	Residential HVAC - Equip	$40,367	$40,572	$40,473	$39,981	$39,635	$39,549	$39,462	$39,372	$39,285	$39,199	$1,598	$1,642	$1,674	$1,690	$1,712	$1,746	$1,780	$1,816	$1,851	$1,888
-	Residential	HVAC	Air Source Heat Pump 18 SEER - Heat pump baseline	Residential HVAC - Equip	$46,453	$46,670	$46,565	$46,045	$45,678	$45,587	$45,495	$45,399	$45,308	$45,216	$2,952	$3,031	$3,091	$3,124	$3,167	$3,230	$3,295	$3,360	$3,427	$3,496
-	Residential	HVAC	Ground Source Heat Pump	Residential HVAC - Equip	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	HVAC	Ductless Heat Pump 16 SEER - Heat pump baseline	Residential HVAC - Equip	$95,209	$95,770	$95,498	$94,150	$93,200	$92,963	$92,724	$92,477	$92,239	$92,001	$2,655	$2,730	$2,782	$2,803	$2,836	$2,891	$2,947	$3,003	$3,062	$3,121
-	Residential	HVAC	Ductless Heat Pump 17 SEER - Heat pump baseline	Residential HVAC - Equip	$54,036	$54,382	$54,214	$53,383	$52,797	$52,652	$52,504	$52,352	$52,205	$52,059	$1,618	$1,664	$1,696	$1,707	$1,726	$1,759	$1,793	$1,827	$1,862	$1,898
-	Residential	HVAC	Ductless Heat Pump 18 SEER - Heat pump baseline	Residential HVAC - Equip	$39,268	$39,473	$39,374	$38,881	$38,533	$38,447	$38,359	$38,269	$38,182	$38,095	$1,346	$1,383	$1,410	$1,424	$1,442	$1,471	$1,500	$1,529	$1,560	$1,590
-	Residential	HVAC	Ductless Heat Pump 19 SEER - Heat pump baseline	Residential HVAC - Equip	$27,630	$27,753	$27,693	$27,398	$27,190	$27,138	$27,086	$27,032	$26,979	$26,927	$1,088	$1,117	$1,139	$1,152	$1,168	$1,192	$1,216	$1,240	$1,265	$1,290
-	Residential	HVAC	Ductless Heat Pump 20 SEER - Heat pump baseline	Residential HVAC - Equip	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	HVAC	Air Source Heat Pump 15 SEER - Furnace baseline	Residential HVAC - Equip	$83,669	$86,697	$88,541	$89,163	$89,658	$89,501	$89,342	$89,178	$89,020	$88,862	$32,403	$34,314	$35,815	$36,860	$37,880	$38,646	$39,426	$40,219	$41,031	$41,859
-	Residential	HVAC	Air Source Heat Pump 16 SEER - Furnace baseline	Residential HVAC - Equip	$75,745	$78,486	$80,155	$80,719	$81,166	$81,024	$80,880	$80,731	$80,588	$80,445	$29,652	$31,401	$32,774	$33,731	$34,664	$35,364	$36,078	$36,804	$37,547	$38,305
-	Residential	HVAC	Air Source Heat Pump 17 SEER - Furnace baseline	Residential HVAC - Equip	$21,644	$22,427	$22,904	$23,065	$23,193	$23,152	$23,111	$23,069	$23,028	$22,987	$8,672	$9,184	$9,585	$9,865	$10,138	$10,343	$10,551	$10,764	$10,981	$11,203
-	Residential	HVAC	Air Source Heat Pump 18 SEER - Furnace baseline	Residential HVAC - Equip	$15,427	$15,986	$16,326	$16,440	$16,532	$16,503	$16,473	$16,443	$16,414	$16,385	$6,462	$6,844	$7,143	$7,351	$7,555	$7,707	$7,863	$8,021	$8,183	$8,348
-	Residential	HVAC	Ductless Heat Pump 16 SEER - Furnace baseline	Residential HVAC - Equip	$85,801	$88,906	$90,796	$91,435	$91,942	$91,781	$91,618	$91,450	$91,288	$91,126	$33,589	$35,570	$37,125	$38,209	$39,266	$40,059	$40,868	$41,690	$42,532	$43,391
-	Residential	HVAC	Ductless Heat Pump 17 SEER - Furnace baseline	Residential HVAC - Equip	$38,322	$39,709	$40,553	$40,838	$41,065	$40,993	$40,920	$40,845	$40,773	$40,700	$14,784	$15,656	$16,341	$16,818	$17,283	$17,632	$17,988	$18,350	$18,721	$19,099
-	Residential	HVAC	Ductless Heat Pump 18 SEER - Furnace baseline	Residential HVAC - Equip	$19,167	$19,861	$20,283	$20,426	$20,539	$20,503	$20,466	$20,429	$20,392	$20,356	$7,509	$7,952	$8,300	$8,542	$8,778	$8,955	$9,136	$9,320	$9,508	$9,700
-	Residential	HVAC	Ductless Heat Pump 19 SEER - Furnace baseline	Residential HVAC - Equip	$11,679	$12,102	$12,359	$12,446	$12,515	$12,493	$12,471	$12,448	$12,426	$12,404	$4,631	$4,904	$5,118	$5,268	$5,413	$5,523	$5,634	$5,748	$5,864	$5,982
-	Residential	HVAC	Ductless Heat Pump 20 SEER - Furnace baseline	Residential HVAC - Equip	$4,861	$5,037	$5,144	$5,180	$5,209	$5,200	$5,191	$5,181	$5,172	$5,163	$1,988	$2,106	$2,198	$2,262	$2,325	$2,371	$2,419	$2,468	$2,518	$2,569
-	Residential	HVAC	Ductless Heat Pump 16 SEER - Electric baseboard baseline	Residential HVAC - Equip	$28,954	$30,002	$30,640	$30,856	$31,027	$30,972	$30,917	$30,860	$30,806	$30,751	$11,345	$12,014	$12,539	$12,906	$13,263	$13,531	$13,804	$14,081	$14,366	$14,656
-	Residential	HVAC	Ductless Heat Pump 17 SEER - Electric baseboard baseline	Residential HVAC - Equip	$12,870	$13,336	$13,619	$13,715	$13,791	$13,767	$13,742	$13,717	$13,693	$13,669	$4,982	$5,276	$5,506	$5,667	$5,824	$5,941	$6,061	$6,183	$6,308	$6,436
-	Residential	HVAC	Ductless Heat Pump 18 SEER - Electric baseboard baseline	Residential HVAC - Equip	$6,442	$6,675	$6,817	$6,865	$6,903	$6,891	$6,878	$6,866	$6,854	$6,841	$2,529	$2,678	$2,795	$2,877	$2,956	$3,016	$3,077	$3,139	$3,202	$3,267
-	Residential	HVAC	Ductless Heat Pump 19 SEER - Electric baseboard baseline	Residential HVAC - Equip	$3,927	$4,069	$4,155	$4,184	$4,208	$4,200	$4,193	$4,185	$4,178	$4,170	$1,558	$1,650	$1,723	$1,773	$1,822	$1,859	$1,896	$1,934	$1,973	$2,013
-	Residential	HVAC	Ductless Heat Pump 20 SEER - Electric baseboard baseline	Residential HVAC - Equip	$1,638	$1,697	$1,734	$1,746	$1,755	$1,752	$1,749	$1,746	$1,743	$1,740	$669	$709	$740	$761	$782	$798	$814	$831	$847	$865
-	Residential	Water Heating	Heat Pump Water Heater-electric resistance heat	Residential HVAC - Equip	$55,155	$57,143	$58,393	$58,898	$59,291	$59,201	$59,111	$59,017	$58,927	$58,837	$4,826	$5,110	$5,337	$5,501	$5,660	$5,776	$5,894	$6,014	$6,137	$6,262
-	Residential	Water Heating	Heat Pump Water Heater-heat pump heat	Residential HVAC - Equip	$73,071	$75,705	$77,362	$78,031	$78,551	$78,432	$78,312	$78,188	$78,069	$77,950	$6,394	$6,770	$7,070	$7,288	$7,498	$7,652	$7,808	$7,967	$8,130	$8,296
-	Residential	Water Heating	Heat Pump Water Heater-non-electric heat	Residential HVAC - Equip	$118,643	$122,920	$125,610	$126,696	$127,541	$127,348	$127,153	$126,952	$126,758	$126,565	$10,381	$10,992	$11,480	$11,834	$12,175	$12,424	$12,678	$12,936	$13,201	$13,470
-	Residential	Shell	Advanced Walls - Electric Only	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Advanced Walls - Dual (non-electric heated)	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Air Sealing Average Sealing - Heat pump	Residential HVAC - Shell	$2,281	$2,303	$2,318	$2,328	$2,333	$2,336	$2,339	$2,345	$2,356	$2,373	$369	$381	$392	$402	$412	$422	$432	$442	$454	$467
-	Residential	Shell	Air Sealing Inadequate Sealing - Heat pump	Residential HVAC - Shell	$1,290	$1,435	$1,605	$1,796	$2,000	$2,207	$2,409	$2,598	$2,770	$2,924	$246	$280	$320	$366	$416	$469	$523	$577	$629	$678
-	Residential	Shell	Air Sealing Poor Sealing - Heat pump	Residential HVAC - Shell	$951	$1,101	$1,290	$1,519	$1,785	$2,079	$2,389	$2,698	$2,994	$3,267	$255	$302	$361	$435	$522	$622	$730	$843	$956	$1,066
-	Residential	Shell	Air Sealing Average Sealing - Electric Heating	Residential HVAC - Shell	$1,722	$1,738	$1,750	$1,757	$1,761	$1,763	$1,766	$1,770	$1,778	$1,791	$513	$529	$544	$558	$572	$585	$599	$614	$630	$649
-	Residential	Shell	Air Sealing Inadequate Sealing - Electric Heating	Residential HVAC - Shell	$973	$1,083	$1,212	$1,356	$1,509	$1,666	$1,818	$1,961	$2,091	$2,207	$335	$381	$435	$497	$566	$638	$712	$785	$855	$923
-	Residential	Shell	Air Sealing Poor Sealing - Electric Heating	Residential HVAC - Shell	$718	$831	$973	$1,146	$1,347	$1,569	$1,803	$2,036	$2,260	$2,466	$309	$365	$437	$526	$632	$753	$884	$1,020	$1,157	$1,290
-	Residential	Shell	Air Sealing - Average Sealing - non-electric Heating	Residential HVAC - Shell	$6,328	$6,388	$6,431	$6,458	$6,472	$6,480	$6,489	$6,505	$6,536	$6,583	$163	$168	$173	$177	$181	$186	$190	$195	$200	$206
-	Residential	Shell	Air Sealing - Inadequate Sealing - non-electric Heating	Residential HVAC - Shell	$3,677	$4,092	$4,577	$5,120	$5,701	$6,292	$6,867	$7,406	$7,897	$8,338	$167	$190	$217	$248	$282	$318	$355	$392	$427	$460
-	Residential	Shell	Air Sealing - Poor Sealing - non-electric Heating	Residential HVAC - Shell	$2,637	$3,054	$3,577	$4,213	$4,951	$5,768	$6,626	$7,484	$8,304	$9,062	$84	$99	$119	$143	$172	$204	$240	$277	$314	$350
-	Residential	Shell	Attic Insulation - Electric Heating	Residential HVAC - Shell	$20,102	$20,292	$20,429	$20,515	$20,560	$20,585	$20,613	$20,666	$20,762	$20,912	$1,806	$1,864	$1,917	$1,968	$2,016	$2,062	$2,111	$2,163	$2,220	$2,286
-	Residential	Shell	Duct Sealing - Electric Heating	Residential HVAC - Shell	$9,823	$9,916	$9,983	$10,025	$10,047	$10,060	$10,073	$10,099	$10,146	$10,219	$821	$847	$872	$895	$916	$938	$959	$983	$1,009	$1,039
-	Residential	Shell	Wall Insulation - Electric Only	Residential HVAC - Shell	$25,593	$25,836	$26,010	$26,119	$26,177	$26,209	$26,244	$26,311	$26,434	$26,624	$816	$842	$867	$889	$911	$932	$954	$977	$1,004	$1,033
-	Residential	Shell	Wall Insulation - Dual (non-electric heated)	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Basement Sidewall Insulation - Heat pump	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Basement Sidewall Insulation - Electric furnace	Residential HVAC - Shell	$9,746	$9,839	$9,905	$9,947	$9,969	$9,981	$9,994	$10,020	$10,067	$10,139	$324	$335	$344	$353	$362	$370	$379	$388	$399	$411
-	Residential	Shell	Basement Sidewall Insulation - non-electric Heating	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Floor Insulation Above Crawlspace - Heat pump	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Floor Insulation Above Crawlspace - Electric furnace	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Floor Insulation Above Crawlspace - non-electric Heating	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Radiant Barrier - Heat pump	Residential HVAC - Shell	$8,068	$8,145	$8,200	$8,234	$8,252	$8,262	$8,273	$8,295	$8,333	$8,393	$411	$424	$436	$448	$459	$469	$480	$492	$505	$520
-	Residential	Shell	Radiant Barrier - Electric furnace	Residential HVAC - Shell	$6,090	$6,148	$6,189	$6,215	$6,229	$6,236	$6,245	$6,261	$6,290	$6,335	$310	$320	$329	$338	$346	$354	$362	$371	$381	$393
-	Residential	Shell	ENERGY STAR Door - Heat pump	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	ENERGY STAR Door - Electric furnace	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	ENERGY STAR Door - non-electric Heating	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	ENERGY STAR Windows - Heat pump	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	ENERGY STAR Windows - Electric furnace	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	ENERGY STAR Windows - non-electric Heating	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Smart Window Coverings - Film/Transformer - Heat pump	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Smart Window Coverings - Film/Transformer - Electric furnace	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Smart Window Coverings - Film/Transformer - non-electric Heating	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Thin Triple Windows - Heat pump	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Thin Triple Windows - Electric furnace	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	Shell	Thin Triple Windows - non-electric heating	Residential HVAC - Shell	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	HVAC	Smart Thermostat - Elec/AC	Smart Thermostat	$25,808	$26,376	$26,956	$27,549	$28,155	$28,775	$29,408	$27,892	$23,430	$19,189	$1,269	$1,325	$1,384	$1,446	$1,510	$1,577	$1,647	$1,597	$1,371	$1,147
-	Residential	HVAC	Smart Thermostat - HP/HP	Smart Thermostat	$34,192	$34,944	$35,713	$36,498	$37,301	$38,122	$38,961	$36,952	$31,041	$25,422	$1,681	$1,756	$1,834	$1,915	$2,001	$2,090	$2,183	$2,116	$1,816	$1,520
-	Residential	HVAC	Smart Thermostat - non-electric/AC	Smart Thermostat	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	HVAC	ASHP Tune Up	HVAC Tune-Up	$6,667	$6,813	$6,963	$7,116	$7,273	$7,433	$7,597	$7,764	$7,934	$8,109	$766	$800	$836	$873	$911	$952	$994	$1,039	$1,085	$1,133
-	Residential	HVAC	GSHP Tune-Up	HVAC Tune-Up	$6,667	$6,813	$6,963	$7,116	$7,273	$7,433	$7,597	$7,764	$7,934	$8,109	$766	$800	$836	$873	$911	$952	$994	$1,039	$1,085	$1,133
-	Residential	HVAC	Minisplit Tune-Up	HVAC Tune-Up	$6,667	$6,813	$6,963	$7,116	$7,273	$7,433	$7,597	$7,764	$7,934	$8,109	$766	$800	$836	$873	$911	$952	$994	$1,039	$1,085	$1,133
-	Residential	HVAC	AC Tune Up	HVAC Tune-Up	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
-	Residential	New Construction	Platinum Plus (Electric)	idential New Construction Pilc	$4,020	$4,108	$4,199	$4,291	$4,386	$4,482	$4,581	$4,681	$4,784	$4,890	$225	$235	$246	$257	$268	$280	$292	$305	$319	$333
-	Residential	New Construction	Platinum Plus (Dual Fuel)	idential New Construction Pilc	$5,980	$6,112	$6,246	$6,383	$6,524	$6,667	$6,814	$6,964	$7,117	$7,274	$47	$49	$51	$54	$56	$58	$61	$64	$67	$70
-	Residential	Behavior	Home Energy Reports	Residential Behavior Pilot	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$18,746	$26,354	$36,786	$50,853	$69,446	$93,434	$123,420	$159,521	$201,147	$246,938
-	Residential	Behavior	AMI Data Portal	Residential Behavior Pilot	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,517	$3,538	$4,939	$6,828	$9,324	$12,545	$16,571	$21,418	$27,007	$33,156

APPENDIX B. Commercial and Industrial Measure Detail

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Assembly	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
2	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Assembly	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	10.2
3	CompressedAir	AODD Pump Controls	Biz-Custom	Assembly	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	16.3
4	CompressedAir	Compressed Air - Custom	Biz-Custom	Assembly	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.4
5	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Assembly	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4
6	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Assembly	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
7	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Assembly	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
8	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Assembly	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.4
9	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Assembly	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.2
10	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Assembly	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	18.2
11	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Assembly	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	6.0
12	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Assembly	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.3
13	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Assembly	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	4.6
14	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Assembly	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.0
15	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Assembly	ROB	1,030	1,030	6%	63	0.00	15	$63	100%	40%	40%	1	20%	20%	75.1%	36.9%	36.9%	0.7
16	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Assembly	ROB	1,030	1,030	13%	132	0.00	15	$127	100%	40%	40%	1	20%	20%	75.1%	37.3%	37.3%	0.7
17	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Assembly	ROB	1,030	1,030	28%	291	0.00	15	$127	100%	40%	40%	1	20%	20%	75.1%	52.2%	52.2%	1.5
18	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Assembly	ROB	1,030	1,030	42%	432	0.00	15	$127	100%	40%	40%	1	20%	20%	75.1%	55.8%	55.8%	2.3
19	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Assembly	ROB	1,102	1,102	6%	64	0.00	15	$30	100%	40%	40%	2	20%	20%	75.1%	51.3%	51.3%	1.4
20	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Assembly	ROB	1,102	1,102	12%	136	0.00	15	$37	100%	40%	40%	2	20%	20%	75.1%	56.3%	56.3%	2.4
21	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Assembly	ROB	1,102	1,102	20%	224	0.00	15	$37	100%	40%	40%	2	20%	20%	75.1%	59.3%	59.3%	4.0
22	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Assembly	ROB	1,102	1,102	46%	504	0.00	15	$37	100%	40%	40%	2	20%	20%	75.1%	63.4%	63.4%	9.0
23	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Assembly	Retro	1,047	1,047	7%	73	0.00	3	$5	100%	40%	40%	3	41%	50%	75.1%	60.0%	60.0%	2.5
24	Cooling	Air Side Economizer	Biz-Custom	Assembly	Retro	1,030	1,030	20%	206	0.00	10	$84	100%	40%	40%	4	41%	20%	75.1%	39.7%	39.7%	1.2
25	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Assembly	Retro	1,047	1,047	8%	85	0.00	10	$100	40%	40%	40%	5	41%	20%	44.0%	36.0%	36.0%	0.4
26	Cooling	HVAC Occupancy Controls	Biz-Custom	Assembly	ROB	2,900	2,900	20%	580	0.00	15	$537	100%	40%	40%	6	41%	20%	75.1%	36.0%	36.0%	0.7
27	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Assembly	ROB	897	897	13%	112	0.00	15	$47	100%	40%	40%	7	26%	20%	75.1%	52.7%	52.7%	1.6
28	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Assembly	ROB	897	897	18%	158	0.00	15	$206	40%	40%	40%	7	26%	20%	44.0%	36.0%	36.0%	0.5
29	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Assembly	ROB	897	897	22%	199	0.00	15	$206	40%	40%	40%	7	26%	20%	44.0%	36.4%	36.4%	0.6
30	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Assembly	ROB	897	897	33%	299	0.00	15	$253	100%	40%	40%	7	26%	20%	75.1%	39.6%	39.6%	0.8
31	Cooling	Smart Thermostat	Biz-Prescriptive	Assembly	ROB	897	897	14%	127	0.00	11	$175	40%	40%	40%	8	26%	12%	38.4%	32.3%	32.3%	0.4
32	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Assembly	ROB	1,056	1,056	8%	89	0.00	8	$84	40%	40%	40%	9	0%	20%	44.0%	37.6%	37.6%	0.4
33	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Assembly	ROB	1,158	1,158	7%	84	0.00	8	$84	40%	40%	40%	10	0%	20%	44.0%	36.9%	36.9%	0.4
34	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Assembly	ROB	1,323	1,323	10%	126	0.00	8	$84	40%	40%	40%	11	0%	20%	51.1%	45.4%	45.4%	0.6
35	Cooling	Air Cooled Chiller	Biz-Prescriptive	Assembly	ROB	917	917	6%	51	0.00	23	$126	40%	40%	40%	12	33%	15%	40.5%	32.0%	32.0%	0.4
36	Cooling	Chiller Tune-up	Biz-Prescriptive	Assembly	Retro	1,047	1,047	7%	73	0.00	3	$8	100%	40%	40%	13	33%	50%	75.1%	61.8%	61.8%	1.7
37	Cooling	HVAC/Chiller Custom	Biz-Custom	Assembly	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.6
38	Cooling	Window Film	Biz-Prescriptive	Assembly	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.8
39	Cooling	Triple Pane Windows	Biz-Custom	Assembly	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
40	Cooling	Energy Recovery Ventilator	Biz-Custom	Assembly	Retro	1,102	1,102	32%	355	0.00	15	$1,500	40%	40%	40%	16	100%	2%	31.4%	15.3%	15.3%	0.2
41	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Assembly	ROB	1,671	1,671	4%	71	0.00	16	$87	40%	40%	40%	1	33%	20%	44.0%	36.0%	36.0%	0.6
42	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Assembly	ROB	1,671	1,671	9%	152	0.00	16	$442	40%	40%	40%	1	33%	20%	44.0%	36.0%	36.0%	0.3
43	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Assembly	ROB	1,671	1,671	13%	217	0.00	16	$507	40%	40%	40%	1	33%	20%	44.0%	36.0%	36.0%	0.3
44	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Assembly	ROB	1,671	1,671	20%	339	0.00	16	$507	40%	40%	40%	1	33%	20%	44.0%	36.0%	36.0%	0.5
45	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Assembly	ROB	1,671	1,671	23%	385	0.00	25	$2,576	40%	40%	40%	1	33%	20%	44.0%	34.5%	34.5%	0.1
46	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Assembly	ROB	1,671	1,671	27%	457	0.00	25	$2,576	40%	40%	40%	1	33%	20%	44.0%	34.5%	34.5%	0.2
47	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Assembly	ROB	1,671	1,671	32%	541	0.00	25	$2,576	40%	40%	40%	1	33%	20%	44.0%	34.5%	34.5%	0.2
48	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Assembly	ROB	1,671	1,671	47%	785	0.00	25	$2,576	40%	40%	40%	1	33%	20%	44.0%	35.6%	35.6%	0.3
49	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Assembly	ROB	2,023	2,023	11%	231	0.00	16	$100	100%	40%	40%	2	26%	20%	75.1%	52.3%	52.3%	1.8
50	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Assembly	ROB	2,023	2,023	17%	338	0.00	16	$136	100%	40%	40%	2	26%	20%	75.1%	53.1%	53.1%	1.9
51	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Assembly	ROB	2,109	2,109	15%	322	0.00	16	$100	100%	40%	40%	2	26%	20%	75.1%	55.4%	55.4%	2.4
52	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Assembly	ROB	2,109	2,109	20%	428	0.00	16	$139	100%	40%	40%	2	26%	20%	75.1%	55.0%	55.0%	2.3
53	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Assembly	ROB	1,841	1,841	30%	556	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	34.5%	34.5%	0.2
54	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Assembly	ROB	1,841	1,841	34%	628	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	34.5%	34.5%	0.2
55	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Assembly	ROB	1,974	1,974	43%	844	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	36.0%	36.0%	0.3
56	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Assembly	ROB	1,974	1,974	55%	1,088	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	36.0%	36.0%	0.4
57	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Assembly	ROB	1,571	1,571	15%	239	0.00	16	$224	100%	40%	40%	2	26%	2%	75.1%	28.2%	28.2%	0.8
58	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Assembly	ROB	2,215	2,215	10%	220	0.00	16	$100	100%	40%	40%	3	26%	20%	75.1%	51.8%	51.8%	1.7
59	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Assembly	ROB	2,215	2,215	16%	354	0.00	16	$175	100%	40%	40%	3	26%	20%	75.1%	50.7%	50.7%	1.5
60	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Assembly	ROB	2,109	2,109	39%	824	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.3
61	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Assembly	ROB	2,109	2,109	42%	895	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.3
62	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Assembly	ROB	2,109	2,109	46%	979	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.4
63	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Assembly	ROB	2,109	2,109	58%	1,223	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.5
64	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Assembly	ROB	1,671	1,671	20%	339	0.00	16	$224	100%	40%	40%	4	15%	20%	75.1%	45.6%	45.6%	1.1
65	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Assembly	ROB	1,829	1,829	5%	86	0.00	8	$130	40%	40%	40%	5	0%	10%	37.0%	28.0%	28.0%	0.3
66	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Assembly	ROB	2,245	2,245	18%	410	0.00	8	$130	100%	40%	40%	6	0%	10%	75.1%	55.2%	55.2%	1.5
67	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Assembly	ROB	2,015	2,015	11%	213	0.00	8	$130	100%	40%	40%	7	0%	10%	75.1%	47.2%	47.2%	0.8
68	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Assembly	ROB	3,027	3,027	67%	2,027	0.00	15	$1,115	100%	40%	40%	1	100%	0%	68.0%	47.4%	47.4%	1.3
69	HotWater	Hot Water Pipe Insulation	Biz-Custom	Assembly	Retro	3,027	3,027	2%	61	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	0.9
70	HotWater	Faucet Aerator	Biz-Custom	Assembly	Retro	389	389	32%	126	0.00	10	$8	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	8.6
71	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Assembly	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	51.3
72	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Assembly	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
73	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Assembly	Retro	80	80	45%	36	0.00	15	$5	100%	40%	40%	1	56%	40%	76.5%	63.6%	63.6%	5.0
74	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Assembly	Retro	181	181	50%	91	0.00	15	$70	100%	40%	40%	1	56%	40%	76.5%	52.0%	52.0%	0.9
75	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Assembly	Retro	181	181	50%	91	0.00	15	$70	100%	40%	40%	1	56%	40%	76.5%	52.0%	52.0%	0.9
76	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Assembly	Retro	181	181	74%	135	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	48.0%	48.0%	0.3
77	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Assembly	Retro	1,687	1,687	68%	1,147	0.00	15	$330	100%	40%	40%	3	1%	34%	76.5%	58.6%	58.6%	2.4
78	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Assembly	Retro	1,687	1,687	66%	1,119	0.00	15	$330	100%	40%	40%	3	1%	34%	76.5%	58.4%	58.4%	2.4
79	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Assembly	Retro	359	359	61%	218	0.00	15	$44	100%	40%	40%	4	34%	34%	76.5%	61.6%	61.6%	3.5
80	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Assembly	Retro	359	359	59%	211	0.00	15	$44	100%	40%	40%	4	34%	34%	76.5%	61.4%	61.4%	3.4
81	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Assembly	ROB	150	150	86%	128	0.00	10	$1	100%	40%	40%	6	0%	43%	76.5%	67.8%	67.8%	67.8
82	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Assembly	Retro	124	124	68%	84	0.00	15	$27	100%	40%	40%	6	8%	45%	76.5%	57.5%	57.5%	2.2
83	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Assembly	ROB	113	113	81%	92	0.00	10	$1	100%	40%	40%	5	1%	20%	76.5%	67.7%	67.7%	48.4
84	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Assembly	Retro	67	67	100%	67	0.00	11	$4	100%	40%	40%	7	56%	0%	76.5%	66.1%	66.1%	9.4
85	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Assembly	Retro	305	305	30%	91	0.00	10	$65	40%	40%	40%	8	95%	10%	46.2%	41.1%	41.1%	0.7
86	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Assembly	Retro	390	390	30%	117	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	51.6%	51.6%	1.1

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
87	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Assembly	Retro	174	174	44%	77	0.00	10	$75	40%	40%	40%	8	95%	10%	37.0%	28.0%	28.0%	0.5
88	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Assembly	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.4
89	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Assembly	Retro	1	1	49%	1	0.00	15	$1	100%	40%	40%	8	95%	10%	76.5%	28.0%	28.0%	0.8
90	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Assembly	Retro	174	174	65%	113	0.00	15	$90	100%	40%	40%	8	91%	10%	76.5%	28.0%	28.0%	0.9
91	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Assembly	Retro	69	69	43%	29	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.3
92	InteriorLighting	Lighting - Custom	Biz-Custom Light	Assembly	Retro	4	4	25%	1	0.00	15	$1	40%	40%	40%	10	100%	0%	34.4%	22.9%	22.9%	0.7
93	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Assembly	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	12%	46%	76.5%	56.6%	56.6%	1.2
94	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Assembly	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	11%	54%	67.8%	63.2%	63.2%	0.7
95	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Assembly	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	11%	54%	76.5%	63.2%	63.2%	1.2
96	ExteriorLighting	LED outdoor pole decorative fixture (existing W ≥250)	Biz-Prescriptive Light	Assembly	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	11%	54%	67.8%	63.2%	63.2%	0.7
97	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Assembly	Retro	3,235	3,235	60%	1,953	0.00	6	$756	40%	40%	40%	5	11%	69%	78.3%	75.2%	75.2%	0.8
98	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Assembly	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	11%	69%	78.3%	75.2%	75.2%	1.5
99	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W ≥250)	Biz-Prescriptive Light	Assembly	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	11%	46%	62.1%	56.6%	56.6%	0.7
100	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Assembly	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	11%	46%	76.5%	56.6%	56.6%	1.2
101	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Assembly	Retro	181	181	69%	125	0.00	10	$274	40%	40%	40%	9	11%	20%	44.0%	30.4%	30.4%	0.2
102	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Assembly	Retro	0	0	0%	0	0.00	12	$0	0%	0%		10	0%	54%	76.5%	68.0%	68.0%	0.0
103	ExteriorLighting	LED fuel pump canopy fixture (existing W ≥250)	Biz-Prescriptive Light	Assembly	Retro	0	0	0%	0	0.00	12	$0	0%	0%		11	0%	54%	76.5%	68.0%	68.0%	0.0
104	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Assembly	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
105	Miscellaneous	Miscellaneous Custom	Biz-Custom	Assembly	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	44%	10%	37.0%	20.5%	20.5%	0.2
106	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Assembly	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	31%	10%	76.5%	60.4%	60.4%	3.5
107	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Assembly	Retro	262	262	83%	217	0.00	10	$483	40%	40%	40%	4	5%	10%	37.0%	21.6%	21.6%	0.2
108	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Assembly	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	0%	2%	31.4%	11.1%	11.1%	0.2
109	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Assembly	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	1%	70%	79.0%	76.0%	76.0%	1.0
110	Motors	Cogged V-Belt	Biz-Custom	Assembly	Retro	17,237	17,237	3%	534	0.00	15	$384	100%	40%	40%	1	50%	10%	75.1%	32.8%	32.8%	1.0
111	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Assembly	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5
112	Motors	Power Drive Systems	Biz-Custom	Assembly	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5
113	Motors	Switch Reluctance Motors	Biz-Custom	Assembly	Retro	33,406	33,406	31%	10,222	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	48.3%	48.3%	13.5
114	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Assembly	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.2
115	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Assembly	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	30%	90%	93.0%	92.0%	92.0%	0.0
116	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Assembly	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.8
117	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Assembly	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.0
118	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Assembly	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	22.4
119	Office_PC	Energy Star Server	Biz-Custom	Assembly	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.4
120	Office_PC	Server Virtualization	Biz-Custom	Assembly	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
121	Office_PC	High Efficiency CRAC unit	Biz-Custom	Assembly	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.8
122	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Assembly	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	3.0
123	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Assembly	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.7
124	Office_PC	Energy Star Laptop	Biz-Custom	Assembly	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
125	Office_PC	Energy Star Monitor	Biz-Custom	Assembly	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
126	Refrigeration	Strip Curtains	Biz-Custom	Assembly	Retro	0	0	0%	0	0.00	4	$0	0%	0%		1	11%	30%	71.2%	47.5%	47.5%	0.0
127	Refrigeration	Bare Suction Line	Biz-Custom	Assembly	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	0%	50%	71.2%	60.0%	60.0%	3.6
128	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Assembly	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	7%	25%	47.5%	40.0%	40.0%	0.4
129	Refrigeration	Saturated Suction Controls	Biz-Custom	Assembly	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
130	Refrigeration	Compressor Retrofit	Biz-Custom	Assembly	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	24%	25%	47.5%	35.6%	35.6%	0.2
131	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Assembly	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	7%	80%	86.0%	84.0%	84.0%	3.5
132	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Assembly	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	7%	25%	71.2%	42.9%	42.9%	1.8
133	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Assembly	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	9%	25%	71.2%	40.0%	40.0%	0.9
134	Refrigeration	Refrigeration Economizer	Biz-Custom	Assembly	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	34%	10%	71.2%	28.2%	28.2%	0.5
135	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Assembly	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	12%	25%	71.2%	55.0%	55.0%	1.0
136	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Assembly	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	9%	50%	71.2%	60.0%	60.0%	2.6
137	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Assembly	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	3%	25%	47.5%	40.0%	40.0%	0.5
138	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Assembly	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	2%	80%	86.0%	84.0%	84.0%	3.5
139	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Biz-Custom	Assembly	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	2%	2%	71.2%	44.4%	44.4%	2.7
140	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Assembly	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	11%	54%	67.8%	63.2%	63.2%	0.3
141	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Assembly	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	11%	54%	67.8%	61.3%	61.3%	0.1
142	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Assembly	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	4%	25%	71.2%	60.6%	60.6%	4.1
143	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Assembly	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	4%	50%	71.2%	60.0%	60.0%	6.4
144	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Assembly	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	4%	25%	71.2%	41.5%	41.5%	1.2
145	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Assembly	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	4%	54%	67.8%	63.2%	63.2%	0.5
146	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Assembly	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	4%	54%	67.8%	61.3%	61.3%	0.1
147	Refrigeration	Refrigeration - Custom	Biz-Custom	Assembly	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
148	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Assembly	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
149	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Assembly	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	7%	44%	60.8%	55.2%	55.2%	0.3
150	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Assembly	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	2%	30%	62.5%	55.6%	55.6%	0.6
151	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Assembly	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	7%	35%	71.2%	62.3%	62.3%	10.5
152	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Assembly	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	7%	18%	71.2%	61.2%	61.2%	5.4
153	Ventilation	Demand Controlled Ventilation	Biz-Custom	Assembly	Retro	1,698	1,698	20%	340	0.00	15	$227	100%	40%	40%	1	100%	13%	75.1%	34.0%	34.0%	1.2
154	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Assembly	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	13%	75.1%	56.3%	56.3%	2.6
155	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Assembly	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	39.8%	39.8%	1.7
156	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Assembly	Retro	0	0	0%	0	0.00	15	$260	40%	40%	40%	2	100%	20%	75.1%	50.0%	50.0%	0.0
157	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Assembly	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.7
158	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Assembly	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
159	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Assembly	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
160	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Assembly	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
161	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Assembly	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	3.0
162	Behavioral	COM Competitions	Biz-Custom	Assembly	Retro	53	53	2%	1	0.00	2	$0	100%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	3.3
163	Behavioral	Business Energy Reports	Biz-Custom	Assembly	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
164	Behavioral	Building Benchmarking	Biz-Custom	Assembly	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
165	Behavioral	Strategic Energy Management	Biz-Custom SEM	Assembly	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
166	Behavioral	BEIMS	Biz-Custom	Assembly	Retro	20	20	5%	1	0.00	2	$0	40%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	0.3
167	Behavioral	Building Operator Certification	Biz-Custom	Assembly	Retro	10	10	3%	0	0.00	3	$0	40%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	0.3
168	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Education	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
169	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Education	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	10.3
170	CompressedAir	AODD Pump Controls	Biz-Custom	Education	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	16.4
171	CompressedAir	Compressed Air - Custom	Biz-Custom	Education	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.4
172	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Education	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
173	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Education	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.8
174	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Education	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.8
175	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Education	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.5
176	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Education	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.8
177	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Education	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	21.7
178	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Education	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	7.1
179	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Education	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.6
180	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Education	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	5.5
181	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Education	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.2
182	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Education	ROB	723	723	6%	44	0.00	15	$63	40%	40%	40%	1	23%	20%	44.0%	36.0%	36.0%	0.5
183	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Education	ROB	723	723	13%	93	0.00	15	$127	40%	40%	40%	1	23%	20%	44.0%	36.0%	36.0%	0.5
184	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Education	ROB	723	723	28%	204	0.00	15	$127	100%	40%	40%	1	23%	20%	75.1%	46.8%	46.8%	1.1
185	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Education	ROB	723	723	42%	303	0.00	15	$127	100%	40%	40%	1	23%	20%	75.1%	52.6%	52.6%	1.6
186	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Education	ROB	773	773	6%	45	0.00	15	$30	100%	40%	40%	2	23%	20%	75.1%	45.3%	45.3%	1.0
187	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Education	ROB	773	773	12%	95	0.00	15	$37	100%	40%	40%	2	23%	20%	75.1%	53.4%	53.4%	1.7
188	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Education	ROB	773	773	20%	157	0.00	15	$37	100%	40%	40%	2	23%	20%	75.1%	57.3%	57.3%	2.8
189	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Education	ROB	773	773	46%	354	0.00	15	$37	100%	40%	40%	2	23%	20%	75.1%	62.0%	62.0%	6.3
190	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Education	Retro	735	735	7%	51	0.00	3	$5	100%	40%	40%	3	46%	50%	75.1%	60.0%	60.0%	1.8
191	Cooling	Air Side Economizer	Biz-Custom	Education	Retro	723	723	20%	145	0.00	10	$84	100%	40%	40%	4	46%	20%	75.1%	36.1%	36.1%	0.9
192	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Education	Retro	735	735	14%	107	0.00	10	$100	40%	40%	40%	5	46%	20%	44.0%	37.6%	37.6%	0.5
193	Cooling	HVAC Occupancy Controls	Biz-Custom	Education	ROB	1,113	1,113	20%	223	0.00	15	$537	40%	40%	40%	6	46%	20%	44.0%	34.4%	34.4%	0.3
194	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Education	ROB	630	630	13%	79	0.00	15	$47	100%	40%	40%	7	3%	20%	75.1%	47.7%	47.7%	1.1
195	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Education	ROB	630	630	18%	111	0.00	15	$206	40%	40%	40%	7	3%	20%	44.0%	36.0%	36.0%	0.4
196	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Education	ROB	630	630	22%	140	0.00	15	$206	40%	40%	40%	7	3%	20%	44.0%	36.0%	36.0%	0.4
197	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Education	ROB	630	630	33%	210	0.00	15	$253	40%	40%	40%	7	3%	20%	44.0%	36.0%	36.0%	0.5
198	Cooling	Smart Thermostat	Biz-Prescriptive	Education	ROB	630	630	14%	89	0.00	11	$175	40%	40%	40%	8	3%	12%	38.4%	29.6%	29.6%	0.3
199	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Education	ROB	741	741	8%	63	0.00	8	$84	40%	40%	40%	9	0%	20%	44.0%	36.0%	36.0%	0.3
200	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Education	ROB	813	813	7%	59	0.00	8	$84	40%	40%	40%	10	0%	20%	44.0%	36.0%	36.0%	0.3
201	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Education	ROB	928	928	10%	88	0.00	8	$84	40%	40%	40%	11	0%	20%	44.0%	37.4%	37.4%	0.4
202	Cooling	Air Cooled Chiller	Biz-Prescriptive	Education	ROB	644	644	6%	36	0.00	23	$126	40%	40%	40%	12	51%	15%	40.5%	30.6%	30.6%	0.2
203	Cooling	Chiller Tune-up	Biz-Prescriptive	Education	Retro	735	735	7%	51	0.00	3	$8	100%	40%	40%	13	51%	50%	75.1%	60.0%	60.0%	1.2
204	Cooling	HVAC/Chiller Custom	Biz-Custom	Education	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.5
205	Cooling	Window Film	Biz-Prescriptive	Education	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.8
206	Cooling	Triple Pane Windows	Biz-Custom	Education	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
207	Cooling	Energy Recovery Ventilator	Biz-Custom	Education	Retro	773	773	19%	148	0.00	15	$1,500	40%	40%	40%	16	100%	2%	31.4%	15.3%	15.3%	0.1
208	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Education	ROB	2,196	2,196	3%	72	0.00	16	$87	40%	40%	40%	1	5%	20%	44.0%	36.0%	36.0%	0.6
209	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Education	ROB	2,196	2,196	8%	172	0.00	16	$442	40%	40%	40%	1	5%	20%	44.0%	36.0%	36.0%	0.3
210	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Education	ROB	2,196	2,196	11%	247	0.00	16	$507	40%	40%	40%	1	5%	20%	44.0%	36.0%	36.0%	0.4
211	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Education	ROB	2,196	2,196	16%	361	0.00	16	$507	40%	40%	40%	1	5%	20%	44.0%	36.0%	36.0%	0.5
212	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Education	ROB	2,196	2,196	22%	475	0.00	25	$2,576	40%	40%	40%	1	5%	20%	44.0%	34.5%	34.5%	0.2
213	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Education	ROB	2,196	2,196	26%	571	0.00	25	$2,576	40%	40%	40%	1	5%	20%	44.0%	34.5%	34.5%	0.2
214	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Education	ROB	2,196	2,196	31%	684	0.00	25	$2,576	40%	40%	40%	1	5%	20%	44.0%	34.5%	34.5%	0.3
215	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Education	ROB	2,196	2,196	46%	1,013	0.00	25	$2,576	40%	40%	40%	1	5%	20%	44.0%	36.0%	36.0%	0.4
216	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Education	ROB	2,619	2,619	10%	262	0.00	16	$100	100%	40%	40%	2	42%	20%	75.1%	53.6%	53.6%	2.0
217	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Education	ROB	2,619	2,619	15%	395	0.00	16	$136	100%	40%	40%	2	42%	20%	75.1%	54.6%	54.6%	2.2
218	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Education	ROB	2,717	2,717	12%	332	0.00	16	$100	100%	40%	40%	2	42%	20%	75.1%	55.6%	55.6%	2.5
219	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Education	ROB	2,717	2,717	17%	467	0.00	16	$139	100%	40%	40%	2	42%	20%	75.1%	55.7%	55.7%	2.6
220	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Education	ROB	2,397	2,397	28%	676	0.00	25	$2,576	40%	40%	40%	2	42%	20%	44.0%	34.5%	34.5%	0.3
221	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Education	ROB	2,397	2,397	32%	772	0.00	25	$2,576	40%	40%	40%	2	42%	20%	44.0%	35.4%	35.4%	0.3
222	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Education	ROB	2,490	2,490	39%	977	0.00	25	$2,576	40%	40%	40%	2	42%	20%	44.0%	36.0%	36.0%	0.4
223	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Education	ROB	2,490	2,490	52%	1,306	0.00	25	$2,576	40%	40%	40%	2	42%	20%	44.0%	36.0%	36.0%	0.5
224	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Education	ROB	2,003	2,003	8%	168	0.00	16	$224	40%	40%	40%	2	42%	2%	36.9%	24.6%	24.6%	0.6
225	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Education	ROB	2,791	2,791	8%	227	0.00	16	$100	100%	40%	40%	3	42%	20%	75.1%	52.1%	52.1%	1.7
226	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Education	ROB	2,791	2,791	14%	386	0.00	16	$175	100%	40%	40%	3	42%	20%	75.1%	51.8%	51.8%	1.7
227	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Education	ROB	2,717	2,717	37%	996	0.00	25	$2,576	40%	40%	40%	3	42%	20%	44.0%	36.0%	36.0%	0.4
228	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Education	ROB	2,717	2,717	40%	1,092	0.00	25	$2,576	40%	40%	40%	3	42%	20%	44.0%	36.0%	36.0%	0.4
229	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Education	ROB	2,717	2,717	44%	1,205	0.00	25	$2,576	40%	40%	40%	3	42%	20%	44.0%	36.0%	36.0%	0.5
230	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Education	ROB	2,717	2,717	56%	1,534	0.00	25	$2,576	40%	40%	40%	3	42%	20%	44.0%	36.0%	36.0%	0.6
231	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Education	ROB	2,196	2,196	16%	361	0.00	16	$224	100%	40%	40%	4	12%	20%	75.1%	46.9%	46.9%	1.2
232	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Education	ROB	2,448	2,448	2%	60	0.00	8	$130	40%	40%	40%	5	0%	10%	37.0%	27.2%	27.2%	0.2
233	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Education	ROB	2,852	2,852	10%	288	0.00	8	$130	100%	40%	40%	6	0%	10%	75.1%	51.8%	51.8%	1.0
234	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Education	ROB	2,651	2,651	6%	149	0.00	8	$130	40%	40%	40%	7	0%	10%	43.6%	38.8%	38.8%	0.5
235	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Education	ROB	5,042	5,042	67%	3,377	0.00	15	$1,115	100%	40%	40%	1	100%	4%	68.0%	53.2%	53.2%	2.2
236	HotWater	Hot Water Pipe Insulation	Biz-Custom	Education	Retro	5,042	5,042	2%	101	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	1.5
237	HotWater	Faucet Aerator	Biz-Custom	Education	Retro	467	467	32%	151	0.00	10	$8	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	10.3
238	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Education	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	51.2
239	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Education	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
240	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Education	Retro	116	116	45%	52	0.00	15	$5	100%	40%	40%	1	84%	40%	76.5%	65.0%	65.0%	7.2
241	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Education	Retro	262	262	50%	131	0.00	15	$70	100%	40%	40%	1	84%	40%	76.5%	52.0%	52.0%	1.3
242	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Education	Retro	262	262	50%	131	0.00	15	$70	100%	40%	40%	1	84%	40%	76.5%	52.0%	52.0%	1.3
243	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Education	Retro	262	262	74%	195	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	51.0%	51.0%	0.4
244	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Education	Retro	2,440	2,440	68%	1,660	0.00	15	$330	100%	40%	40%	3	5%	34%	76.5%	61.7%	61.7%	3.5
245	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Education	Retro	2,440	2,440	66%	1,619	0.00	15	$330	100%	40%	40%	3	5%	34%	76.5%	61.5%	61.5%	3.4
246	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Education	Retro	520	520	61%	316	0.00	15	$44	100%	40%	40%	4	6%	34%	76.5%	63.6%	63.6%	5.0
247	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Education	Retro	520	520	59%	305	0.00	15	$44	100%	40%	40%	4	6%	34%	76.5%	63.5%	63.5%	4.8
248	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Education	ROB	229	229	86%	197	0.00	6	$1	100%	40%	40%	6	0%	43%	76.5%	67.9%	67.9%	69.0
249	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Education	Retro	180	180	68%	121	0.00	15	$27	100%	40%	40%	6	3%	45%	76.5%	60.9%	60.9%	3.1
250	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Education	ROB	173	173	81%	140	0.00	6	$1	100%	40%	40%	5	0%	20%	76.5%	67.8%	67.8%	49.2
251	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Education	Retro	97	97	100%	97	0.00	11	$4	100%	40%	40%	7	84%	0%	76.5%	66.7%	66.7%	13.5
252	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Education	Retro	440	440	30%	132	0.00	10	$65	100%	40%	40%	8	95%	10%	76.5%	51.4%	51.4%	1.1
253	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Education	Retro	564	564	30%	169	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	56.8%	56.8%	1.5
254	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Education	Retro	252	252	44%	111	0.00	10	$75	40%	40%	40%	8	95%	10%	48.4%	32.2%	32.2%	0.8
255	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Education	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.3
256	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Education	Retro	3	3	49%	1	0.00	15	$0	100%	40%	40%	8	95%	10%	76.5%	43.8%	43.8%	2.3
257	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Education	Retro	337	337	65%	219	0.00	15	$90	100%	40%	40%	8	97%	10%	76.5%	40.8%	40.8%	1.7
258	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Education	Retro	66	66	43%	28	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.3

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
259	InteriorLighting	Lighting - Custom	Biz-Custom Light	Education	Retro	4	4	25%	1	0.00	15	$1	100%	40%	40%	10	100%	0%	76.5%	33.4%	33.4%	1.1
260	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Education	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	12%	46%	76.5%	56.6%	56.6%	1.2
261	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Education	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	11%	54%	67.8%	63.2%	63.2%	0.7
262	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Education	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	11%	54%	76.5%	63.2%	63.2%	1.2
263	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Education	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	11%	54%	67.8%	63.2%	63.2%	0.7
264	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Education	Retro	3,235	3,235	60%	1,953	0.00	6	$756	40%	40%	40%	5	11%	69%	78.3%	75.2%	75.2%	0.8
265	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Education	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	11%	69%	78.3%	75.2%	75.2%	1.5
266	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W ≥250)	Biz-Prescriptive Light	Education	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	11%	46%	62.1%	56.6%	56.6%	0.7
267	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Education	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	11%	46%	76.5%	56.6%	56.6%	1.2
268	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Education	Retro	262	262	69%	181	0.00	10	$274	40%	40%	40%	9	11%	20%	44.0%	33.7%	33.7%	0.3
269	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Education	Retro	0	0	0%	0	0.00	12	$0	0%	0%		10	0%	54%	76.5%	68.0%	68.0%	0.0
270	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Education	Retro	0	0	0%	0	0.00	12	$0	0%	0%		11	0%	54%	76.5%	68.0%	68.0%	0.0
271	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Education	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
272	Miscellaneous	Miscellaneous Custom	Biz-Custom	Education	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	0%	10%	37.0%	20.5%	20.5%	0.2
273	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Education	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	42%	10%	76.5%	60.4%	60.4%	4.1
274	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Education	Retro	2,093	2,093	83%	1,737	0.00	10	$483	100%	40%	40%	4	5%	10%	76.5%	44.2%	44.2%	1.9
275	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Education	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	0%	2%	31.4%	11.1%	11.1%	0.2
276	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Education	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	1%	70%	79.0%	76.0%	76.0%	1.0
277	Motors	Cogged V-Belt	Biz-Custom	Education	Retro	17,237	17,237	3%	534	0.00	15	$384	100%	40%	40%	1	50%	10%	75.1%	32.8%	32.8%	1.0
278	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Education	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.6
279	Motors	Power Drive Systems	Biz-Custom	Education	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.6
280	Motors	Switch Reluctance Motors	Biz-Custom	Education	Retro	33,406	33,406	31%	10,222	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	48.3%	48.3%	13.7
281	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Education	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.2
282	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Education	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	30%	90%	93.0%	92.0%	92.0%	0.0
283	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Education	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.9
284	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Education	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.1
285	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Education	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	22.7
286	Office_PC	Energy Star Server	Biz-Custom	Education	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.4
287	Office_PC	Server Virtualization	Biz-Custom	Education	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
288	Office_PC	High Efficiency CRAC unit	Biz-Custom	Education	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.8
289	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Education	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	3.0
290	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Education	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.7
291	Office_PC	Energy Star Laptop	Biz-Custom	Education	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
292	Office_PC	Energy Star Monitor	Biz-Custom	Education	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
293	Refrigeration	Strip Curtains	Biz-Custom	Education	Retro	0	0	0%	0	0.00	4	$0	0%	0%		1	11%	30%	71.2%	47.5%	47.5%	0.0
294	Refrigeration	Bare Suction Line	Biz-Custom	Education	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	0%	50%	71.2%	60.0%	60.0%	3.6
295	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Education	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	7%	25%	47.5%	40.0%	40.0%	0.4
296	Refrigeration	Saturated Suction Controls	Biz-Custom	Education	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
297	Refrigeration	Compressor Retrofit	Biz-Custom	Education	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	25%	25%	47.5%	35.6%	35.6%	0.2
298	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Education	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	7%	80%	86.0%	84.0%	84.0%	3.6
299	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Education	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	7%	25%	71.2%	42.9%	42.9%	1.8
300	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Education	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	9%	25%	71.2%	40.0%	40.0%	0.9
301	Refrigeration	Refrigeration Economizer	Biz-Custom	Education	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	35%	10%	71.2%	28.2%	28.2%	0.5
302	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Education	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	12%	75%	82.5%	80.0%	80.0%	1.0
303	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Education	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	9%	50%	71.2%	60.0%	60.0%	2.6
304	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Education	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	3%	25%	47.5%	40.0%	40.0%	0.5
305	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Education	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	2%	80%	86.0%	84.0%	84.0%	3.6
306	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Biz-Custom	Education	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	2%	2%	71.2%	44.4%	44.4%	2.7
307	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Education	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	12%	54%	67.8%	63.2%	63.2%	0.3
308	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Education	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	12%	54%	67.8%	61.3%	61.3%	0.1
309	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Education	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	4%	75%	82.5%	80.0%	80.0%	4.1
310	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Education	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	4%	50%	71.2%	60.0%	60.0%	6.4
311	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Education	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	4%	25%	71.2%	41.5%	41.5%	1.2
312	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Education	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	4%	54%	67.8%	63.2%	63.2%	0.5
313	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Education	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	4%	54%	67.8%	61.3%	61.3%	0.1
314	Refrigeration	Refrigeration - Custom	Biz-Custom	Education	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
315	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Education	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
316	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Education	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	4%	44%	60.8%	55.2%	55.2%	0.3
317	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Education	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	3%	30%	62.5%	55.6%	55.6%	0.6
318	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Education	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	7%	35%	71.2%	62.3%	62.3%	10.5
319	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Education	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	7%	18%	71.2%	61.2%	61.2%	5.4
320	Ventilation	Demand Controlled Ventilation	Biz-Custom	Education	Retro	2,223	2,223	20%	445	0.00	15	$227	100%	40%	40%	1	100%	22%	75.1%	37.8%	37.8%	1.5
321	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Education	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	22%	75.1%	56.3%	56.3%	2.6
322	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Education	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	39.8%	39.8%	1.7
323	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Education	Retro	0	0	0%	0	0.00	15	$260	40%	40%	40%	2	100%	20%	75.1%	50.0%	50.0%	0.0
324	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Education	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.7
325	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Education	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
326	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Education	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
327	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Education	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
328	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Education	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	3.0
329	Behavioral	COM Competitions	Biz-Custom	Education	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
330	Behavioral	Business Energy Reports	Biz-Custom	Education	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
331	Behavioral	Building Benchmarking	Biz-Custom	Education	Retro	83	83	1%	1	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.6
332	Behavioral	Strategic Energy Management	Biz-Custom SEM	Education	Retro	33	33	3%	1	0.00	5	$0	100%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	1.1
333	Behavioral	BEIMS	Biz-Custom	Education	Retro	43	43	2%	1	0.00	2	$0	40%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	0.3
334	Behavioral	Building Operator Certification	Biz-Custom	Education	Retro	41	41	3%	1	0.00	3	$0	100%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	1.1
335	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Food Sales	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
336	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Food Sales	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	10.3
337	CompressedAir	AODD Pump Controls	Biz-Custom	Food Sales	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	16.4
338	CompressedAir	Compressed Air - Custom	Biz-Custom	Food Sales	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.4
339	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Food Sales	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4
340	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Food Sales	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
341	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Food Sales	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
342	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Food Sales	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.4
343	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Food Sales	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.2
344	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Food Sales	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	18.5

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
345	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Food Sales	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	6.1
346	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Food Sales	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.3
347	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Food Sales	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	4.7
348	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Food Sales	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.1
349	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Food Sales	ROB	1,399	1,399	6%	86	0.00	15	$63	100%	40%	40%	1	19%	20%	75.1%	43.3%	43.3%	0.9
350	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Food Sales	ROB	1,399	1,399	13%	180	0.00	15	$127	100%	40%	40%	1	19%	20%	75.1%	44.1%	44.1%	1.0
351	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Food Sales	ROB	1,399	1,399	28%	395	0.00	15	$127	100%	40%	40%	1	19%	20%	75.1%	55.1%	55.1%	2.1
352	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Food Sales	ROB	1,399	1,399	42%	586	0.00	15	$127	100%	40%	40%	1	19%	20%	75.1%	57.8%	57.8%	3.1
353	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Food Sales	ROB	1,497	1,497	6%	87	0.00	15	$30	100%	40%	40%	2	19%	20%	75.1%	54.5%	54.5%	1.9
354	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Food Sales	ROB	1,497	1,497	12%	184	0.00	15	$37	100%	40%	40%	2	19%	20%	75.1%	58.2%	58.2%	3.3
355	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Food Sales	ROB	1,497	1,497	20%	304	0.00	15	$37	100%	40%	40%	2	19%	20%	75.1%	61.2%	61.2%	5.5
356	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Food Sales	ROB	1,497	1,497	46%	684	0.00	15	$37	100%	40%	40%	2	19%	20%	75.1%	64.3%	64.3%	12.4
357	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Food Sales	Retro	1,422	1,422	7%	100	0.00	3	$5	100%	40%	40%	3	38%	50%	75.1%	60.0%	60.0%	3.5
358	Cooling	Air Side Economizer	Biz-Custom	Food Sales	Retro	1,399	1,399	20%	280	0.00	10	$84	100%	40%	40%	4	38%	20%	75.1%	41.7%	41.7%	1.7
359	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Food Sales	Retro	1,422	1,422	5%	68	0.00	10	$100	40%	40%	40%	5	38%	20%	44.0%	36.0%	36.0%	0.3
360	Cooling	HVAC Occupancy Controls	Biz-Custom	Food Sales	ROB	2,900	2,900	20%	580	0.00	15	$537	100%	40%	40%	6	38%	20%	75.1%	36.0%	36.0%	0.7
361	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,219	1,219	13%	152	0.00	15	$47	100%	40%	40%	7	23%	20%	75.1%	55.5%	55.5%	2.2
362	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,219	1,219	18%	215	0.00	15	$206	100%	40%	40%	7	23%	20%	75.1%	37.3%	37.3%	0.7
363	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,219	1,219	22%	271	0.00	15	$206	100%	40%	40%	7	23%	20%	75.1%	42.3%	42.3%	0.9
364	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,219	1,219	33%	406	0.00	15	$253	100%	40%	40%	7	23%	20%	75.1%	46.8%	46.8%	1.1
365	Cooling	Smart Thermostat	Biz-Prescriptive	Food Sales	ROB	1,219	1,219	14%	173	0.00	11	$175	40%	40%	40%	8	23%	12%	41.3%	36.7%	36.7%	0.5
366	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Food Sales	ROB	1,434	1,434	8%	121	0.00	8	$84	40%	40%	40%	9	38%	20%	50.1%	44.6%	44.6%	0.6
367	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Food Sales	ROB	1,573	1,573	7%	114	0.00	8	$84	40%	40%	40%	10	38%	20%	48.6%	43.2%	43.2%	0.6
368	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Food Sales	ROB	1,796	1,796	10%	171	0.00	8	$84	100%	40%	40%	11	38%	20%	75.1%	50.8%	50.8%	0.9
369	Cooling	Air Cooled Chiller	Biz-Prescriptive	Food Sales	ROB	1,246	1,246	6%	70	0.00	23	$126	40%	40%	40%	12	0%	15%	40.5%	32.0%	32.0%	0.5
370	Cooling	Chiller Tune-up	Biz-Prescriptive	Food Sales	Retro	1,422	1,422	7%	100	0.00	3	$8	100%	40%	40%	13	0%	50%	75.1%	63.1%	63.1%	2.3
371	Cooling	HVAC/Chiller Custom	Biz-Custom	Food Sales	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.6
372	Cooling	Window Film	Biz-Prescriptive	Food Sales	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.8
373	Cooling	Triple Pane Windows	Biz-Custom	Food Sales	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
374	Cooling	Energy Recovery Ventilator	Biz-Custom	Food Sales	Retro	1,497	1,497	6%	96	0.00	15	$1,500	40%	40%	40%	16	100%	2%	31.4%	15.3%	15.3%	0.0
375	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,581	1,581	5%	81	0.00	16	$87	100%	40%	40%	1	31%	20%	75.1%	36.0%	36.0%	0.7
376	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,581	1,581	10%	162	0.00	16	$442	40%	40%	40%	1	31%	20%	44.0%	36.0%	36.0%	0.3
377	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,581	1,581	15%	231	0.00	16	$507	40%	40%	40%	1	31%	20%	44.0%	36.0%	36.0%	0.4
378	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,581	1,581	24%	378	0.00	16	$507	40%	40%	40%	1	31%	20%	44.0%	36.0%	36.0%	0.6
379	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,581	1,581	24%	386	0.00	25	$2,576	40%	40%	40%	1	31%	20%	44.0%	34.5%	34.5%	0.1
380	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,581	1,581	29%	452	0.00	25	$2,576	40%	40%	40%	1	31%	20%	44.0%	34.5%	34.5%	0.2
381	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,581	1,581	34%	531	0.00	25	$2,576	40%	40%	40%	1	31%	20%	44.0%	34.5%	34.5%	0.2
382	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Food Sales	ROB	1,581	1,581	48%	755	0.00	25	$2,576	40%	40%	40%	1	31%	20%	44.0%	35.1%	35.1%	0.3
383	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Food Sales	ROB	1,941	1,941	13%	246	0.00	16	$100	100%	40%	40%	2	26%	20%	75.1%	53.0%	53.0%	1.9
384	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Food Sales	ROB	1,941	1,941	18%	353	0.00	16	$136	100%	40%	40%	2	26%	20%	75.1%	53.5%	53.5%	2.0
385	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Food Sales	ROB	2,032	2,032	18%	366	0.00	16	$100	100%	40%	40%	2	26%	20%	75.1%	56.3%	56.3%	2.8
386	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Food Sales	ROB	2,032	2,032	23%	468	0.00	16	$139	100%	40%	40%	2	26%	20%	75.1%	55.8%	55.8%	2.6
387	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Food Sales	ROB	1,758	1,758	32%	563	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	34.5%	34.5%	0.2
388	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Food Sales	ROB	1,758	1,758	36%	630	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	34.5%	34.5%	0.2
389	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Food Sales	ROB	1,938	1,938	46%	887	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	36.0%	36.0%	0.3
390	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Food Sales	ROB	1,938	1,938	57%	1,112	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	36.0%	36.0%	0.4
391	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Food Sales	ROB	1,528	1,528	21%	325	0.00	16	$224	100%	40%	40%	2	26%	2%	75.1%	33.5%	33.5%	1.1
392	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Food Sales	ROB	2,176	2,176	11%	250	0.00	16	$100	100%	40%	40%	3	26%	20%	75.1%	53.1%	53.1%	1.9
393	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Food Sales	ROB	2,176	2,176	18%	388	0.00	16	$175	100%	40%	40%	3	26%	20%	75.1%	51.8%	51.8%	1.7
394	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Food Sales	ROB	2,032	2,032	41%	837	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.3
395	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Food Sales	ROB	2,032	2,032	44%	904	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.3
396	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Food Sales	ROB	2,032	2,032	48%	982	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.4
397	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Food Sales	ROB	2,032	2,032	59%	1,207	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.5
398	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Food Sales	ROB	1,581	1,581	24%	378	0.00	16	$224	100%	40%	40%	4	8%	20%	75.1%	47.8%	47.8%	1.3
399	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Food Sales	ROB	1,701	1,701	7%	117	0.00	8	$130	40%	40%	40%	5	3%	10%	39.9%	28.0%	28.0%	0.4
400	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Food Sales	ROB	2,190	2,190	25%	557	0.00	8	$130	100%	40%	40%	6	3%	10%	75.1%	57.3%	57.3%	2.0
401	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Food Sales	ROB	1,905	1,905	15%	289	0.00	8	$130	100%	40%	40%	7	3%	10%	75.1%	51.9%	51.9%	1.0
402	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Food Sales	ROB	4,687	4,687	67%	3,139	0.00	15	$1,115	100%	40%	40%	1	100%	0%	68.0%	52.5%	52.5%	2.0
403	HotWater	Hot Water Pipe Insulation	Biz-Custom	Food Sales	Retro	4,687	4,687	2%	94	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	1.4
404	HotWater	Faucet Aerator	Biz-Custom	Food Sales	Retro	284	284	32%	92	0.00	10	$8	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	6.3
405	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Food Sales	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	51.3
406	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Food Sales	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
407	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Food Sales	Retro	197	197	45%	88	0.00	9	$5	100%	40%	40%	1	84%	40%	76.5%	66.2%	66.2%	8.4
408	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Food Sales	Retro	445	445	50%	223	0.00	9	$70	100%	40%	40%	1	84%	40%	76.5%	57.7%	57.7%	1.5
409	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Food Sales	Retro	445	445	50%	223	0.00	9	$70	100%	40%	40%	1	84%	40%	76.5%	57.7%	57.7%	1.5
410	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Food Sales	Retro	445	445	74%	331	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	52.0%	52.0%	0.6
411	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Food Sales	Retro	4,147	4,147	68%	2,821	0.00	9	$330	100%	40%	40%	3	5%	34%	76.5%	64.4%	64.4%	4.1
412	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Food Sales	Retro	4,147	4,147	66%	2,751	0.00	9	$330	100%	40%	40%	3	5%	34%	76.5%	64.3%	64.3%	4.0
413	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Food Sales	Retro	883	883	61%	537	0.00	9	$44	100%	40%	40%	4	7%	34%	76.5%	65.5%	65.5%	5.8
414	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Food Sales	Retro	883	883	59%	519	0.00	9	$44	100%	40%	40%	4	7%	34%	76.5%	65.4%	65.4%	5.6
415	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Food Sales	ROB	308	308	86%	264	0.00	4	$1	100%	40%	40%	6	0%	43%	76.5%	67.9%	67.9%	64.9
416	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Food Sales	Retro	306	306	68%	206	0.00	9	$27	100%	40%	40%	6	3%	45%	76.5%	63.9%	63.9%	3.6
417	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Food Sales	ROB	233	233	81%	188	0.00	4	$1	100%	40%	40%	5	0%	20%	76.5%	67.9%	67.9%	46.3
418	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Food Sales	Retro	164	164	100%	164	0.00	11	$4	100%	40%	40%	7	84%	0%	76.5%	67.3%	67.3%	22.6
419	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Food Sales	Retro	749	749	30%	225	0.00	10	$65	100%	40%	40%	8	95%	10%	76.5%	58.5%	58.5%	1.8
420	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Food Sales	Retro	959	959	30%	288	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	61.7%	61.7%	2.6
421	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Food Sales	Retro	428	428	44%	188	0.00	10	$75	100%	40%	40%	8	95%	10%	76.5%	41.1%	41.1%	1.3
422	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Food Sales	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.3
423	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Food Sales	Retro	4	4	49%	2	0.00	15	$1	100%	40%	40%	8	95%	10%	76.5%	42.5%	42.5%	2.0
424	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Food Sales	Retro	428	428	65%	278	0.00	15	$90	100%	40%	40%	8	97%	10%	76.5%	43.0%	43.0%	2.1
425	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Food Sales	Retro	64	64	43%	28	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.3
426	InteriorLighting	Lighting - Custom	Biz-Custom Light	Food Sales	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	10	100%	0%	76.5%	39.3%	39.3%	1.5
427	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Food Sales	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	12%	46%	76.5%	56.6%	56.6%	1.3
428	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Food Sales	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	11%	54%	67.8%	63.2%	63.2%	0.7
429	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Food Sales	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	11%	54%	76.5%	63.2%	63.2%	1.3
430	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Food Sales	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	11%	54%	67.8%	63.2%	63.2%	0.7

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
431	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Food Sales	Retro	3,235	3,235	60%	1,953	0.00	6	$756	40%	40%	40%	5	11%	69%	78.3%	75.2%	75.2%	0.8
432	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Food Sales	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	11%	69%	78.3%	75.2%	75.2%	1.5
433	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W ≥250)	Biz-Prescriptive Light	Food Sales	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	11%	46%	62.1%	56.6%	56.6%	0.7
434	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Food Sales	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	11%	46%	76.5%	56.6%	56.6%	1.3
435	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Food Sales	Retro	445	445	69%	307	0.00	10	$274	40%	40%	40%	9	11%	20%	44.0%	36.0%	36.0%	0.5
436	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Food Sales	Retro	0	0	0%	0	0.00	12	$0	0%	0%		10	0%	54%	76.5%	68.0%	68.0%	0.0
437	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Food Sales	Retro	0	0	0%	0	0.00	12	$0	0%	0%		11	0%	54%	76.5%	68.0%	68.0%	0.0
438	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Food Sales	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
439	Miscellaneous	Miscellaneous Custom	Biz-Custom	Food Sales	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	37%	10%	37.0%	20.5%	20.5%	0.2
440	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Food Sales	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	13%	10%	76.5%	60.4%	60.4%	3.6
441	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Food Sales	Retro	3,819	3,819	83%	3,170	0.00	10	$483	100%	40%	40%	4	5%	10%	76.5%	47.4%	47.4%	3.4
442	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Food Sales	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	0%	2%	31.4%	11.1%	11.1%	0.2
443	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Food Sales	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	0%	70%	79.0%	76.0%	76.0%	1.0
444	Motors	Cogged V-Belt	Biz-Custom	Food Sales	Retro	19,471	19,471	3%	604	0.00	15	$384	100%	40%	40%	1	50%	10%	75.1%	34.8%	34.8%	1.1
445	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Food Sales	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.6
446	Motors	Power Drive Systems	Biz-Custom	Food Sales	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.6
447	Motors	Switch Reluctance Motors	Biz-Custom	Food Sales	Retro	37,735	37,735	31%	11,547	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	48.5%	48.5%	15.8
448	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Food Sales	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.2
449	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Food Sales	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	30%	90%	93.0%	92.0%	92.0%	0.0
450	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Food Sales	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.9
451	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Food Sales	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.1
452	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Food Sales	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	23.2
453	Office_PC	Energy Star Server	Biz-Custom	Food Sales	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.4
454	Office_PC	Server Virtualization	Biz-Custom	Food Sales	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
455	Office_PC	High Efficiency CRAC unit	Biz-Custom	Food Sales	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.8
456	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Food Sales	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	3.1
457	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Food Sales	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.8
458	Office_PC	Energy Star Laptop	Biz-Custom	Food Sales	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
459	Office_PC	Energy Star Monitor	Biz-Custom	Food Sales	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
460	Refrigeration	Strip Curtains	Biz-Custom	Food Sales	Retro	412	412	50%	206	0.00	4	$10	100%	40%	40%	1	16%	30%	71.2%	46.7%	46.7%	5.0
461	Refrigeration	Bare Suction Line	Biz-Custom	Food Sales	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	1%	50%	71.2%	60.0%	60.0%	3.6
462	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Food Sales	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	11%	25%	47.5%	40.0%	40.0%	0.4
463	Refrigeration	Saturated Suction Controls	Biz-Custom	Food Sales	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
464	Refrigeration	Compressor Retrofit	Biz-Custom	Food Sales	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	37%	25%	47.5%	35.6%	35.6%	0.2
465	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Food Sales	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	10%	80%	86.0%	84.0%	84.0%	3.6
466	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Food Sales	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	10%	25%	71.2%	42.9%	42.9%	1.8
467	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Food Sales	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	14%	25%	71.2%	40.0%	40.0%	0.9
468	Refrigeration	Refrigeration Economizer	Biz-Custom	Food Sales	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	52%	10%	71.2%	28.2%	28.2%	0.5
469	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Food Sales	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	8%	75%	82.5%	80.0%	80.0%	1.0
470	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Food Sales	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	6%	50%	71.2%	60.0%	60.0%	2.6
471	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Food Sales	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	2%	25%	47.5%	40.0%	40.0%	0.5
472	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Food Sales	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	1%	80%	86.0%	84.0%	84.0%	3.6
473	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Food Sales	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	1%	2%	71.2%	44.4%	44.4%	2.7
474	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Food Sales	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	8%	54%	67.8%	63.2%	63.2%	0.3
475	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Food Sales	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	8%	54%	67.8%	61.3%	61.3%	0.1
476	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Food Sales	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	3%	75%	82.5%	80.0%	80.0%	4.1
477	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Food Sales	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	3%	50%	71.2%	60.0%	60.0%	6.4
478	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Food Sales	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	3%	25%	71.2%	41.5%	41.5%	1.2
479	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Food Sales	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	3%	54%	67.8%	63.2%	63.2%	0.5
480	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Food Sales	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	3%	54%	67.8%	61.3%	61.3%	0.1
481	Refrigeration	Refrigeration - Custom	Biz-Custom	Food Sales	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
482	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Food Sales	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
483	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Food Sales	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	0%	44%	60.8%	55.2%	55.2%	0.3
484	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Food Sales	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	0%	30%	62.5%	55.6%	55.6%	0.7
485	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Food Sales	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	5%	35%	71.2%	62.3%	62.3%	10.5
486	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Food Sales	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	5%	18%	71.2%	61.2%	61.2%	5.4
487	Ventilation	Demand Controlled Ventilation	Biz-Custom	Food Sales	Retro	2,658	2,658	20%	532	0.00	15	$227	100%	40%	40%	1	100%	14%	75.1%	39.3%	39.3%	1.9
488	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Food Sales	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	14%	75.1%	56.3%	56.3%	2.6
489	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Food Sales	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	39.8%	39.8%	1.7
490	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Food Sales	Retro	0	0	0%	0	0.00	15	$260	40%	40%	40%	2	100%	20%	75.1%	50.0%	50.0%	0.0
491	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Food Sales	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.7
492	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Food Sales	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
493	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Food Sales	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
494	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Food Sales	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
495	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Food Sales	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	2.9
496	Behavioral	COM Competitions	Biz-Custom	Food Sales	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
497	Behavioral	Business Energy Reports	Biz-Custom	Food Sales	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
498	Behavioral	Building Benchmarking	Biz-Custom	Food Sales	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
499	Behavioral	Strategic Energy Management	Biz-Custom SEM	Food Sales	Retro	0	0	0%	0	0.00	5	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
500	Behavioral	BEIMS	Biz-Custom	Food Sales	Retro	20	20	5%	1	0.00	2	$0	40%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	0.3
501	Behavioral	Building Operator Certification	Biz-Custom	Food Sales	Retro	10	10	2%	0	0.00	3	$0	40%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	0.3
502	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Food Service	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
503	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Food Service	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	9.9
504	CompressedAir	AODD Pump Controls	Biz-Custom	Food Service	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	15.8
505	CompressedAir	Compressed Air - Custom	Biz-Custom	Food Service	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.3
506	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Food Service	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4
507	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Food Service	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
508	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Food Service	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
509	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Food Service	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.4
510	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Food Service	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.3
511	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Food Service	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	18.8
512	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Food Service	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	6.2
513	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Food Service	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.3
514	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Food Service	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	4.8
515	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Food Service	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.1
516	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Food Service	ROB	1,000	1,000	6%	62	0.00	15	$63	100%	40%	40%	1	18%	20%	75.1%	36.6%	36.6%	0.6

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
517	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Food Service	ROB	1,000	1,000	13%	129	0.00	15	$127	100%	40%	40%	1	18%	20%	75.1%	37.0%	37.0%	0.7
518	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Food Service	ROB	1,000	1,000	28%	282	0.00	15	$127	100%	40%	40%	1	18%	20%	75.1%	51.9%	51.9%	1.5
519	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Food Service	ROB	1,000	1,000	42%	419	0.00	15	$127	100%	40%	40%	1	18%	20%	75.1%	55.6%	55.6%	2.2
520	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Food Service	ROB	1,070	1,070	6%	62	0.00	15	$30	100%	40%	40%	2	18%	20%	75.1%	51.0%	51.0%	1.4
521	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Food Service	ROB	1,070	1,070	12%	132	0.00	15	$37	100%	40%	40%	2	18%	20%	75.1%	56.1%	56.1%	2.4
522	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Food Service	ROB	1,070	1,070	20%	217	0.00	15	$37	100%	40%	40%	2	18%	20%	75.1%	59.1%	59.1%	3.9
523	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Food Service	ROB	1,070	1,070	46%	489	0.00	15	$37	100%	40%	40%	2	18%	20%	75.1%	63.3%	63.3%	8.8
524	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Food Service	Retro	1,017	1,017	7%	71	0.00	3	$5	100%	40%	40%	3	36%	50%	75.1%	60.0%	60.0%	2.4
525	Cooling	Air Side Economizer	Biz-Custom	Food Service	Retro	1,000	1,000	20%	200	0.00	10	$84	100%	40%	40%	4	36%	20%	75.1%	39.5%	39.5%	1.2
526	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Food Service	Retro	1,017	1,017	3%	26	0.00	10	$100	40%	40%	40%	5	36%	20%	44.0%	34.5%	34.5%	0.1
527	Cooling	HVAC Occupancy Controls	Biz-Custom	Food Service	ROB	2,900	2,900	20%	580	0.00	15	$537	100%	40%	40%	6	36%	20%	75.1%	36.0%	36.0%	0.7
528	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Food Service	ROB	871	871	13%	109	0.00	15	$47	100%	40%	40%	7	27%	20%	75.1%	52.4%	52.4%	1.5
529	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Food Service	ROB	871	871	18%	154	0.00	15	$206	40%	40%	40%	7	27%	20%	44.0%	36.0%	36.0%	0.5
530	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Food Service	ROB	871	871	22%	194	0.00	15	$206	40%	40%	40%	7	27%	20%	44.0%	36.0%	36.0%	0.6
531	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Food Service	ROB	871	871	33%	290	0.00	15	$253	100%	40%	40%	7	27%	20%	75.1%	38.7%	38.7%	0.8
532	Cooling	Smart Thermostat	Biz-Prescriptive	Food Service	ROB	871	871	14%	123	0.00	11	$175	40%	40%	40%	8	27%	12%	38.4%	31.8%	31.8%	0.4
533	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Food Service	ROB	1,025	1,025	8%	87	0.00	8	$84	40%	40%	40%	9	36%	20%	44.0%	37.2%	37.2%	0.4
534	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Food Service	ROB	1,124	1,124	7%	82	0.00	8	$84	40%	40%	40%	10	36%	20%	44.0%	36.5%	36.5%	0.4
535	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Food Service	ROB	1,284	1,284	10%	122	0.00	8	$84	40%	40%	40%	11	36%	20%	50.3%	44.7%	44.7%	0.6
536	Cooling	Air Cooled Chiller	Biz-Prescriptive	Food Service	ROB	890	890	6%	50	0.00	23	$126	40%	40%	40%	12	0%	15%	40.5%	32.0%	32.0%	0.3
537	Cooling	Chiller Tune-up	Biz-Prescriptive	Food Service	Retro	1,017	1,017	7%	71	0.00	3	$8	100%	40%	40%	13	0%	50%	75.1%	61.7%	61.7%	1.6
538	Cooling	HVAC/Chiller Custom	Biz-Custom	Food Service	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.6
539	Cooling	Window Film	Biz-Prescriptive	Food Service	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.8
540	Cooling	Triple Pane Windows	Biz-Custom	Food Service	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
541	Cooling	Energy Recovery Ventilator	Biz-Custom	Food Service	Retro	1,070	1,070	0%	0	0.00	15	$1,500	40%	40%	40%	16	100%	2%	75.1%	50.0%	50.0%	0.0
542	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Food Service	ROB	1,899	1,899	4%	75	0.00	16	$87	40%	40%	40%	1	36%	20%	44.0%	36.0%	36.0%	0.7
543	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Food Service	ROB	1,899	1,899	9%	165	0.00	16	$442	40%	40%	40%	1	36%	20%	44.0%	36.0%	36.0%	0.3
544	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Food Service	ROB	1,899	1,899	12%	236	0.00	16	$507	40%	40%	40%	1	36%	20%	44.0%	36.0%	36.0%	0.4
545	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Food Service	ROB	1,899	1,899	19%	363	0.00	16	$507	40%	40%	40%	1	36%	20%	44.0%	36.0%	36.0%	0.5
546	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Food Service	ROB	1,899	1,899	23%	429	0.00	25	$2,576	40%	40%	40%	1	36%	20%	44.0%	34.5%	34.5%	0.2
547	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Food Service	ROB	1,899	1,899	27%	511	0.00	25	$2,576	40%	40%	40%	1	36%	20%	44.0%	34.5%	34.5%	0.2
548	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Food Service	ROB	1,899	1,899	32%	608	0.00	25	$2,576	40%	40%	40%	1	36%	20%	44.0%	34.5%	34.5%	0.2
549	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Food Service	ROB	1,899	1,899	47%	887	0.00	25	$2,576	40%	40%	40%	1	36%	20%	44.0%	36.0%	36.0%	0.3
550	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Food Service	ROB	2,289	2,289	11%	251	0.00	16	$100	100%	40%	40%	2	24%	20%	75.1%	53.2%	53.2%	1.9
551	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Food Service	ROB	2,289	2,289	16%	371	0.00	16	$136	100%	40%	40%	2	24%	20%	75.1%	54.0%	54.0%	2.1
552	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Food Service	ROB	2,382	2,382	14%	341	0.00	16	$100	100%	40%	40%	2	24%	20%	75.1%	55.8%	55.8%	2.6
553	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Food Service	ROB	2,382	2,382	19%	460	0.00	16	$139	100%	40%	40%	2	24%	20%	75.1%	55.6%	55.6%	2.5
554	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Food Service	ROB	2,086	2,086	30%	617	0.00	25	$2,576	40%	40%	40%	2	24%	20%	44.0%	34.5%	34.5%	0.2
555	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Food Service	ROB	2,086	2,086	34%	699	0.00	25	$2,576	40%	40%	40%	2	24%	20%	44.0%	34.5%	34.5%	0.3
556	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Food Service	ROB	2,215	2,215	42%	924	0.00	25	$2,576	40%	40%	40%	2	24%	20%	44.0%	36.0%	36.0%	0.4
557	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Food Service	ROB	2,215	2,215	54%	1,203	0.00	25	$2,576	40%	40%	40%	2	24%	20%	44.0%	36.0%	36.0%	0.5
558	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Food Service	ROB	1,768	1,768	13%	232	0.00	16	$224	100%	40%	40%	2	24%	2%	75.1%	28.0%	28.0%	0.8
559	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Food Service	ROB	2,485	2,485	9%	234	0.00	16	$100	100%	40%	40%	3	24%	20%	75.1%	52.4%	52.4%	1.8
560	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Food Service	ROB	2,485	2,485	15%	380	0.00	16	$175	100%	40%	40%	3	24%	20%	75.1%	51.6%	51.6%	1.6
561	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Food Service	ROB	2,382	2,382	38%	913	0.00	25	$2,576	40%	40%	40%	3	24%	20%	44.0%	36.0%	36.0%	0.3
562	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Food Service	ROB	2,382	2,382	42%	995	0.00	25	$2,576	40%	40%	40%	3	24%	20%	44.0%	36.0%	36.0%	0.4
563	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Food Service	ROB	2,382	2,382	46%	1,091	0.00	25	$2,576	40%	40%	40%	3	24%	20%	44.0%	36.0%	36.0%	0.4
564	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Food Service	ROB	2,382	2,382	58%	1,370	0.00	25	$2,576	40%	40%	40%	3	24%	20%	44.0%	36.0%	36.0%	0.5
565	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Food Service	ROB	1,899	1,899	19%	363	0.00	16	$224	100%	40%	40%	4	17%	20%	75.1%	47.0%	47.0%	1.2
566	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Food Service	ROB	2,091	2,091	4%	84	0.00	8	$130	40%	40%	40%	5	0%	10%	37.0%	28.0%	28.0%	0.3
567	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Food Service	ROB	2,525	2,525	16%	398	0.00	8	$130	100%	40%	40%	6	0%	10%	75.1%	55.0%	55.0%	1.4
568	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Food Service	ROB	2,291	2,291	9%	207	0.00	8	$130	40%	40%	40%	7	0%	10%	52.4%	46.6%	46.6%	0.7
569	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Food Service	ROB	5,521	5,521	67%	3,698	0.00	15	$1,115	100%	40%	40%	1	100%	4%	68.0%	53.9%	53.9%	2.4
570	HotWater	Hot Water Pipe Insulation	Biz-Custom	Food Service	Retro	5,521	5,521	2%	110	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	1.6
571	HotWater	Faucet Aerator	Biz-Custom	Food Service	Retro	973	973	32%	315	0.00	10	$8	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	21.8
572	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Food Service	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	51.9
573	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Food Service	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
574	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Food Service	Retro	206	206	45%	92	0.00	9	$5	100%	40%	40%	1	57%	40%	76.5%	66.3%	66.3%	9.1
575	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Food Service	Retro	467	467	50%	234	0.00	9	$70	100%	40%	40%	1	57%	40%	76.5%	58.2%	58.2%	1.6
576	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Food Service	Retro	467	467	50%	234	0.00	9	$70	100%	40%	40%	1	57%	40%	76.5%	58.2%	58.2%	1.6
577	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Food Service	Retro	467	467	74%	347	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	52.0%	52.0%	0.7
578	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Food Service	Retro	4,346	4,346	68%	2,957	0.00	9	$330	100%	40%	40%	3	9%	34%	76.5%	64.5%	64.5%	4.4
579	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Food Service	Retro	4,346	4,346	66%	2,883	0.00	9	$330	100%	40%	40%	3	9%	34%	76.5%	64.4%	64.4%	4.3
580	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Food Service	Retro	926	926	61%	563	0.00	9	$44	100%	40%	40%	4	25%	34%	76.5%	65.6%	65.6%	6.3
581	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Food Service	Retro	926	926	59%	543	0.00	9	$44	100%	40%	40%	4	25%	34%	76.5%	65.5%	65.5%	6.1
582	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Food Service	ROB	415	415	86%	356	0.00	4	$1	100%	40%	40%	6	0%	43%	76.5%	67.9%	67.9%	90.7
583	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Food Service	Retro	320	320	68%	216	0.00	9	$27	100%	40%	40%	6	8%	45%	76.5%	64.1%	64.1%	4.0
584	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Food Service	ROB	314	314	81%	254	0.00	4	$1	100%	40%	40%	5	1%	20%	76.5%	67.9%	67.9%	64.7
585	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Food Service	Retro	172	172	100%	172	0.00	11	$4	100%	40%	40%	7	57%	0%	76.5%	67.3%	67.3%	24.6
586	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Food Service	Retro	785	785	30%	235	0.00	10	$65	100%	40%	40%	8	95%	10%	76.5%	59.0%	59.0%	1.9
587	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Food Service	Retro	1,005	1,005	30%	301	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	62.0%	62.0%	2.8
588	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Food Service	Retro	448	448	44%	197	0.00	10	$75	100%	40%	40%	8	95%	10%	76.5%	41.6%	41.6%	1.4
589	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Food Service	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.4
590	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Food Service	Retro	4	4	49%	2	0.00	15	$1	100%	40%	40%	8	95%	10%	76.5%	42.9%	42.9%	2.2
591	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Food Service	Retro	448	448	65%	291	0.00	15	$90	100%	40%	40%	8	92%	10%	76.5%	43.4%	43.4%	2.3
592	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Food Service	Retro	66	66	43%	28	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.3
593	InteriorLighting	Lighting - Custom	Biz-Custom Light	Food Service	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	10	100%	0%	76.5%	39.7%	39.7%	1.6
594	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Food Service	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	12%	46%	76.5%	56.6%	56.6%	1.2
595	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Food Service	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	11%	54%	67.8%	63.2%	63.2%	0.7
596	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Food Service	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	11%	54%	76.5%	63.2%	63.2%	1.2
597	ExteriorLighting	LED outdoor pole decorative fixture (existing W ≥250)	Biz-Prescriptive Light	Food Service	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	11%	54%	67.8%	63.2%	63.2%	0.7
598	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Food Service	Retro	3,235	3,235	60%	1,953	0.00	6	$756	40%	40%	40%	5	11%	69%	78.3%	75.2%	75.2%	0.8
599	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Food Service	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	11%	69%	78.3%	75.2%	75.2%	1.5
600	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W ≥250)	Biz-Prescriptive Light	Food Service	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	11%	46%	62.1%	56.6%	56.6%	0.7
601	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Food Service	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	11%	46%	76.5%	56.6%	56.6%	1.2
602	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Food Service	Retro	467	467	69%	322	0.00	10	$274	40%	40%	40%	9	11%	20%	44.0%	36.0%	36.0%	0.6

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
603	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Food Service	Retro	0	0	0%	0	0.00	12	$0	0%	0%		10	0%	54%	76.5%	68.0%	68.0%	0.0
604	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Food Service	Retro	0	0	0%	0	0.00	12	$0	0%	0%		11	0%	54%	76.5%	68.0%	68.0%	0.0
605	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Food Service	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
606	Miscellaneous	Miscellaneous Custom	Biz-Custom	Food Service	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	30%	10%	37.0%	20.5%	20.5%	0.2
607	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Food Service	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	18%	10%	76.5%	60.4%	60.4%	3.6
608	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Food Service	Retro	1,909	1,909	83%	1,585	0.00	10	$483	100%	40%	40%	4	5%	10%	76.5%	43.5%	43.5%	1.8
609	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Food Service	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	0%	2%	31.4%	11.1%	11.1%	0.2
610	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Food Service	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	0%	70%	79.0%	76.0%	76.0%	1.0
611	Motors	Cogged V-Belt	Biz-Custom	Food Service	Retro	17,237	17,237	3%	534	0.00	15	$384	100%	40%	40%	1	50%	10%	75.1%	32.8%	32.8%	1.0
612	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Food Service	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5
613	Motors	Power Drive Systems	Biz-Custom	Food Service	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5
614	Motors	Switch Reluctance Motors	Biz-Custom	Food Service	Retro	33,406	33,406	31%	10,222	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	48.3%	48.3%	13.4
615	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Food Service	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.2
616	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Food Service	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	30%	90%	93.0%	92.0%	92.0%	0.0
617	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Food Service	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.8
618	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Food Service	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.0
619	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Food Service	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	21.8
620	Office_PC	Energy Star Server	Biz-Custom	Food Service	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.3
621	Office_PC	Server Virtualization	Biz-Custom	Food Service	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
622	Office_PC	High Efficiency CRAC unit	Biz-Custom	Food Service	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.7
623	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Food Service	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	2.9
624	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Food Service	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.7
625	Office_PC	Energy Star Laptop	Biz-Custom	Food Service	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
626	Office_PC	Energy Star Monitor	Biz-Custom	Food Service	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
627	Refrigeration	Strip Curtains	Biz-Custom	Food Service	Retro	88	88	50%	44	0.00	4	$10	100%	40%	40%	1	17%	30%	71.2%	44.0%	44.0%	1.0
628	Refrigeration	Bare Suction Line	Biz-Custom	Food Service	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	1%	50%	71.2%	60.0%	60.0%	3.6
629	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Food Service	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	11%	25%	47.5%	40.0%	40.0%	0.4
630	Refrigeration	Saturated Suction Controls	Biz-Custom	Food Service	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
631	Refrigeration	Compressor Retrofit	Biz-Custom	Food Service	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	38%	25%	47.5%	35.6%	35.6%	0.2
632	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Food Service	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	11%	80%	86.0%	84.0%	84.0%	3.5
633	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Food Service	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	11%	25%	71.2%	42.9%	42.9%	1.8
634	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Food Service	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	14%	25%	71.2%	40.0%	40.0%	0.9
635	Refrigeration	Refrigeration Economizer	Biz-Custom	Food Service	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	53%	10%	71.2%	28.2%	28.2%	0.5
636	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Food Service	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	6%	75%	82.5%	80.0%	80.0%	1.0
637	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Food Service	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	4%	50%	71.2%	60.0%	60.0%	2.6
638	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Food Service	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	2%	25%	47.5%	40.0%	40.0%	0.5
639	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Food Service	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	1%	80%	86.0%	84.0%	84.0%	3.5
640	Refrigeration	Q-Sync Motor for Walk-In and Reach-In Evaporator Fan Motor	Biz-Custom	Food Service	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	1%	2%	71.2%	44.4%	44.4%	2.7
641	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Food Service	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	6%	54%	67.8%	63.2%	63.2%	0.3
642	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Food Service	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	6%	54%	67.8%	61.3%	61.3%	0.1
643	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Food Service	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	2%	75%	82.5%	80.0%	80.0%	4.1
644	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Food Service	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	2%	50%	71.2%	60.0%	60.0%	6.4
645	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Food Service	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	2%	25%	71.2%	41.5%	41.5%	1.2
646	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Food Service	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	2%	54%	67.8%	63.2%	63.2%	0.5
647	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Food Service	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	2%	54%	67.8%	61.3%	61.3%	0.1
648	Refrigeration	Refrigeration - Custom	Biz-Custom	Food Service	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
649	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Food Service	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
650	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Food Service	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	5%	44%	60.8%	55.2%	55.2%	0.3
651	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Food Service	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	0%	30%	62.5%	55.6%	55.6%	0.6
652	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Food Service	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	4%	35%	71.2%	62.3%	62.3%	10.5
653	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Food Service	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	4%	18%	71.2%	61.2%	61.2%	5.4
654	Ventilation	Demand Controlled Ventilation	Biz-Custom	Food Service	Retro	2,669	2,669	20%	534	0.00	15	$227	100%	40%	40%	1	100%	15%	75.1%	39.4%	39.4%	1.7
655	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Food Service	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	15%	75.1%	56.3%	56.3%	2.6
656	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Food Service	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	39.8%	39.8%	1.7
657	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Food Service	Retro	0	0	0%	0	0.00	15	$260	40%	40%	40%	2	100%	20%	75.1%	50.0%	50.0%	0.0
658	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Food Service	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.7
659	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Food Service	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
660	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Food Service	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
661	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Food Service	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
662	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Food Service	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	3.0
663	Behavioral	COM Competitions	Biz-Custom	Food Service	Retro	53	53	2%	1	0.00	2	$0	100%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	3.2
664	Behavioral	Business Energy Reports	Biz-Custom	Food Service	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
665	Behavioral	Building Benchmarking	Biz-Custom	Food Service	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
666	Behavioral	Strategic Energy Management	Biz-Custom SEM	Food Service	Retro	0	0	0%	0	0.00	5	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
667	Behavioral	BEIMS	Biz-Custom	Food Service	Retro	20	20	5%	1	0.00	2	$0	40%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	0.3
668	Behavioral	Building Operator Certification	Biz-Custom	Food Service	Retro	40	40	3%	1	0.00	3	$0	100%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	1.1
669	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Health	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
670	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Health	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	10.5
671	CompressedAir	AODD Pump Controls	Biz-Custom	Health	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	16.7
672	CompressedAir	Compressed Air - Custom	Biz-Custom	Health	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.5
673	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Health	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4
674	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Health	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
675	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Health	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
676	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Health	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.4
677	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Health	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.2
678	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Health	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	18.4
679	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Health	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	6.1
680	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Health	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.3
681	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Health	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	4.7
682	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Health	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.1
683	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Health	ROB	2,159	2,159	6%	133	0.00	15	$63	100%	40%	40%	1	24%	20%	75.1%	51.2%	51.2%	1.4
684	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Health	ROB	2,159	2,159	13%	278	0.00	15	$127	100%	40%	40%	1	24%	20%	75.1%	51.7%	51.7%	1.4
685	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Health	ROB	2,159	2,159	28%	610	0.00	15	$127	100%	40%	40%	1	24%	20%	75.1%	58.0%	58.0%	3.1
686	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Health	ROB	2,159	2,159	42%	905	0.00	15	$127	100%	40%	40%	1	24%	20%	75.1%	60.4%	60.4%	4.6
687	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Health	ROB	2,311	2,311	6%	134	0.00	15	$30	100%	40%	40%	2	24%	20%	75.1%	57.6%	57.6%	2.9
688	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Health	ROB	2,311	2,311	12%	284	0.00	15	$37	100%	40%	40%	2	24%	20%	75.1%	60.9%	60.9%	5.0

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
689	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Health	ROB	2,311	2,311	20%	469	0.00	15	$37	100%	40%	40%	2	24%	20%	75.1%	63.2%	63.2%	8.2
690	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Health	ROB	2,311	2,311	46%	1,056	0.00	15	$37	100%	40%	40%	2	24%	20%	75.1%	65.1%	65.1%	18.5
691	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Health	Retro	2,195	2,195	7%	154	0.00	3	$5	100%	40%	40%	3	48%	50%	75.1%	60.0%	60.0%	5.2
692	Cooling	Air Side Economizer	Biz-Custom	Health	Retro	2,159	2,159	20%	432	0.00	10	$84	100%	40%	40%	4	48%	20%	75.1%	43.7%	43.7%	2.5
693	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Health	Retro	2,195	2,195	0%	0	0.00	10	$100	40%	40%	40%	5	48%	20%	75.1%	66.7%	66.7%	0.0
694	Cooling	HVAC Occupancy Controls	Biz-Custom	Health	ROB	1,150	1,150	20%	230	0.00	15	$537	40%	40%	40%	6	48%	20%	44.0%	34.7%	34.7%	0.3
695	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Health	ROB	1,882	1,882	13%	235	0.00	15	$47	100%	40%	40%	7	0%	20%	75.1%	58.2%	58.2%	3.3
696	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Health	ROB	1,882	1,882	18%	332	0.00	15	$206	100%	40%	40%	7	0%	20%	75.1%	46.9%	46.9%	1.0
697	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Health	ROB	1,882	1,882	22%	418	0.00	15	$206	100%	40%	40%	7	0%	20%	75.1%	50.7%	50.7%	1.3
698	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Health	ROB	1,882	1,882	33%	627	0.00	15	$253	100%	40%	40%	7	0%	20%	75.1%	53.0%	53.0%	1.6
699	Cooling	Smart Thermostat	Biz-Prescriptive	Health	ROB	1,882	1,882	14%	266	0.00	11	$175	100%	40%	40%	8	0%	12%	75.1%	45.7%	45.7%	0.8
700	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Health	ROB	2,214	2,214	8%	187	0.00	8	$84	100%	40%	40%	9	0%	20%	75.1%	51.9%	51.9%	0.9
701	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Health	ROB	2,428	2,428	7%	176	0.00	8	$84	100%	40%	40%	10	0%	20%	75.1%	51.2%	51.2%	0.9
702	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Health	ROB	2,773	2,773	10%	264	0.00	8	$84	100%	40%	40%	11	0%	20%	75.1%	55.2%	55.2%	1.3
703	Cooling	Air Cooled Chiller	Biz-Prescriptive	Health	ROB	1,923	1,923	6%	108	0.00	23	$126	100%	40%	40%	12	52%	15%	75.1%	34.8%	34.8%	0.7
704	Cooling	Chiller Tune-up	Biz-Prescriptive	Health	Retro	2,195	2,195	7%	154	0.00	3	$8	100%	40%	40%	13	52%	50%	75.1%	64.4%	64.4%	3.4
705	Cooling	HVAC/Chiller Custom	Biz-Custom	Health	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.5
706	Cooling	Window Film	Biz-Prescriptive	Health	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.7
707	Cooling	Triple Pane Windows	Biz-Custom	Health	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
708	Cooling	Energy Recovery Ventilator	Biz-Custom	Health	Retro	2,311	2,311	43%	1,003	0.00	15	$1,500	40%	40%	40%	16	100%	2%	34.7%	23.1%	23.1%	0.4
709	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Health	ROB	3,186	3,186	4%	142	0.00	16	$87	100%	40%	40%	1	0%	20%	75.1%	47.1%	47.1%	1.2
710	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Health	ROB	3,186	3,186	9%	298	0.00	16	$442	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.5
711	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Health	ROB	3,186	3,186	13%	425	0.00	16	$507	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.6
712	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Health	ROB	3,186	3,186	21%	673	0.00	16	$507	100%	40%	40%	1	0%	20%	75.1%	42.6%	42.6%	1.0
713	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Health	ROB	3,186	3,186	23%	744	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	34.9%	34.9%	0.3
714	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Health	ROB	3,186	3,186	28%	881	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.3
715	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Health	ROB	3,186	3,186	33%	1,040	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.4
716	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Health	ROB	3,186	3,186	47%	1,502	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.6
717	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Health	ROB	3,871	3,871	12%	453	0.00	16	$100	100%	40%	40%	2	25%	20%	75.1%	57.7%	57.7%	3.4
718	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Health	ROB	3,871	3,871	17%	659	0.00	16	$136	100%	40%	40%	2	25%	20%	75.1%	58.0%	58.0%	3.6
719	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Health	ROB	4,038	4,038	16%	642	0.00	16	$100	100%	40%	40%	2	25%	20%	75.1%	59.7%	59.7%	4.7
720	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Health	ROB	4,038	4,038	21%	845	0.00	16	$139	100%	40%	40%	2	25%	20%	75.1%	59.4%	59.4%	4.5
721	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Health	ROB	3,518	3,518	31%	1,077	0.00	25	$2,576	40%	40%	40%	2	25%	20%	44.0%	36.0%	36.0%	0.4
722	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Health	ROB	3,518	3,518	34%	1,213	0.00	25	$2,576	40%	40%	40%	2	25%	20%	44.0%	36.0%	36.0%	0.5
723	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Health	ROB	3,796	3,796	43%	1,650	0.00	25	$2,576	40%	40%	40%	2	25%	20%	44.0%	36.0%	36.0%	0.6
724	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Health	ROB	3,796	3,796	56%	2,112	0.00	25	$2,576	100%	40%	40%	2	25%	20%	75.1%	36.0%	36.0%	0.8
725	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Health	ROB	3,014	3,014	17%	502	0.00	16	$224	100%	40%	40%	2	25%	2%	75.1%	39.0%	39.0%	1.7
726	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Health	ROB	4,261	4,261	10%	439	0.00	16	$100	100%	40%	40%	3	25%	20%	75.1%	57.5%	57.5%	3.2
727	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Health	ROB	4,261	4,261	16%	699	0.00	16	$175	100%	40%	40%	3	25%	20%	75.1%	56.9%	56.9%	3.0
728	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Health	ROB	4,038	4,038	40%	1,597	0.00	25	$2,576	40%	40%	40%	3	25%	20%	44.0%	36.0%	36.0%	0.6
729	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Health	ROB	4,038	4,038	43%	1,733	0.00	25	$2,576	40%	40%	40%	3	25%	20%	44.0%	36.0%	36.0%	0.6
730	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Health	ROB	4,038	4,038	47%	1,893	0.00	25	$2,576	40%	40%	40%	3	25%	20%	44.0%	36.0%	36.0%	0.7
731	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Health	ROB	4,038	4,038	58%	2,355	0.00	25	$2,576	100%	40%	40%	3	25%	20%	75.1%	36.0%	36.0%	0.9
732	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Health	ROB	3,186	3,186	21%	673	0.00	16	$224	100%	40%	40%	4	50%	20%	75.1%	54.8%	54.8%	2.2
733	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Health	ROB	3,474	3,474	5%	180	0.00	8	$130	40%	40%	40%	5	0%	10%	49.1%	32.7%	32.7%	0.6
734	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Health	ROB	4,311	4,311	20%	860	0.00	8	$130	100%	40%	40%	6	0%	10%	75.1%	59.9%	59.9%	3.0
735	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Health	ROB	3,842	3,842	12%	446	0.00	8	$130	100%	40%	40%	7	0%	10%	75.1%	55.9%	55.9%	1.6
736	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Health	ROB	6,995	6,995	67%	4,684	0.00	15	$1,115	100%	40%	40%	1	100%	14%	68.0%	55.5%	55.5%	2.9
737	HotWater	Hot Water Pipe Insulation	Biz-Custom	Health	Retro	6,995	6,995	2%	140	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	2.0
738	HotWater	Faucet Aerator	Biz-Custom	Health	Retro	2,017	2,017	33%	657	0.00	10	$14	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	24.8
739	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Health	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	49.6
740	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Health	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
741	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Health	Retro	225	225	45%	101	0.00	9	$5	100%	40%	40%	1	78%	40%	76.5%	66.5%	66.5%	9.8
742	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Health	Retro	509	509	50%	255	0.00	9	$70	100%	40%	40%	1	78%	40%	76.5%	59.1%	59.1%	1.8
743	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Health	Retro	509	509	50%	255	0.00	9	$70	100%	40%	40%	1	78%	40%	76.5%	59.1%	59.1%	1.8
744	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Health	Retro	509	509	74%	378	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	52.0%	52.0%	0.7
745	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Health	Retro	4,737	4,737	68%	3,223	0.00	9	$330	100%	40%	40%	3	5%	34%	76.5%	64.8%	64.8%	4.8
746	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Health	Retro	4,737	4,737	66%	3,143	0.00	9	$330	100%	40%	40%	3	5%	34%	76.5%	64.7%	64.7%	4.6
747	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Health	Retro	1,009	1,009	61%	613	0.00	9	$44	100%	40%	40%	4	12%	34%	76.5%	65.8%	65.8%	6.8
748	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Health	Retro	1,009	1,009	59%	592	0.00	9	$44	100%	40%	40%	4	12%	34%	76.5%	65.7%	65.7%	6.6
749	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Health	ROB	385	385	86%	331	0.00	3	$1	100%	40%	40%	6	0%	43%	76.5%	67.9%	67.9%	64.9
750	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Health	Retro	349	349	68%	236	0.00	9	$27	100%	40%	40%	6	4%	45%	76.5%	64.4%	64.4%	4.3
751	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Health	ROB	291	291	81%	236	0.00	3	$1	100%	40%	40%	5	1%	20%	76.5%	67.9%	67.9%	46.2
752	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Health	Retro	187	187	100%	187	0.00	11	$4	100%	40%	40%	7	78%	0%	76.5%	67.4%	67.4%	26.5
753	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Health	Retro	855	855	30%	257	0.00	10	$65	100%	40%	40%	8	95%	10%	76.5%	59.8%	59.8%	2.1
754	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Health	Retro	1,095	1,095	30%	329	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	62.5%	62.5%	3.0
755	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Health	Retro	489	489	44%	215	0.00	10	$75	100%	40%	40%	8	95%	10%	76.5%	42.4%	42.4%	1.5
756	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Health	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.4
757	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Health	Retro	4	4	49%	2	0.00	15	$0	100%	40%	40%	8	95%	10%	76.5%	46.1%	46.1%	3.4
758	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Health	Retro	489	489	65%	318	0.00	15	$90	100%	40%	40%	8	96%	10%	76.5%	44.1%	44.1%	2.5
759	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Health	Retro	70	70	43%	30	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.3
760	InteriorLighting	Lighting - Custom	Biz-Custom Light	Health	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	10	100%	0%	76.5%	41.0%	41.0%	1.7
761	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Health	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	12%	46%	76.5%	56.6%	56.6%	1.4
762	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Health	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	11%	54%	67.8%	63.2%	63.2%	0.8
763	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Health	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	11%	54%	76.5%	63.2%	63.2%	1.4
764	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Health	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	11%	54%	67.8%	63.2%	63.2%	0.8
765	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Health	Retro	3,235	3,235	60%	1,953	0.00	6	$756	100%	40%	40%	5	11%	69%	78.3%	75.2%	75.2%	0.9
766	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Health	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	11%	69%	78.3%	75.2%	75.2%	1.6
767	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W ≥250)	Biz-Prescriptive Light	Health	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	11%	46%	62.1%	56.6%	56.6%	0.8
768	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Health	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	11%	46%	76.5%	56.6%	56.6%	1.4
769	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Health	Retro	509	509	69%	351	0.00	10	$274	40%	40%	40%	9	11%	20%	44.0%	36.0%	36.0%	0.7
770	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Health	Retro	0	0	0%	0	0.00	12	$0	0%	0%		10	0%	54%	76.5%	68.0%	68.0%	0.0
771	ExteriorLighting	LED fuel pump canopy fixture (existing W ≥250)	Biz-Prescriptive Light	Health	Retro	0	0	0%	0	0.00	12	$0	0%	0%		11	0%	54%	76.5%	68.0%	68.0%	0.0
772	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Health	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
773	Miscellaneous	Miscellaneous Custom	Biz-Custom	Health	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	0%	10%	37.0%	20.5%	20.5%	0.2
774	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Health	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	28%	10%	76.5%	60.4%	60.4%	3.5

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
775	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Health	Retro	1,909	1,909	83%	1,585	0.00	10	$483	100%	40%	40%	4	5%	10%	76.5%	43.5%	43.5%	1.7
776	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Health	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	2%	2%	31.4%	11.1%	11.1%	0.2
777	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Health	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	0%	70%	79.0%	76.0%	76.0%	1.0
778	Motors	Cogged V-Belt	Biz-Custom	Health	Retro	17,237	17,237	3%	534	0.00	15	$384	100%	40%	40%	1	50%	10%	75.1%	32.8%	32.8%	0.9
779	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Health	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.4
780	Motors	Power Drive Systems	Biz-Custom	Health	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.4
781	Motors	Switch Reluctance Motors	Biz-Custom	Health	Retro	33,406	33,406	31%	10,222	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	48.3%	48.3%	12.8
782	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Health	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.1
783	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Health	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	5%	90%	93.0%	92.0%	92.0%	0.0
784	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Health	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.9
785	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Health	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.1
786	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Health	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	23.0
787	Office_PC	Energy Star Server	Biz-Custom	Health	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.4
788	Office_PC	Server Virtualization	Biz-Custom	Health	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
789	Office_PC	High Efficiency CRAC unit	Biz-Custom	Health	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.8
790	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Health	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	3.1
791	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Health	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.8
792	Office_PC	Energy Star Laptop	Biz-Custom	Health	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
793	Office_PC	Energy Star Monitor	Biz-Custom	Health	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
794	Refrigeration	Strip Curtains	Biz-Custom	Health	Retro	0	0	0%	0	0.00	4	$0	0%	0%		1	5%	30%	71.2%	47.5%	47.5%	0.0
795	Refrigeration	Bare Suction Line	Biz-Custom	Health	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	0%	50%	71.2%	60.0%	60.0%	3.6
796	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Health	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	4%	25%	47.5%	40.0%	40.0%	0.4
797	Refrigeration	Saturated Suction Controls	Biz-Custom	Health	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
798	Refrigeration	Compressor Retrofit	Biz-Custom	Health	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	12%	25%	47.5%	35.6%	35.6%	0.2
799	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Health	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	3%	80%	86.0%	84.0%	84.0%	3.6
800	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Health	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	3%	25%	71.2%	42.9%	42.9%	1.9
801	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Health	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	5%	25%	71.2%	40.0%	40.0%	0.9
802	Refrigeration	Refrigeration Economizer	Biz-Custom	Health	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	17%	10%	71.2%	28.2%	28.2%	0.5
803	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Health	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	17%	25%	71.2%	55.0%	55.0%	1.0
804	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Health	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	13%	50%	71.2%	60.0%	60.0%	2.6
805	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Health	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	5%	25%	47.5%	40.0%	40.0%	0.5
806	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Health	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	3%	80%	86.0%	84.0%	84.0%	3.6
807	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Health	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	3%	2%	71.2%	44.4%	44.4%	2.7
808	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Health	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	17%	54%	67.8%	63.2%	63.2%	0.3
809	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Health	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	17%	54%	67.8%	61.3%	61.3%	0.1
810	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Health	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	6%	25%	71.2%	60.6%	60.6%	4.2
811	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Health	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	6%	50%	71.2%	60.0%	60.0%	6.5
812	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Health	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	6%	25%	71.2%	41.5%	41.5%	1.3
813	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Health	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	6%	54%	67.8%	63.2%	63.2%	0.5
814	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Health	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	6%	54%	67.8%	61.3%	61.3%	0.1
815	Refrigeration	Refrigeration - Custom	Biz-Custom	Health	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
816	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Health	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
817	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Health	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	6%	44%	60.8%	55.2%	55.2%	0.3
818	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Health	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	3%	30%	62.5%	55.6%	55.6%	0.7
819	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Health	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	10%	35%	71.2%	62.3%	62.3%	10.6
820	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Health	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	10%	18%	71.2%	61.2%	61.2%	5.4
821	Ventilation	Demand Controlled Ventilation	Biz-Custom	Health	Retro	2,639	2,639	20%	528	0.00	15	$227	100%	40%	40%	1	100%	33%	75.1%	46.7%	46.7%	1.8
822	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Health	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	33%	75.1%	56.3%	56.3%	2.5
823	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Health	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	39.8%	39.8%	1.7
824	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Health	Retro	0	0	0%	0	0.00	15	$260	40%	40%	40%	2	100%	20%	75.1%	50.0%	50.0%	0.0
825	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Health	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.7
826	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Health	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
827	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Health	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
828	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Health	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
829	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Health	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	3.0
830	Behavioral	COM Competitions	Biz-Custom	Health	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
831	Behavioral	Business Energy Reports	Biz-Custom	Health	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
832	Behavioral	Building Benchmarking	Biz-Custom	Health	Retro	114	114	1%	1	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.6
833	Behavioral	Strategic Energy Management	Biz-Custom SEM	Health	Retro	33	33	3%	1	0.00	5	$0	100%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	1.1
834	Behavioral	BEIMS	Biz-Custom	Health	Retro	20	20	5%	1	0.00	2	$0	40%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	0.3
835	Behavioral	Building Operator Certification	Biz-Custom	Health	Retro	20	20	3%	0	0.00	3	$0	40%	40%	40%	1	100%	2%	50.0%	50.0%	50.0%	0.5
836	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Lodging	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
837	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Lodging	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	10.4
838	CompressedAir	AODD Pump Controls	Biz-Custom	Lodging	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	16.6
839	CompressedAir	Compressed Air - Custom	Biz-Custom	Lodging	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.5
840	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Lodging	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4
841	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Lodging	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
842	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Lodging	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
843	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Lodging	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.4
844	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Lodging	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.2
845	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Lodging	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	18.3
846	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Lodging	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	6.0
847	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Lodging	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.3
848	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Lodging	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	4.7
849	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Lodging	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.1
850	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Lodging	ROB	1,391	1,391	6%	86	0.00	15	$63	100%	40%	40%	1	12%	20%	75.1%	43.1%	43.1%	0.9
851	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Lodging	ROB	1,391	1,391	13%	179	0.00	15	$127	100%	40%	40%	1	12%	20%	75.1%	44.0%	44.0%	0.9
852	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Lodging	ROB	1,391	1,391	28%	393	0.00	15	$127	100%	40%	40%	1	12%	20%	75.1%	55.1%	55.1%	2.1
853	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Lodging	ROB	1,391	1,391	42%	583	0.00	15	$127	100%	40%	40%	1	12%	20%	75.1%	57.7%	57.7%	3.0
854	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Lodging	ROB	1,488	1,488	6%	86	0.00	15	$30	100%	40%	40%	2	12%	20%	75.1%	54.4%	54.4%	1.9
855	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Lodging	ROB	1,488	1,488	12%	183	0.00	15	$37	100%	40%	40%	2	12%	20%	75.1%	58.1%	58.1%	3.3
856	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Lodging	ROB	1,488	1,488	20%	302	0.00	15	$37	100%	40%	40%	2	12%	20%	75.1%	61.2%	61.2%	5.4
857	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Lodging	ROB	1,488	1,488	46%	680	0.00	15	$37	100%	40%	40%	2	12%	20%	75.1%	64.3%	64.3%	12.2
858	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Lodging	Retro	1,414	1,414	7%	99	0.00	3	$5	100%	40%	40%	3	25%	50%	75.1%	60.0%	60.0%	3.4
859	Cooling	Air Side Economizer	Biz-Custom	Lodging	Retro	1,391	1,391	20%	278	0.00	10	$84	100%	40%	40%	4	25%	20%	75.1%	41.7%	41.7%	1.7
860	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Lodging	Retro	1,414	1,414	0%	0	0.00	10	$100	40%	40%	40%	5	25%	20%	75.1%	66.7%	66.7%	0.0

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
861	Cooling	HVAC Occupancy Controls	Biz-Custom	Lodging	ROB	9,967	9,967	20%	1,993	0.00	15	$537	100%	40%	40%	6	25%	20%	75.1%	42.3%	42.3%	2.5
862	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Lodging	ROB	1,212	1,212	13%	152	0.00	15	$47	100%	40%	40%	7	0%	20%	75.1%	55.4%	55.4%	2.1
863	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Lodging	ROB	1,212	1,212	18%	214	0.00	15	$206	40%	40%	40%	7	0%	20%	44.0%	37.3%	37.3%	0.7
864	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Lodging	ROB	1,212	1,212	22%	269	0.00	15	$206	100%	40%	40%	7	0%	20%	75.1%	42.2%	42.2%	0.9
865	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Lodging	ROB	1,212	1,212	33%	404	0.00	15	$253	100%	40%	40%	7	0%	20%	75.1%	46.7%	46.7%	1.1
866	Cooling	Smart Thermostat	Biz-Prescriptive	Lodging	ROB	1,212	1,212	14%	172	0.00	11	$175	40%	40%	40%	8	0%	12%	41.2%	36.6%	36.6%	0.5
867	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Lodging	ROB	1,426	1,426	8%	121	0.00	8	$84	40%	40%	40%	9	25%	20%	50.0%	44.4%	44.4%	0.6
868	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Lodging	ROB	1,564	1,564	7%	114	0.00	8	$84	40%	40%	40%	10	25%	20%	48.4%	43.0%	43.0%	0.6
869	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Lodging	ROB	1,786	1,786	10%	170	0.00	8	$84	100%	40%	40%	11	25%	20%	75.1%	50.7%	50.7%	0.9
870	Cooling	Air Cooled Chiller	Biz-Prescriptive	Lodging	ROB	1,239	1,239	6%	69	0.00	23	$126	40%	40%	40%	12	50%	15%	40.5%	32.0%	32.0%	0.5
871	Cooling	Chiller Tune-up	Biz-Prescriptive	Lodging	Retro	1,414	1,414	7%	99	0.00	3	$8	100%	40%	40%	13	50%	50%	75.1%	63.1%	63.1%	2.3
872	Cooling	HVAC/Chiller Custom	Biz-Custom	Lodging	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.6
873	Cooling	Window Film	Biz-Prescriptive	Lodging	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.8
874	Cooling	Triple Pane Windows	Biz-Custom	Lodging	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
875	Cooling	Energy Recovery Ventilator	Biz-Custom	Lodging	Retro	1,488	1,488	0%	0	0.00	15	$1,500	40%	40%	40%	16	100%	2%	75.1%	50.0%	50.0%	0.0
876	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Lodging	ROB	2,641	2,641	4%	104	0.00	16	$87	100%	40%	40%	1	0%	20%	75.1%	39.9%	39.9%	0.9
877	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Lodging	ROB	2,641	2,641	9%	229	0.00	16	$442	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.4
878	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Lodging	ROB	2,641	2,641	12%	329	0.00	16	$507	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.5
879	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Lodging	ROB	2,641	2,641	19%	504	0.00	16	$507	40%	40%	40%	1	0%	20%	44.0%	36.8%	36.8%	0.8
880	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Lodging	ROB	2,641	2,641	23%	597	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	34.5%	34.5%	0.2
881	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Lodging	ROB	2,641	2,641	27%	712	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	34.5%	34.5%	0.3
882	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Lodging	ROB	2,641	2,641	32%	845	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.3
883	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Lodging	ROB	2,641	2,641	47%	1,234	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.5
884	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Lodging	ROB	3,184	3,184	11%	349	0.00	16	$100	100%	40%	40%	2	29%	20%	75.1%	56.0%	56.0%	2.6
885	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Lodging	ROB	3,184	3,184	16%	516	0.00	16	$136	100%	40%	40%	2	29%	20%	75.1%	56.6%	56.6%	2.9
886	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Lodging	ROB	3,314	3,314	14%	475	0.00	16	$100	100%	40%	40%	2	29%	20%	75.1%	57.9%	57.9%	3.6
887	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Lodging	ROB	3,314	3,314	19%	640	0.00	16	$139	100%	40%	40%	2	29%	20%	75.1%	57.8%	57.8%	3.5
888	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Lodging	ROB	2,902	2,902	30%	858	0.00	25	$2,576	40%	40%	40%	2	29%	20%	44.0%	36.0%	36.0%	0.3
889	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Lodging	ROB	2,902	2,902	34%	972	0.00	25	$2,576	40%	40%	40%	2	29%	20%	44.0%	36.0%	36.0%	0.4
890	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Lodging	ROB	3,081	3,081	42%	1,285	0.00	25	$2,576	40%	40%	40%	2	29%	20%	44.0%	36.0%	36.0%	0.5
891	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Lodging	ROB	3,081	3,081	54%	1,673	0.00	25	$2,576	40%	40%	40%	2	29%	20%	44.0%	36.0%	36.0%	0.6
892	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Lodging	ROB	2,460	2,460	13%	323	0.00	16	$224	100%	40%	40%	2	29%	2%	75.1%	33.4%	33.4%	1.1
893	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Lodging	ROB	3,457	3,457	9%	325	0.00	16	$100	100%	40%	40%	3	29%	20%	75.1%	55.5%	55.5%	2.5
894	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Lodging	ROB	3,457	3,457	15%	529	0.00	16	$175	100%	40%	40%	3	29%	20%	75.1%	54.9%	54.9%	2.3
895	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Lodging	ROB	3,314	3,314	38%	1,270	0.00	25	$2,576	40%	40%	40%	3	29%	20%	44.0%	36.0%	36.0%	0.5
896	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Lodging	ROB	3,314	3,314	42%	1,384	0.00	25	$2,576	40%	40%	40%	3	29%	20%	44.0%	36.0%	36.0%	0.5
897	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Lodging	ROB	3,314	3,314	46%	1,517	0.00	25	$2,576	40%	40%	40%	3	29%	20%	44.0%	36.0%	36.0%	0.6
898	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Lodging	ROB	3,314	3,314	58%	1,906	0.00	25	$2,576	40%	40%	40%	3	29%	20%	44.0%	36.0%	36.0%	0.7
899	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Lodging	ROB	2,641	2,641	19%	504	0.00	16	$224	100%	40%	40%	4	28%	20%	75.1%	52.0%	52.0%	1.7
900	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Lodging	ROB	2,908	2,908	4%	116	0.00	8	$130	40%	40%	40%	5	5%	10%	39.8%	28.0%	28.0%	0.4
901	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Lodging	ROB	3,512	3,512	16%	554	0.00	8	$130	100%	40%	40%	6	5%	10%	75.1%	57.3%	57.3%	2.0
902	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Lodging	ROB	3,187	3,187	9%	287	0.00	8	$130	100%	40%	40%	7	5%	10%	75.1%	51.8%	51.8%	1.0
903	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Lodging	ROB	6,347	6,347	67%	4,250	0.00	15	$1,115	100%	40%	40%	1	100%	4%	68.0%	54.9%	54.9%	2.7
904	HotWater	Hot Water Pipe Insulation	Biz-Custom	Lodging	Retro	6,347	6,347	2%	127	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	1.8
905	HotWater	Faucet Aerator	Biz-Custom	Lodging	Retro	117	117	32%	38	0.00	10	$8	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	2.5
906	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Lodging	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	50.3
907	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Lodging	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
908	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Lodging	Retro	229	229	45%	103	0.00	8	$5	100%	40%	40%	1	46%	40%	76.5%	66.5%	66.5%	8.9
909	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Lodging	Retro	519	519	50%	260	0.00	8	$70	100%	40%	40%	1	46%	40%	76.5%	59.3%	59.3%	1.6
910	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Lodging	Retro	519	519	50%	260	0.00	8	$70	100%	40%	40%	1	46%	40%	76.5%	59.3%	59.3%	1.6
911	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Lodging	Retro	519	519	74%	386	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	52.0%	52.0%	0.7
912	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Lodging	Retro	4,832	4,832	68%	3,288	0.00	8	$330	100%	40%	40%	3	6%	34%	76.5%	64.9%	64.9%	4.3
913	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Lodging	Retro	4,832	4,832	66%	3,206	0.00	8	$330	100%	40%	40%	3	6%	34%	76.5%	64.8%	64.8%	4.2
914	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Lodging	Retro	1,029	1,029	61%	626	0.00	8	$44	100%	40%	40%	4	5%	34%	76.5%	65.8%	65.8%	6.2
915	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Lodging	Retro	1,029	1,029	59%	604	0.00	8	$44	100%	40%	40%	4	5%	34%	76.5%	65.7%	65.7%	6.0
916	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Lodging	ROB	68	68	86%	58	0.00	3	$1	100%	40%	40%	6	0%	43%	76.5%	67.5%	67.5%	11.2
917	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Lodging	Retro	356	356	68%	241	0.00	8	$27	100%	40%	40%	6	37%	45%	76.5%	64.5%	64.5%	3.9
918	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Lodging	ROB	51	51	81%	42	0.00	3	$1	100%	40%	40%	5	6%	20%	76.5%	67.3%	67.3%	8.0
919	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Lodging	Retro	191	191	100%	191	0.00	11	$4	100%	40%	40%	7	46%	0%	76.5%	67.4%	67.4%	26.3
920	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Lodging	Retro	872	872	30%	262	0.00	10	$65	100%	40%	40%	8	95%	10%	76.5%	59.9%	59.9%	2.1
921	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Lodging	Retro	1,117	1,117	30%	335	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	62.6%	62.6%	3.0
922	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Lodging	Retro	498	498	44%	219	0.00	10	$75	100%	40%	40%	8	95%	10%	76.5%	42.6%	42.6%	1.5
923	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Lodging	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.3
924	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Lodging	Retro	4	4	49%	2	0.00	15	$1	100%	40%	40%	8	95%	10%	76.5%	43.8%	43.8%	2.3
925	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Lodging	Retro	498	498	65%	324	0.00	15	$90	100%	40%	40%	8	57%	10%	76.5%	44.2%	44.2%	2.5
926	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Lodging	Retro	67	67	43%	29	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.3
927	InteriorLighting	Lighting - Custom	Biz-Custom Light	Lodging	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	10	100%	0%	76.5%	40.7%	40.7%	1.6
928	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Lodging	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	12%	46%	76.5%	56.6%	56.6%	1.2
929	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Lodging	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	11%	54%	67.8%	63.2%	63.2%	0.7
930	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Lodging	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	11%	54%	76.5%	63.2%	63.2%	1.2
931	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Lodging	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	11%	54%	67.8%	63.2%	63.2%	0.7
932	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Lodging	Retro	3,235	3,235	60%	1,953	0.00	6	$756	40%	40%	40%	5	11%	69%	78.3%	75.2%	75.2%	0.8
933	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Lodging	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	11%	69%	78.3%	75.2%	75.2%	1.5
934	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W≥250)	Biz-Prescriptive Light	Lodging	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	11%	46%	62.1%	56.6%	56.6%	0.7
935	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Lodging	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	11%	46%	76.5%	56.6%	56.6%	1.2
936	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Lodging	Retro	519	519	69%	358	0.00	10	$274	40%	40%	40%	9	11%	20%	44.0%	36.0%	36.0%	0.6
937	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Lodging	Retro	0	0	0%	0	0.00	12	$0	0%	0%		10	0%	54%	76.5%	68.0%	68.0%	0.0
938	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Lodging	Retro	0	0	0%	0	0.00	12	$0	0%	0%		11	0%	54%	76.5%	68.0%	68.0%	0.0
939	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Lodging	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
940	Miscellaneous	Miscellaneous Custom	Biz-Custom	Lodging	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	41%	10%	37.0%	20.5%	20.5%	0.2
941	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Lodging	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	25%	10%	76.5%	60.4%	60.4%	3.5
942	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Lodging	Retro	262	262	83%	217	0.00	10	$483	40%	40%	40%	4	5%	10%	37.0%	21.6%	21.6%	0.2
943	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Lodging	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	2%	2%	31.4%	11.1%	11.1%	0.2
944	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Lodging	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	0%	70%	79.0%	76.0%	76.0%	1.0
945	Motors	Cogged V-Belt	Biz-Custom	Lodging	Retro	29,207	29,207	3%	905	0.00	15	$384	100%	40%	40%	1	50%	10%	75.1%	39.4%	39.4%	1.6
946	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Lodging	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
947	Motors	Power Drive Systems	Biz-Custom	Lodging	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5
948	Motors	Switch Reluctance Motors	Biz-Custom	Lodging	Retro	56,602	56,602	31%	17,320	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	49.0%	49.0%	22.4
949	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Lodging	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.2
950	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Lodging	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	5%	90%	93.0%	92.0%	92.0%	0.0
951	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Lodging	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.9
952	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Lodging	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.1
953	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Lodging	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	22.8
954	Office_PC	Energy Star Server	Biz-Custom	Lodging	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.4
955	Office_PC	Server Virtualization	Biz-Custom	Lodging	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
956	Office_PC	High Efficiency CRAC unit	Biz-Custom	Lodging	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.8
957	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Lodging	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	3.0
958	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Lodging	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.7
959	Office_PC	Energy Star Laptop	Biz-Custom	Lodging	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
960	Office_PC	Energy Star Monitor	Biz-Custom	Lodging	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
961	Refrigeration	Strip Curtains	Biz-Custom	Lodging	Retro	0	0	0%	0	0.00	4	$0	0%	0%		1	10%	30%	71.2%	47.5%	47.5%	0.0
962	Refrigeration	Bare Suction Line	Biz-Custom	Lodging	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	0%	50%	71.2%	60.0%	60.0%	3.6
963	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Lodging	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	7%	25%	47.5%	40.0%	40.0%	0.4
964	Refrigeration	Saturated Suction Controls	Biz-Custom	Lodging	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
965	Refrigeration	Compressor Retrofit	Biz-Custom	Lodging	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	23%	25%	47.5%	35.6%	35.6%	0.2
966	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Lodging	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	6%	80%	86.0%	84.0%	84.0%	3.5
967	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Lodging	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	6%	25%	71.2%	42.9%	42.9%	1.8
968	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Lodging	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	9%	25%	71.2%	40.0%	40.0%	0.9
969	Refrigeration	Refrigeration Economizer	Biz-Custom	Lodging	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	32%	10%	71.2%	28.2%	28.2%	0.5
970	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Lodging	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	11%	25%	71.2%	55.0%	55.0%	1.0
971	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Lodging	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	8%	50%	71.2%	60.0%	60.0%	2.6
972	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Lodging	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	3%	25%	47.5%	40.0%	40.0%	0.5
973	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Lodging	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	2%	80%	86.0%	84.0%	84.0%	3.5
974	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Lodging	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	2%	2%	71.2%	44.4%	44.4%	2.7
975	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Lodging	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	11%	54%	67.8%	63.2%	63.2%	0.3
976	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Lodging	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	11%	54%	67.8%	61.3%	61.3%	0.1
977	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Lodging	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	4%	25%	71.2%	60.6%	60.6%	4.1
978	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Lodging	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	4%	50%	71.2%	60.0%	60.0%	6.4
979	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Lodging	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	4%	25%	71.2%	41.5%	41.5%	1.2
980	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Lodging	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	4%	54%	67.8%	63.2%	63.2%	0.5
981	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Lodging	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	4%	54%	67.8%	61.3%	61.3%	0.1
982	Refrigeration	Refrigeration - Custom	Biz-Custom	Lodging	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
983	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Lodging	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
984	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Lodging	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	10%	44%	60.8%	55.2%	55.2%	0.3
985	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Lodging	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	4%	30%	62.5%	55.6%	55.6%	0.6
986	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Lodging	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	7%	35%	71.2%	62.3%	62.3%	10.5
987	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Lodging	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	7%	18%	71.2%	61.2%	61.2%	5.4
988	Ventilation	Demand Controlled Ventilation	Biz-Custom	Lodging	Retro	2,639	2,639	20%	528	0.00	15	$227	100%	40%	40%	1	100%	22%	75.1%	39.3%	39.3%	1.8
989	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Lodging	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	22%	75.1%	56.3%	56.3%	2.6
990	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Lodging	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	15%	20%	75.1%	39.8%	39.8%	1.7
991	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Lodging	Retro	7,167	7,167	19%	1,382	0.00	15	$260	100%	40%	40%	2	85%	20%	75.1%	43.9%	43.9%	3.7
992	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Lodging	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.7
993	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Lodging	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
994	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Lodging	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
995	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Lodging	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
996	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Lodging	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	3.0
997	Behavioral	COM Competitions	Biz-Custom	Lodging	Retro	53	53	2%	1	0.00	2	$0	100%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	3.2
998	Behavioral	Business Energy Reports	Biz-Custom	Lodging	Retro	313	313	0%	1	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.7
999	Behavioral	Building Benchmarking	Biz-Custom	Lodging	Retro	263	263	0%	1	0.00	2	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.6
1000	Behavioral	Strategic Energy Management	Biz-Custom SEM	Lodging	Retro	0	0	0%	0	0.00	5	$0	40%	40%	40%	1	100%	0%	50.0%	50.0%	50.0%	0.0
1001	Behavioral	BEIMS	Biz-Custom	Lodging	Retro	20	20	5%	1	0.00	2	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.3
1002	Behavioral	Building Operator Certification	Biz-Custom	Lodging	Retro	12	12	3%	0	0.00	3	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.3
1003	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Retail	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
1004	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Retail	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	10.3
1005	CompressedAir	AODD Pump Controls	Biz-Custom	Retail	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	16.4
1006	CompressedAir	Compressed Air - Custom	Biz-Custom	Retail	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.4
1007	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Retail	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4
1008	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Retail	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
1009	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Retail	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
1010	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Retail	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.5
1011	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Retail	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.4
1012	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Retail	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	19.8
1013	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Retail	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	6.5
1014	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Retail	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.4
1015	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Retail	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	5.1
1016	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Retail	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.1
1017	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Retail	ROB	1,273	1,273	6%	78	0.00	15	$63	100%	40%	40%	1	15%	20%	75.1%	40.9%	40.9%	0.8
1018	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Retail	ROB	1,273	1,273	13%	164	0.00	15	$127	100%	40%	40%	1	15%	20%	75.1%	41.8%	41.8%	0.9
1019	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Retail	ROB	1,273	1,273	28%	359	0.00	15	$127	100%	40%	40%	1	15%	20%	75.1%	54.3%	54.3%	1.9
1020	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Retail	ROB	1,273	1,273	42%	533	0.00	15	$127	100%	40%	40%	1	15%	20%	75.1%	57.2%	57.2%	2.8
1021	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Retail	ROB	1,362	1,362	6%	79	0.00	15	$30	100%	40%	40%	2	15%	20%	75.1%	53.6%	53.6%	1.8
1022	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Retail	ROB	1,362	1,362	12%	168	0.00	15	$37	100%	40%	40%	2	15%	20%	75.1%	57.7%	57.7%	3.0
1023	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Retail	ROB	1,362	1,362	20%	276	0.00	15	$37	100%	40%	40%	2	15%	20%	75.1%	60.7%	60.7%	5.0
1024	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Retail	ROB	1,362	1,362	46%	623	0.00	15	$37	100%	40%	40%	2	15%	20%	75.1%	64.0%	64.0%	11.3
1025	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Retail	Retro	1,294	1,294	7%	91	0.00	3	$5	100%	40%	40%	3	29%	50%	75.1%	60.0%	60.0%	3.2
1026	Cooling	Air Side Economizer	Biz-Custom	Retail	Retro	1,273	1,273	20%	255	0.00	10	$84	100%	40%	40%	4	29%	20%	75.1%	41.2%	41.2%	1.5
1027	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Retail	Retro	1,294	1,294	8%	106	0.00	10	$100	40%	40%	40%	5	29%	20%	44.0%	37.6%	37.6%	0.5
1028	Cooling	HVAC Occupancy Controls	Biz-Custom	Retail	ROB	2,900	2,900	20%	580	0.00	15	$537	40%	40%	40%	6	29%	20%	44.0%	36.0%	36.0%	0.7
1029	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Retail	ROB	1,109	1,109	13%	139	0.00	15	$47	100%	40%	40%	7	23%	20%	75.1%	54.7%	54.7%	2.0
1030	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Retail	ROB	1,109	1,109	18%	196	0.00	15	$206	40%	40%	40%	7	23%	20%	44.0%	36.2%	36.2%	0.6
1031	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Retail	ROB	1,109	1,109	22%	246	0.00	15	$206	100%	40%	40%	7	23%	20%	75.1%	39.8%	39.8%	0.8
1032	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Retail	ROB	1,109	1,109	33%	370	0.00	15	$253	100%	40%	40%	7	23%	20%	75.1%	44.8%	44.8%	1.0

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1033	Cooling	Smart Thermostat	Biz-Prescriptive	Retail	ROB	1,109	1,109	14%	157	0.00	11	$175	40%	40%	40%	8	23%	12%	39.9%	35.5%	35.5%	0.5
1034	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Retail	ROB	1,305	1,305	8%	110	0.00	8	$84	40%	40%	40%	9	15%	20%	47.6%	42.3%	42.3%	0.6
1035	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Retail	ROB	1,431	1,431	7%	104	0.00	8	$84	40%	40%	40%	10	15%	20%	45.9%	40.8%	40.8%	0.5
1036	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Retail	ROB	1,635	1,635	10%	156	0.00	8	$84	100%	40%	40%	11	15%	20%	75.1%	49.5%	49.5%	0.8
1037	Cooling	Air Cooled Chiller	Biz-Prescriptive	Retail	ROB	1,133	1,133	6%	64	0.00	23	$126	40%	40%	40%	12	32%	15%	40.5%	32.0%	32.0%	0.4
1038	Cooling	Chiller Tune-up	Biz-Prescriptive	Retail	Retro	1,294	1,294	7%	91	0.00	3	$8	100%	40%	40%	13	32%	50%	75.1%	62.8%	62.8%	2.1
1039	Cooling	HVAC/Chiller Custom	Biz-Custom	Retail	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.6
1040	Cooling	Window Film	Biz-Prescriptive	Retail	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.8
1041	Cooling	Triple Pane Windows	Biz-Custom	Retail	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
1042	Cooling	Energy Recovery Ventilator	Biz-Custom	Retail	Retro	1,362	1,362	11%	156	0.00	15	$1,500	40%	40%	40%	16	100%	2%	31.4%	15.3%	15.3%	0.1
1043	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Retail	ROB	1,841	1,841	4%	83	0.00	16	$87	40%	40%	40%	1	35%	20%	44.0%	36.2%	36.2%	0.7
1044	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Retail	ROB	1,841	1,841	9%	173	0.00	16	$442	40%	40%	40%	1	35%	20%	44.0%	36.0%	36.0%	0.3
1045	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Retail	ROB	1,841	1,841	13%	247	0.00	16	$507	40%	40%	40%	1	35%	20%	44.0%	36.0%	36.0%	0.4
1046	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Retail	ROB	1,841	1,841	21%	392	0.00	16	$507	40%	40%	40%	1	35%	20%	44.0%	36.0%	36.0%	0.6
1047	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Retail	ROB	1,841	1,841	23%	431	0.00	25	$2,576	40%	40%	40%	1	35%	20%	44.0%	34.5%	34.5%	0.2
1048	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Retail	ROB	1,841	1,841	28%	510	0.00	25	$2,576	40%	40%	40%	1	35%	20%	44.0%	34.5%	34.5%	0.2
1049	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Retail	ROB	1,841	1,841	33%	602	0.00	25	$2,576	40%	40%	40%	1	35%	20%	44.0%	34.5%	34.5%	0.2
1050	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Retail	ROB	1,841	1,841	47%	869	0.00	25	$2,576	40%	40%	40%	1	35%	20%	44.0%	36.0%	36.0%	0.3
1051	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Retail	ROB	2,239	2,239	12%	264	0.00	16	$100	100%	40%	40%	2	22%	20%	75.1%	53.6%	53.6%	2.0
1052	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Retail	ROB	2,239	2,239	17%	383	0.00	16	$136	100%	40%	40%	2	22%	20%	75.1%	54.3%	54.3%	2.1
1053	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Retail	ROB	2,336	2,336	16%	375	0.00	16	$100	100%	40%	40%	2	22%	20%	75.1%	56.5%	56.5%	2.8
1054	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Retail	ROB	2,336	2,336	21%	492	0.00	16	$139	100%	40%	40%	2	22%	20%	75.1%	56.1%	56.1%	2.7
1055	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Retail	ROB	2,034	2,034	31%	625	0.00	25	$2,576	40%	40%	40%	2	22%	20%	44.0%	34.5%	34.5%	0.2
1056	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Retail	ROB	2,034	2,034	35%	703	0.00	25	$2,576	40%	40%	40%	2	22%	20%	44.0%	34.5%	34.5%	0.3
1057	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Retail	ROB	2,198	2,198	44%	959	0.00	25	$2,576	40%	40%	40%	2	22%	20%	44.0%	36.0%	36.0%	0.4
1058	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Retail	ROB	2,198	2,198	56%	1,226	0.00	25	$2,576	40%	40%	40%	2	22%	20%	44.0%	36.0%	36.0%	0.5
1059	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Retail	ROB	1,744	1,744	17%	296	0.00	16	$224	100%	40%	40%	2	22%	2%	75.1%	31.8%	31.8%	1.0
1060	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Retail	ROB	2,467	2,467	10%	256	0.00	16	$100	100%	40%	40%	3	22%	20%	75.1%	53.4%	53.4%	1.9
1061	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Retail	ROB	2,467	2,467	16%	407	0.00	16	$175	100%	40%	40%	3	22%	20%	75.1%	52.4%	52.4%	1.8
1062	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Retail	ROB	2,336	2,336	40%	927	0.00	25	$2,576	40%	40%	40%	3	22%	20%	44.0%	36.0%	36.0%	0.4
1063	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Retail	ROB	2,336	2,336	43%	1,005	0.00	25	$2,576	40%	40%	40%	3	22%	20%	44.0%	36.0%	36.0%	0.4
1064	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Retail	ROB	2,336	2,336	47%	1,097	0.00	25	$2,576	40%	40%	40%	3	22%	20%	44.0%	36.0%	36.0%	0.4
1065	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Retail	ROB	2,336	2,336	58%	1,364	0.00	25	$2,576	40%	40%	40%	3	22%	20%	44.0%	36.0%	36.0%	0.5
1066	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Retail	ROB	1,841	1,841	21%	392	0.00	16	$224	100%	40%	40%	4	11%	20%	75.1%	48.5%	48.5%	1.3
1067	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Retail	ROB	2,006	2,006	5%	106	0.00	8	$130	40%	40%	40%	5	3%	10%	38.4%	28.0%	28.0%	0.4
1068	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Retail	ROB	2,495	2,495	20%	507	0.00	8	$130	100%	40%	40%	6	3%	10%	75.1%	56.7%	56.7%	1.8
1069	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Retail	ROB	2,220	2,220	12%	263	0.00	8	$130	100%	40%	40%	7	3%	10%	75.1%	50.7%	50.7%	0.9
1070	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Retail	ROB	4,687	4,687	67%	3,139	0.00	15	$1,115	100%	40%	40%	1	100%	8%	68.0%	52.5%	52.5%	2.0
1071	HotWater	Hot Water Pipe Insulation	Biz-Custom	Retail	Retro	4,687	4,687	2%	94	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	1.4
1072	HotWater	Faucet Aerator	Biz-Custom	Retail	Retro	284	284	32%	92	0.00	10	$8	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	6.3
1073	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Retail	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	51.6
1074	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Retail	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
1075	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Retail	Retro	153	153	45%	68	0.00	12	$5	100%	40%	40%	1	75%	40%	76.5%	65.7%	65.7%	8.5
1076	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Retail	Retro	346	346	50%	173	0.00	12	$70	100%	40%	40%	1	75%	40%	76.5%	54.6%	54.6%	1.5
1077	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Retail	Retro	346	346	50%	173	0.00	12	$70	100%	40%	40%	1	75%	40%	76.5%	54.6%	54.6%	1.5
1078	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Retail	Retro	346	346	74%	257	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	52.0%	52.0%	0.5
1079	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Retail	Retro	3,225	3,225	68%	2,194	0.00	12	$330	100%	40%	40%	3	3%	34%	76.5%	63.3%	63.3%	4.1
1080	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Retail	Retro	3,225	3,225	66%	2,140	0.00	12	$330	100%	40%	40%	3	3%	34%	76.5%	63.2%	63.2%	4.0
1081	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Retail	Retro	687	687	61%	417	0.00	12	$44	100%	40%	40%	4	16%	34%	76.5%	64.7%	64.7%	5.9
1082	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Retail	Retro	687	687	59%	403	0.00	12	$44	100%	40%	40%	4	16%	34%	76.5%	64.6%	64.6%	5.7
1083	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Retail	ROB	257	257	86%	221	0.00	5	$1	100%	40%	40%	6	0%	43%	76.5%	67.9%	67.9%	68.9
1084	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Retail	Retro	238	238	68%	161	0.00	12	$27	100%	40%	40%	6	4%	45%	76.5%	62.7%	62.7%	3.7
1085	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Retail	ROB	194	194	81%	157	0.00	5	$1	100%	40%	40%	5	0%	20%	76.5%	67.8%	67.8%	49.1
1086	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Retail	Retro	128	128	100%	128	0.00	11	$4	100%	40%	40%	7	75%	0%	76.5%	67.0%	67.0%	18.5
1087	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Retail	Retro	582	582	30%	175	0.00	10	$65	100%	40%	40%	8	95%	10%	76.5%	55.6%	55.6%	1.4
1088	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Retail	Retro	746	746	30%	224	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	59.7%	59.7%	2.1
1089	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Retail	Retro	333	333	44%	146	0.00	10	$75	100%	40%	40%	8	95%	10%	76.5%	38.1%	38.1%	1.1
1090	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Retail	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.4
1091	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Retail	Retro	3	3	49%	1	0.00	15	$1	100%	40%	40%	8	95%	10%	76.5%	40.0%	40.0%	1.6
1092	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Retail	Retro	333	333	65%	216	0.00	15	$90	100%	40%	40%	8	95%	10%	76.5%	40.6%	40.6%	1.7
1093	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Retail	Retro	67	67	43%	29	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.3
1094	InteriorLighting	Lighting - Custom	Biz-Custom Light	Retail	Retro	4	4	25%	1	0.00	15	$1	100%	40%	40%	10	100%	0%	76.5%	36.0%	36.0%	1.2
1095	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Retail	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	12%	46%	76.5%	56.6%	56.6%	1.2
1096	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Retail	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	11%	54%	67.8%	63.2%	63.2%	0.7
1097	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Retail	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	11%	54%	76.5%	63.2%	63.2%	1.2
1098	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Retail	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	11%	54%	67.8%	63.2%	63.2%	0.7
1099	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Retail	Retro	3,235	3,235	60%	1,953	0.00	6	$756	40%	40%	40%	5	11%	69%	78.3%	75.2%	75.2%	0.8
1100	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Retail	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	11%	69%	78.3%	75.2%	75.2%	1.5
1101	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W≥250)	Biz-Prescriptive Light	Retail	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	11%	46%	62.1%	56.6%	56.6%	0.7
1102	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Retail	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	11%	46%	76.5%	56.6%	56.6%	1.2
1103	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Retail	Retro	346	346	69%	239	0.00	10	$274	40%	40%	40%	9	11%	20%	44.0%	36.0%	36.0%	0.4
1104	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Retail	Retro	0	0	0%	0	0.00	12	$0	0%	0%		10	0%	54%	76.5%	68.0%	68.0%	0.0
1105	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Retail	Retro	0	0	0%	0	0.00	12	$0	0%	0%		11	0%	54%	76.5%	68.0%	68.0%	0.0
1106	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Retail	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
1107	Miscellaneous	Miscellaneous Custom	Biz-Custom	Retail	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	36%	10%	37.0%	20.5%	20.5%	0.2
1108	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Retail	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	0%	10%	76.5%	60.4%	60.4%	3.8
1109	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Retail	Retro	1,909	1,909	83%	1,585	0.00	10	$483	100%	40%	40%	4	5%	10%	76.5%	43.5%	43.5%	1.8
1110	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Retail	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	0%	2%	31.4%	11.1%	11.1%	0.2
1111	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Retail	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	5%	70%	79.0%	76.0%	76.0%	1.0
1112	Motors	Cogged V-Belt	Biz-Custom	Retail	Retro	14,670	14,670	3%	455	0.00	15	$384	100%	40%	40%	1	50%	10%	75.1%	29.7%	29.7%	0.8
1113	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Retail	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5
1114	Motors	Power Drive Systems	Biz-Custom	Retail	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5
1115	Motors	Switch Reluctance Motors	Biz-Custom	Retail	Retro	28,430	28,430	31%	8,700	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	48.0%	48.0%	11.4
1116	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Retail	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.2
1117	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Retail	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	30%	90%	93.0%	92.0%	92.0%	0.0
1118	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Retail	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.9

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1119	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Retail	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.0
1120	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Retail	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	22.4
1121	Office_PC	Energy Star Server	Biz-Custom	Retail	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.4
1122	Office_PC	Server Virtualization	Biz-Custom	Retail	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
1123	Office_PC	High Efficiency CRAC unit	Biz-Custom	Retail	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.8
1124	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Retail	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	3.0
1125	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Retail	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.7
1126	Office_PC	Energy Star Laptop	Biz-Custom	Retail	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
1127	Office_PC	Energy Star Monitor	Biz-Custom	Retail	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
1128	Refrigeration	Strip Curtains	Biz-Custom	Retail	Retro	0	0	0%	0	0.00	4	$0	0%	0%		1	6%	30%	71.2%	47.5%	47.5%	0.0
1129	Refrigeration	Bare Suction Line	Biz-Custom	Retail	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	0%	50%	71.2%	60.0%	60.0%	3.6
1130	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Retail	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	4%	25%	47.5%	40.0%	40.0%	0.4
1131	Refrigeration	Saturated Suction Controls	Biz-Custom	Retail	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
1132	Refrigeration	Compressor Retrofit	Biz-Custom	Retail	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	13%	25%	47.5%	35.6%	35.6%	0.2
1133	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Retail	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	4%	80%	86.0%	84.0%	84.0%	3.5
1134	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Retail	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	4%	25%	71.2%	42.9%	42.9%	1.8
1135	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Retail	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	5%	25%	71.2%	40.0%	40.0%	0.9
1136	Refrigeration	Refrigeration Economizer	Biz-Custom	Retail	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	18%	10%	71.2%	28.2%	28.2%	0.5
1137	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Retail	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	18%	75%	82.5%	80.0%	80.0%	1.0
1138	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Retail	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	13%	50%	71.2%	60.0%	60.0%	2.6
1139	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Retail	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	5%	25%	47.5%	40.0%	40.0%	0.5
1140	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Retail	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	3%	80%	86.0%	84.0%	84.0%	3.5
1141	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Retail	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	3%	2%	71.2%	44.4%	44.4%	2.7
1142	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Retail	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	17%	54%	67.8%	63.2%	63.2%	0.3
1143	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Retail	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	17%	54%	67.8%	61.3%	61.3%	0.1
1144	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Retail	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	6%	75%	82.5%	80.0%	80.0%	4.1
1145	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Retail	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	6%	50%	71.2%	60.0%	60.0%	6.4
1146	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Retail	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	6%	25%	71.2%	41.5%	41.5%	1.2
1147	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Retail	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	6%	54%	67.8%	63.2%	63.2%	0.5
1148	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Retail	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	6%	54%	67.8%	61.3%	61.3%	0.1
1149	Refrigeration	Refrigeration - Custom	Biz-Custom	Retail	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
1150	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Retail	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
1151	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Retail	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	3%	44%	60.8%	55.2%	55.2%	0.3
1152	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Retail	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	3%	30%	62.5%	55.6%	55.6%	0.6
1153	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Retail	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	11%	35%	71.2%	62.3%	62.3%	10.5
1154	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Retail	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	11%	18%	71.2%	61.2%	61.2%	5.4
1155	Ventilation	Demand Controlled Ventilation	Biz-Custom	Retail	Retro	2,798	2,798	20%	560	0.00	15	$227	100%	40%	40%	1	100%	18%	75.1%	39.7%	39.7%	1.9
1156	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Retail	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	18%	75.1%	56.3%	56.3%	2.6
1157	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Retail	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	39.8%	39.8%	1.8
1158	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Retail	Retro	0	0	0%	0	0.00	15	$260	40%	40%	40%	2	100%	20%	75.1%	50.0%	50.0%	0.0
1159	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Retail	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.8
1160	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Retail	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
1161	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Retail	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
1162	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Retail	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
1163	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Retail	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	3.0
1164	Behavioral	COM Competitions	Biz-Custom	Retail	Retro	53	53	2%	1	0.00	2	$0	100%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	3.3
1165	Behavioral	Business Energy Reports	Biz-Custom	Retail	Retro	313	313	0%	1	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.7
1166	Behavioral	Building Benchmarking	Biz-Custom	Retail	Retro	97	97	1%	1	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.6
1167	Behavioral	Strategic Energy Management	Biz-Custom SEM	Retail	Retro	0	0	0%	0	0.00	5	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.0
1168	Behavioral	BEIMS	Biz-Custom	Retail	Retro	20	20	5%	1	0.00	2	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.3
1169	Behavioral	Building Operator Certification	Biz-Custom	Retail	Retro	14	14	3%	0	0.00	3	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.4
1170	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Office	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
1171	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Office	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	10.2
1172	CompressedAir	AODD Pump Controls	Biz-Custom	Office	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	16.3
1173	CompressedAir	Compressed Air - Custom	Biz-Custom	Office	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.4
1174	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Office	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4
1175	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Office	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	100%	40%	40%	1	18%	53%	71.2%	62.4%	62.4%	0.7
1176	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Office	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	100%	40%	40%	1	18%	53%	71.2%	62.4%	62.4%	0.7
1177	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Office	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.4
1178	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Office	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.2
1179	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Office	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	18.2
1180	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Office	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	6.0
1181	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Office	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.3
1182	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Office	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	4.6
1183	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Office	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.0
1184	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Office	ROB	1,278	1,278	6%	79	0.00	15	$63	100%	40%	40%	1	26%	20%	75.1%	41.0%	41.0%	0.9
1185	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Office	ROB	1,278	1,278	13%	164	0.00	15	$127	100%	40%	40%	1	26%	20%	75.1%	41.9%	41.9%	0.9
1186	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Office	ROB	1,278	1,278	28%	361	0.00	15	$127	100%	40%	40%	1	26%	20%	75.1%	54.3%	54.3%	2.0
1187	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Office	ROB	1,278	1,278	42%	535	0.00	15	$127	100%	40%	40%	1	26%	20%	75.1%	57.2%	57.2%	2.9
1188	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Office	ROB	1,367	1,367	6%	79	0.00	15	$30	100%	40%	40%	2	26%	20%	75.1%	53.6%	53.6%	1.8
1189	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Office	ROB	1,367	1,367	12%	168	0.00	15	$37	100%	40%	40%	2	26%	20%	75.1%	57.7%	57.7%	3.1
1190	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Office	ROB	1,367	1,367	20%	277	0.00	15	$37	100%	40%	40%	2	26%	20%	75.1%	60.7%	60.7%	5.2
1191	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Office	ROB	1,367	1,367	46%	625	0.00	15	$37	100%	40%	40%	2	26%	20%	75.1%	64.1%	64.1%	11.7
1192	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Office	Retro	1,299	1,299	7%	91	0.00	3	$5	100%	40%	40%	3	51%	50%	75.1%	60.0%	60.0%	3.3
1193	Cooling	Air Side Economizer	Biz-Custom	Office	Retro	1,278	1,278	20%	256	0.00	10	$84	100%	40%	40%	4	51%	20%	75.1%	41.2%	41.2%	1.6
1194	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Office	Retro	1,299	1,299	2%	23	0.00	10	$100	40%	40%	40%	5	51%	20%	44.0%	34.5%	34.5%	0.1
1195	Cooling	HVAC Occupancy Controls	Biz-Custom	Office	ROB	2,900	2,900	20%	580	0.00	15	$537	100%	40%	40%	6	51%	20%	75.1%	36.0%	36.0%	0.7
1196	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Office	ROB	1,113	1,113	13%	139	0.00	15	$47	100%	40%	40%	7	8%	20%	75.1%	54.7%	54.7%	2.1
1197	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Office	ROB	1,113	1,113	18%	196	0.00	15	$206	100%	40%	40%	7	8%	20%	75.1%	36.2%	36.2%	0.7
1198	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Office	ROB	1,113	1,113	22%	247	0.00	15	$206	100%	40%	40%	7	8%	20%	75.1%	39.9%	39.9%	0.8
1199	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Office	ROB	1,113	1,113	33%	371	0.00	15	$253	100%	40%	40%	7	8%	20%	75.1%	44.9%	44.9%	1.0
1200	Cooling	Smart Thermostat	Biz-Prescriptive	Office	ROB	1,113	1,113	14%	158	0.00	11	$175	40%	40%	40%	8	8%	12%	39.9%	35.5%	35.5%	0.5
1201	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Office	ROB	1,310	1,310	8%	111	0.00	8	$84	40%	40%	40%	9	7%	20%	47.7%	42.4%	42.4%	0.6
1202	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Office	ROB	1,437	1,437	7%	104	0.00	8	$84	40%	40%	40%	10	7%	20%	46.0%	40.9%	40.9%	0.5
1203	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Office	ROB	1,641	1,641	10%	156	0.00	8	$84	100%	40%	40%	11	7%	20%	75.1%	49.6%	49.6%	0.8
1204	Cooling	Air Cooled Chiller	Biz-Prescriptive	Office	ROB	1,138	1,138	6%	64	0.00	23	$126	40%	40%	40%	12	34%	15%	40.5%	32.0%	32.0%	0.5

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1205	Cooling	Chiller Tune-up	Biz-Prescriptive	Office	Retro	1,299	1,299	7%	91	0.00	3	$8	100%	40%	40%	13	34%	50%	75.1%	62.8%	62.8%	2.2
1206	Cooling	HVAC/Chiller Custom	Biz-Custom	Office	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.6
1207	Cooling	Window Film	Biz-Prescriptive	Office	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.8
1208	Cooling	Triple Pane Windows	Biz-Custom	Office	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
1209	Cooling	Energy Recovery Ventilator	Biz-Custom	Office	Retro	1,367	1,367	70%	952	0.00	15	$1,500	40%	40%	40%	16	100%	2%	33.6%	22.4%	22.4%	0.4
1210	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Office	ROB	1,703	1,703	5%	80	0.00	16	$87	40%	40%	40%	1	8%	20%	44.0%	36.0%	36.0%	0.7
1211	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Office	ROB	1,703	1,703	10%	165	0.00	16	$442	40%	40%	40%	1	8%	20%	44.0%	36.0%	36.0%	0.3
1212	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Office	ROB	1,703	1,703	14%	235	0.00	16	$507	40%	40%	40%	1	8%	20%	44.0%	36.0%	36.0%	0.3
1213	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Office	ROB	1,703	1,703	22%	377	0.00	16	$507	40%	40%	40%	1	8%	20%	44.0%	36.0%	36.0%	0.5
1214	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Office	ROB	1,703	1,703	24%	404	0.00	25	$2,576	40%	40%	40%	1	8%	20%	44.0%	34.5%	34.5%	0.1
1215	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Office	ROB	1,703	1,703	28%	477	0.00	25	$2,576	40%	40%	40%	1	8%	20%	44.0%	34.5%	34.5%	0.2
1216	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Office	ROB	1,703	1,703	33%	562	0.00	25	$2,576	40%	40%	40%	1	8%	20%	44.0%	34.5%	34.5%	0.2
1217	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Office	ROB	1,703	1,703	47%	807	0.00	25	$2,576	40%	40%	40%	1	8%	20%	44.0%	36.0%	36.0%	0.3
1218	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Office	ROB	2,077	2,077	12%	250	0.00	16	$100	100%	40%	40%	2	26%	20%	75.1%	53.1%	53.1%	1.8
1219	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Office	ROB	2,077	2,077	17%	362	0.00	16	$136	100%	40%	40%	2	26%	20%	75.1%	53.8%	53.8%	1.9
1220	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Office	ROB	2,170	2,170	17%	361	0.00	16	$100	100%	40%	40%	2	26%	20%	75.1%	56.2%	56.2%	2.6
1221	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Office	ROB	2,170	2,170	22%	470	0.00	16	$139	100%	40%	40%	2	26%	20%	75.1%	55.8%	55.8%	2.5
1222	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Office	ROB	1,886	1,886	31%	587	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	34.5%	34.5%	0.2
1223	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Office	ROB	1,886	1,886	35%	659	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	34.5%	34.5%	0.2
1224	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Office	ROB	2,050	2,050	44%	908	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	36.0%	36.0%	0.3
1225	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Office	ROB	2,050	2,050	56%	1,154	0.00	25	$2,576	40%	40%	40%	2	26%	20%	44.0%	36.0%	36.0%	0.4
1226	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Office	ROB	1,624	1,624	18%	297	0.00	16	$224	100%	40%	40%	2	26%	2%	75.1%	31.9%	31.9%	1.0
1227	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Office	ROB	2,301	2,301	11%	247	0.00	16	$100	100%	40%	40%	3	26%	20%	75.1%	53.0%	53.0%	1.8
1228	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Office	ROB	2,301	2,301	17%	389	0.00	16	$175	100%	40%	40%	3	26%	20%	75.1%	51.9%	51.9%	1.6
1229	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Office	ROB	2,170	2,170	40%	871	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.3
1230	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Office	ROB	2,170	2,170	43%	943	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.3
1231	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Office	ROB	2,170	2,170	47%	1,028	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.4
1232	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Office	ROB	2,170	2,170	59%	1,274	0.00	25	$2,576	40%	40%	40%	3	26%	20%	44.0%	36.0%	36.0%	0.5
1233	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Office	ROB	1,703	1,703	22%	377	0.00	16	$224	100%	40%	40%	4	30%	20%	75.1%	47.7%	47.7%	1.2
1234	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Office	ROB	1,849	1,849	6%	107	0.00	8	$130	40%	40%	40%	5	3%	10%	38.5%	28.0%	28.0%	0.4
1235	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Office	ROB	2,324	2,324	22%	509	0.00	8	$130	100%	40%	40%	6	3%	10%	75.1%	56.8%	56.8%	1.7
1236	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Office	ROB	2,054	2,054	13%	264	0.00	8	$130	100%	40%	40%	7	3%	10%	75.1%	50.8%	50.8%	0.9
1237	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Office	ROB	4,536	4,536	67%	3,038	0.00	15	$1,115	100%	40%	40%	1	100%	11%	68.0%	52.2%	52.2%	1.9
1238	HotWater	Hot Water Pipe Insulation	Biz-Custom	Office	Retro	4,536	4,536	2%	91	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	1.3
1239	HotWater	Faucet Aerator	Biz-Custom	Office	Retro	545	545	32%	176	0.00	10	$8	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	11.7
1240	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Office	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	49.9
1241	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Office	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
1242	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Office	Retro	115	115	45%	51	0.00	15	$5	100%	40%	40%	1	78%	40%	76.5%	65.0%	65.0%	7.1
1243	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Office	Retro	260	260	50%	130	0.00	15	$70	100%	40%	40%	1	78%	40%	76.5%	52.0%	52.0%	1.3
1244	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Office	Retro	260	260	50%	130	0.00	15	$70	100%	40%	40%	1	78%	40%	76.5%	52.0%	52.0%	1.3
1245	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Office	Retro	260	260	74%	193	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	51.0%	51.0%	0.4
1246	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Office	Retro	2,423	2,423	68%	1,649	0.00	15	$330	100%	40%	40%	3	6%	34%	76.5%	61.7%	61.7%	3.5
1247	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Office	Retro	2,423	2,423	66%	1,608	0.00	15	$330	100%	40%	40%	3	6%	34%	76.5%	61.5%	61.5%	3.4
1248	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Office	Retro	516	516	61%	314	0.00	15	$44	100%	40%	40%	4	11%	34%	76.5%	63.6%	63.6%	4.9
1249	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Office	Retro	516	516	59%	303	0.00	15	$44	100%	40%	40%	4	11%	34%	76.5%	63.5%	63.5%	4.8
1250	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Office	ROB	283	283	86%	243	0.00	7	$1	100%	40%	40%	6	0%	43%	76.5%	67.9%	67.9%	96.4
1251	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Office	Retro	179	179	68%	121	0.00	15	$27	100%	40%	40%	6	4%	45%	76.5%	60.8%	60.8%	3.1
1252	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Office	ROB	214	214	81%	173	0.00	7	$1	100%	40%	40%	5	1%	20%	76.5%	67.9%	67.9%	68.7
1253	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Office	Retro	96	96	100%	96	0.00	11	$4	100%	40%	40%	7	78%	0%	76.5%	66.7%	66.7%	13.4
1254	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Office	Retro	438	438	30%	131	0.00	10	$65	100%	40%	40%	8	95%	10%	76.5%	51.3%	51.3%	1.0
1255	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Office	Retro	560	560	30%	168	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	56.7%	56.7%	1.5
1256	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Office	Retro	250	250	44%	110	0.00	10	$75	40%	40%	40%	8	95%	10%	48.1%	32.1%	32.1%	0.8
1257	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Office	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.3
1258	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Office	Retro	5	5	49%	2	0.00	15	$1	100%	40%	40%	8	95%	10%	76.5%	45.0%	45.0%	2.8
1259	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Office	Retro	589	589	65%	383	0.00	15	$90	100%	40%	40%	8	96%	10%	76.5%	45.3%	45.3%	2.9
1260	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Office	Retro	70	70	43%	30	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.3
1261	InteriorLighting	Lighting - Custom	Biz-Custom Light	Office	Retro	4	4	25%	1	0.00	15	$1	100%	40%	40%	10	100%	0%	76.5%	34.9%	34.9%	1.1
1262	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Office	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	12%	46%	76.5%	56.6%	56.6%	1.2
1263	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Office	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	11%	54%	67.8%	63.2%	63.2%	0.7
1264	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Office	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	11%	54%	76.5%	63.2%	63.2%	1.2
1265	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Office	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	11%	54%	67.8%	63.2%	63.2%	0.7
1266	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Office	Retro	3,235	3,235	60%	1,953	0.00	6	$756	40%	40%	40%	5	11%	69%	78.3%	75.2%	75.2%	0.8
1267	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Office	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	11%	69%	78.3%	75.2%	75.2%	1.5
1268	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W ≥250)	Biz-Prescriptive Light	Office	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	11%	46%	62.1%	56.6%	56.6%	0.7
1269	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Office	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	11%	46%	76.5%	56.6%	56.6%	1.2
1270	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Office	Retro	260	260	69%	179	0.00	10	$274	40%	40%	40%	9	11%	20%	44.0%	33.6%	33.6%	0.3
1271	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Office	Retro	0	0	0%	0	0.00	12	$0	0%	0%		10	0%	54%	76.5%	68.0%	68.0%	0.0
1272	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Office	Retro	0	0	0%	0	0.00	12	$0	0%	0%		11	0%	54%	76.5%	68.0%	68.0%	0.0
1273	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Office	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
1274	Miscellaneous	Miscellaneous Custom	Biz-Custom	Office	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	31%	10%	37.0%	20.5%	20.5%	0.2
1275	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Office	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	31%	10%	76.5%	60.4%	60.4%	3.5
1276	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Office	Retro	262	262	83%	217	0.00	10	$483	40%	40%	40%	4	5%	10%	37.0%	21.6%	21.6%	0.2
1277	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Office	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	3%	2%	31.4%	11.1%	11.1%	0.2
1278	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Office	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	1%	70%	79.0%	76.0%	76.0%	1.0
1279	Motors	Cogged V-Belt	Biz-Custom	Office	Retro	9,092	9,092	3%	282	0.00	15	$384	40%	40%	40%	1	50%	10%	37.0%	28.0%	28.0%	0.5
1280	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Office	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.6
1281	Motors	Power Drive Systems	Biz-Custom	Office	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.6
1282	Motors	Switch Reluctance Motors	Biz-Custom	Office	Retro	17,620	17,620	31%	5,392	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	46.7%	46.7%	7.1
1283	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Office	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.2
1284	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Office	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	30%	90%	93.0%	92.0%	92.0%	0.0
1285	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Office	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.9
1286	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Office	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.1
1287	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Office	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	22.6
1288	Office_PC	Energy Star Server	Biz-Custom	Office	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.4
1289	Office_PC	Server Virtualization	Biz-Custom	Office	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
1290	Office_PC	High Efficiency CRAC unit	Biz-Custom	Office	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.8

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1291	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Office	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	3.0
1292	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Office	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.7
1293	Office_PC	Energy Star Laptop	Biz-Custom	Office	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
1294	Office_PC	Energy Star Monitor	Biz-Custom	Office	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
1295	Refrigeration	Strip Curtains	Biz-Custom	Office	Retro	0	0	0%	0	0.00	4	$0	0%	0%		1	1%	30%	71.2%	47.5%	47.5%	0.0
1296	Refrigeration	Bare Suction Line	Biz-Custom	Office	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	0%	50%	71.2%	60.0%	60.0%	3.6
1297	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Office	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	1%	25%	47.5%	40.0%	40.0%	0.4
1298	Refrigeration	Saturated Suction Controls	Biz-Custom	Office	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
1299	Refrigeration	Compressor Retrofit	Biz-Custom	Office	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	2%	25%	47.5%	35.6%	35.6%	0.2
1300	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Office	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	1%	80%	86.0%	84.0%	84.0%	3.5
1301	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Office	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	1%	25%	71.2%	42.9%	42.9%	1.8
1302	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Office	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	1%	25%	71.2%	40.0%	40.0%	0.9
1303	Refrigeration	Refrigeration Economizer	Biz-Custom	Office	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	3%	10%	71.2%	28.2%	28.2%	0.5
1304	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Office	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	20%	25%	71.2%	55.0%	55.0%	1.0
1305	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Office	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	15%	50%	71.2%	60.0%	60.0%	2.6
1306	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Office	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	6%	25%	47.5%	40.0%	40.0%	0.5
1307	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Office	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	3%	80%	86.0%	84.0%	84.0%	3.5
1308	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Office	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	3%	2%	71.2%	44.4%	44.4%	2.7
1309	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Office	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	19%	54%	67.8%	63.2%	63.2%	0.3
1310	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Office	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	19%	54%	67.8%	61.3%	61.3%	0.1
1311	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Office	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	7%	25%	71.2%	60.6%	60.6%	4.1
1312	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Office	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	7%	50%	71.2%	60.0%	60.0%	6.4
1313	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Office	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	7%	25%	71.2%	41.5%	41.5%	1.2
1314	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Office	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	6%	54%	67.8%	63.2%	63.2%	0.5
1315	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Office	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	6%	54%	67.8%	61.3%	61.3%	0.1
1316	Refrigeration	Refrigeration - Custom	Biz-Custom	Office	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
1317	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Office	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
1318	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Office	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	9%	44%	60.8%	55.2%	55.2%	0.3
1319	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Office	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	9%	30%	62.5%	55.6%	55.6%	0.6
1320	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Office	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	12%	35%	71.2%	62.3%	62.3%	10.5
1321	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Office	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	12%	18%	71.2%	61.2%	61.2%	5.4
1322	Ventilation	Demand Controlled Ventilation	Biz-Custom	Office	Retro	2,644	2,644	20%	529	0.00	15	$227	100%	40%	40%	1	100%	49%	75.1%	59.1%	59.1%	1.7
1323	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Office	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	49%	75.1%	59.1%	59.1%	2.5
1324	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Office	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	39.8%	39.8%	1.7
1325	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Office	Retro	0	0	0%	0	0.00	15	$260	40%	40%	40%	2	100%	20%	75.1%	50.0%	50.0%	0.0
1326	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Office	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.7
1327	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Office	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
1328	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Office	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
1329	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Office	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
1330	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Office	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	3.0
1331	Behavioral	COM Competitions	Biz-Custom	Office	Retro	53	53	2%	1	0.00	2	$0	100%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	3.2
1332	Behavioral	Business Energy Reports	Biz-Custom	Office	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.0
1333	Behavioral	Building Benchmarking	Biz-Custom	Office	Retro	114	114	1%	1	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.6
1334	Behavioral	Strategic Energy Management	Biz-Custom SEM	Office	Retro	33	33	3%	1	0.00	5	$0	100%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	1.1
1335	Behavioral	BEIMS	Biz-Custom	Office	Retro	29	29	4%	1	0.00	2	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.3
1336	Behavioral	Building Operator Certification	Biz-Custom	Office	Retro	16	16	3%	0	0.00	3	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.4
1337	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Warehouse	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
1338	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Warehouse	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	10.4
1339	CompressedAir	AODD Pump Controls	Biz-Custom	Warehouse	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	16.5
1340	CompressedAir	Compressed Air - Custom	Biz-Custom	Warehouse	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.5
1341	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Warehouse	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4
1342	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Warehouse	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
1343	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Warehouse	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
1344	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Warehouse	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.4
1345	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Warehouse	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.2
1346	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Warehouse	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	18.2
1347	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Warehouse	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	6.0
1348	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Warehouse	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.3
1349	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Warehouse	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	4.6
1350	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Warehouse	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.0
1351	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Warehouse	ROB	828	828	6%	51	0.00	15	$63	40%	40%	40%	1	31%	20%	44.0%	36.0%	36.0%	0.5
1352	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Warehouse	ROB	828	828	13%	106	0.00	15	$127	40%	40%	40%	1	31%	20%	44.0%	36.0%	36.0%	0.6
1353	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Warehouse	ROB	828	828	28%	234	0.00	15	$127	100%	40%	40%	1	31%	20%	75.1%	49.4%	49.4%	1.2
1354	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Warehouse	ROB	828	828	42%	347	0.00	15	$127	100%	40%	40%	1	31%	20%	75.1%	54.0%	54.0%	1.8
1355	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Warehouse	ROB	886	886	6%	51	0.00	15	$30	100%	40%	40%	2	31%	20%	75.1%	48.1%	48.1%	1.1
1356	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Warehouse	ROB	886	886	12%	109	0.00	15	$37	100%	40%	40%	2	31%	20%	75.1%	54.7%	54.7%	1.9
1357	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Warehouse	ROB	886	886	20%	180	0.00	15	$37	100%	40%	40%	2	31%	20%	75.1%	58.0%	58.0%	3.2
1358	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Warehouse	ROB	886	886	46%	405	0.00	15	$37	100%	40%	40%	2	31%	20%	75.1%	62.6%	62.6%	7.2
1359	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Warehouse	Retro	842	842	7%	59	0.00	3	$5	100%	40%	40%	3	62%	50%	75.1%	60.0%	60.0%	2.0
1360	Cooling	Air Side Economizer	Biz-Custom	Warehouse	Retro	828	828	20%	166	0.00	10	$84	100%	40%	40%	4	62%	20%	75.1%	37.8%	37.8%	1.0
1361	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Warehouse	Retro	842	842	1%	6	0.00	10	$100	40%	40%	40%	5	62%	20%	44.0%	34.5%	34.5%	0.0
1362	Cooling	HVAC Occupancy Controls	Biz-Custom	Warehouse	ROB	426	426	20%	85	0.00	15	$537	40%	40%	40%	6	62%	20%	44.0%	30.9%	30.9%	0.1
1363	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Warehouse	ROB	722	722	13%	90	0.00	15	$47	100%	40%	40%	7	38%	20%	75.1%	50.1%	50.1%	1.3
1364	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Warehouse	ROB	722	722	18%	127	0.00	15	$206	40%	40%	40%	7	38%	20%	44.0%	36.0%	36.0%	0.4
1365	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Warehouse	ROB	722	722	22%	160	0.00	15	$206	40%	40%	40%	7	38%	20%	44.0%	36.0%	36.0%	0.5
1366	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Warehouse	ROB	722	722	33%	241	0.00	15	$253	100%	40%	40%	7	38%	20%	75.1%	36.2%	36.2%	0.6
1367	Cooling	Smart Thermostat	Biz-Prescriptive	Warehouse	ROB	722	722	14%	102	0.00	11	$175	40%	40%	40%	8	38%	12%	38.4%	29.6%	29.6%	0.3
1368	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Warehouse	ROB	849	849	8%	72	0.00	8	$84	40%	40%	40%	9	0%	20%	44.0%	36.0%	36.0%	0.4
1369	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Warehouse	ROB	931	931	7%	68	0.00	8	$84	40%	40%	40%	10	0%	20%	44.0%	36.0%	36.0%	0.3
1370	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Warehouse	ROB	1,064	1,064	10%	101	0.00	8	$84	40%	40%	40%	11	0%	20%	45.1%	40.1%	40.1%	0.5
1371	Cooling	Air Cooled Chiller	Biz-Prescriptive	Warehouse	ROB	738	738	6%	41	0.00	23	$126	40%	40%	40%	12	0%	15%	40.5%	32.0%	32.0%	0.3
1372	Cooling	Chiller Tune-up	Biz-Prescriptive	Warehouse	Retro	842	842	7%	59	0.00	3	$8	100%	40%	40%	13	0%	50%	75.1%	60.6%	60.6%	1.3
1373	Cooling	HVAC/Chiller Custom	Biz-Custom	Warehouse	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.5
1374	Cooling	Window Film	Biz-Prescriptive	Warehouse	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.8
1375	Cooling	Triple Pane Windows	Biz-Custom	Warehouse	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
1376	Cooling	Energy Recovery Ventilator	Biz-Custom	Warehouse	Retro	886	886	0%	0	0.00	15	$1,500	40%	40%	40%	16	100%	2%	75.1%	50.0%	50.0%	0.0

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1377	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Warehouse	ROB	1,653	1,653	4%	64	0.00	16	$87	40%	40%	40%	1	26%	20%	44.0%	36.0%	36.0%	0.5
1378	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Warehouse	ROB	1,653	1,653	9%	142	0.00	16	$442	40%	40%	40%	1	26%	20%	44.0%	36.0%	36.0%	0.2
1379	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Warehouse	ROB	1,653	1,653	12%	203	0.00	16	$507	40%	40%	40%	1	26%	20%	44.0%	36.0%	36.0%	0.3
1380	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Warehouse	ROB	1,653	1,653	19%	310	0.00	16	$507	40%	40%	40%	1	26%	20%	44.0%	36.0%	36.0%	0.4
1381	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Warehouse	ROB	1,653	1,653	22%	372	0.00	25	$2,576	40%	40%	40%	1	26%	20%	44.0%	34.5%	34.5%	0.1
1382	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Warehouse	ROB	1,653	1,653	27%	443	0.00	25	$2,576	40%	40%	40%	1	26%	20%	44.0%	34.5%	34.5%	0.2
1383	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Warehouse	ROB	1,653	1,653	32%	527	0.00	25	$2,576	40%	40%	40%	1	26%	20%	44.0%	34.5%	34.5%	0.2
1384	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Warehouse	ROB	1,653	1,653	47%	771	0.00	25	$2,576	40%	40%	40%	1	26%	20%	44.0%	35.4%	35.4%	0.3
1385	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Warehouse	ROB	1,989	1,989	11%	216	0.00	16	$100	100%	40%	40%	2	21%	20%	75.1%	51.5%	51.5%	1.6
1386	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Warehouse	ROB	1,989	1,989	16%	319	0.00	16	$136	100%	40%	40%	2	21%	20%	75.1%	52.5%	52.5%	1.7
1387	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Warehouse	ROB	2,070	2,070	14%	291	0.00	16	$100	100%	40%	40%	2	21%	20%	75.1%	54.5%	54.5%	2.1
1388	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Warehouse	ROB	2,070	2,070	19%	394	0.00	16	$139	100%	40%	40%	2	21%	20%	75.1%	54.4%	54.4%	2.1
1389	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Warehouse	ROB	1,814	1,814	29%	533	0.00	25	$2,576	40%	40%	40%	2	21%	20%	44.0%	34.5%	34.5%	0.2
1390	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Warehouse	ROB	1,814	1,814	33%	605	0.00	25	$2,576	40%	40%	40%	2	21%	20%	44.0%	34.5%	34.5%	0.2
1391	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Warehouse	ROB	1,921	1,921	41%	795	0.00	25	$2,576	40%	40%	40%	2	21%	20%	44.0%	35.8%	35.8%	0.3
1392	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Warehouse	ROB	1,921	1,921	54%	1,039	0.00	25	$2,576	40%	40%	40%	2	21%	20%	44.0%	36.0%	36.0%	0.4
1393	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Warehouse	ROB	1,535	1,535	13%	192	0.00	16	$224	40%	40%	40%	2	21%	2%	39.2%	26.1%	26.1%	0.6
1394	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Warehouse	ROB	2,155	2,155	9%	199	0.00	16	$100	100%	40%	40%	3	21%	20%	75.1%	50.5%	50.5%	1.5
1395	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Warehouse	ROB	2,155	2,155	15%	326	0.00	16	$175	100%	40%	40%	3	21%	20%	75.1%	49.6%	49.6%	1.4
1396	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Warehouse	ROB	2,070	2,070	38%	789	0.00	25	$2,576	40%	40%	40%	3	21%	20%	44.0%	35.7%	35.7%	0.3
1397	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Warehouse	ROB	2,070	2,070	42%	860	0.00	25	$2,576	40%	40%	40%	3	21%	20%	44.0%	36.0%	36.0%	0.3
1398	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Warehouse	ROB	2,070	2,070	46%	944	0.00	25	$2,576	40%	40%	40%	3	21%	20%	44.0%	36.0%	36.0%	0.4
1399	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Warehouse	ROB	2,070	2,070	57%	1,188	0.00	25	$2,576	40%	40%	40%	3	21%	20%	44.0%	36.0%	36.0%	0.4
1400	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Warehouse	ROB	1,653	1,653	19%	310	0.00	16	$224	100%	40%	40%	4	33%	20%	75.1%	43.6%	43.6%	1.0
1401	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Warehouse	ROB	1,823	1,823	4%	69	0.00	8	$130	40%	40%	40%	5	0%	10%	37.0%	28.0%	28.0%	0.2
1402	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Warehouse	ROB	2,191	2,191	15%	330	0.00	8	$130	100%	40%	40%	6	0%	10%	75.1%	53.3%	53.3%	1.1
1403	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Warehouse	ROB	1,994	1,994	9%	171	0.00	8	$130	40%	40%	40%	7	0%	10%	47.7%	42.4%	42.4%	0.6
1404	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Warehouse	ROB	3,027	3,027	67%	2,027	0.00	15	$1,115	100%	40%	40%	1	100%	0%	68.0%	47.4%	47.4%	1.3
1405	HotWater	Hot Water Pipe Insulation	Biz-Custom	Warehouse	Retro	3,027	3,027	2%	61	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	0.9
1406	HotWater	Faucet Aerator	Biz-Custom	Warehouse	Retro	195	195	32%	63	0.00	10	$8	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	4.3
1407	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Warehouse	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	51.0
1408	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Warehouse	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
1409	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Warehouse	Retro	110	110	45%	49	0.00	15	$5	100%	40%	40%	1	64%	40%	76.5%	64.8%	64.8%	6.8
1410	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Warehouse	Retro	248	248	50%	124	0.00	15	$70	100%	40%	40%	1	64%	40%	76.5%	52.0%	52.0%	1.2
1411	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Warehouse	Retro	248	248	50%	124	0.00	15	$70	100%	40%	40%	1	64%	40%	76.5%	52.0%	52.0%	1.2
1412	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Warehouse	Retro	248	248	74%	184	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	50.5%	50.5%	0.4
1413	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Warehouse	Retro	2,310	2,310	68%	1,571	0.00	15	$330	100%	40%	40%	3	23%	34%	76.5%	61.3%	61.3%	3.3
1414	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Warehouse	Retro	2,310	2,310	66%	1,532	0.00	15	$330	100%	40%	40%	3	23%	34%	76.5%	61.1%	61.1%	3.2
1415	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Warehouse	Retro	492	492	61%	299	0.00	15	$44	100%	40%	40%	4	9%	34%	76.5%	63.4%	63.4%	4.7
1416	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Warehouse	Retro	492	492	59%	289	0.00	15	$44	100%	40%	40%	4	9%	34%	76.5%	63.2%	63.2%	4.6
1417	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Warehouse	ROB	352	352	86%	302	0.00	6	$1	100%	40%	40%	6	0%	43%	76.5%	67.9%	67.9%	106.4
1418	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Warehouse	Retro	170	170	68%	115	0.00	15	$27	100%	40%	40%	6	4%	45%	76.5%	60.5%	60.5%	3.0
1419	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Warehouse	ROB	266	266	81%	215	0.00	6	$1	100%	40%	40%	5	0%	20%	76.5%	67.9%	67.9%	75.8
1420	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Warehouse	Retro	91	91	100%	91	0.00	11	$4	100%	40%	40%	7	64%	0%	76.5%	66.7%	66.7%	12.8
1421	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Warehouse	Retro	417	417	30%	125	0.00	10	$65	100%	40%	40%	8	95%	10%	76.5%	50.5%	50.5%	1.0
1422	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Warehouse	Retro	534	534	30%	160	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	56.2%	56.2%	1.5
1423	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Warehouse	Retro	238	238	44%	105	0.00	10	$75	40%	40%	40%	8	95%	10%	46.2%	30.8%	30.8%	0.7
1424	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Warehouse	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.3
1425	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Warehouse	Retro	3	3	49%	1	0.00	15	$1	100%	40%	40%	8	95%	10%	76.5%	40.1%	40.1%	1.6
1426	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Warehouse	Retro	338	338	65%	220	0.00	15	$90	100%	40%	40%	8	96%	10%	76.5%	40.8%	40.8%	1.7
1427	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Warehouse	Retro	63	63	43%	27	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.2
1428	InteriorLighting	Lighting - Custom	Biz-Custom Light	Warehouse	Retro	4	4	25%	1	0.00	15	$1	100%	40%	40%	10	100%	0%	76.5%	31.5%	31.5%	1.0
1429	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Warehouse	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	12%	46%	76.5%	56.6%	56.6%	1.2
1430	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Warehouse	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	11%	54%	67.8%	63.2%	63.2%	0.7
1431	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Warehouse	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	11%	54%	76.5%	63.2%	63.2%	1.2
1432	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Warehouse	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	11%	54%	67.8%	63.2%	63.2%	0.7
1433	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Warehouse	Retro	3,235	3,235	60%	1,953	0.00	6	$756	40%	40%	40%	5	11%	69%	78.3%	75.2%	75.2%	0.8
1434	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Warehouse	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	11%	69%	78.3%	75.2%	75.2%	1.5
1435	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W ≥250)	Biz-Prescriptive Light	Warehouse	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	11%	46%	62.1%	56.6%	56.6%	0.7
1436	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Warehouse	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	11%	46%	76.5%	56.6%	56.6%	1.2
1437	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Warehouse	Retro	248	248	69%	171	0.00	10	$274	40%	40%	40%	9	11%	20%	44.0%	32.9%	32.9%	0.3
1438	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Warehouse	Retro	0	0	0%	0	0.00	12	$0	0%	0%		10	0%	54%	76.5%	68.0%	68.0%	0.0
1439	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Warehouse	Retro	0	0	0%	0	0.00	12	$0	0%	0%		11	0%	54%	76.5%	68.0%	68.0%	0.0
1440	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Warehouse	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
1441	Miscellaneous	Miscellaneous Custom	Biz-Custom	Warehouse	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	0%	10%	37.0%	20.5%	20.5%	0.2
1442	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Warehouse	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	0%	10%	76.5%	60.4%	60.4%	3.6
1443	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Warehouse	Retro	262	262	83%	217	0.00	10	$483	40%	40%	40%	4	5%	10%	37.0%	21.6%	21.6%	0.2
1444	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Warehouse	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	0%	2%	31.4%	11.1%	11.1%	0.2
1445	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Warehouse	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	3%	70%	79.0%	76.0%	76.0%	1.0
1446	Motors	Cogged V-Belt	Biz-Custom	Warehouse	Retro	20,965	20,965	3%	650	0.00	15	$384	100%	40%	40%	1	50%	10%	75.1%	35.9%	35.9%	1.2
1447	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Warehouse	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.6
1448	Motors	Power Drive Systems	Biz-Custom	Warehouse	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.6
1449	Motors	Switch Reluctance Motors	Biz-Custom	Warehouse	Retro	40,630	40,630	31%	12,433	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	48.6%	48.6%	16.6
1450	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Warehouse	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.2
1451	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Warehouse	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	5%	90%	93.0%	92.0%	92.0%	0.0
1452	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Warehouse	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.9
1453	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Warehouse	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.1
1454	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Warehouse	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	22.8
1455	Office_PC	Energy Star Server	Biz-Custom	Warehouse	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.4
1456	Office_PC	Server Virtualization	Biz-Custom	Warehouse	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
1457	Office_PC	High Efficiency CRAC unit	Biz-Custom	Warehouse	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.8
1458	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Warehouse	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	3.0
1459	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Warehouse	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.7
1460	Office_PC	Energy Star Laptop	Biz-Custom	Warehouse	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
1461	Office_PC	Energy Star Monitor	Biz-Custom	Warehouse	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
1462	Refrigeration	Strip Curtains	Biz-Custom	Warehouse	Retro	207	207	50%	103	0.00	4	$10	100%	40%	40%	1	13%	30%	71.2%	45.9%	45.9%	2.5

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1463	Refrigeration	Bare Suction Line	Biz-Custom	Warehouse	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	0%	50%	71.2%	60.0%	60.0%	3.6
1464	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Warehouse	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	9%	25%	47.5%	40.0%	40.0%	0.4
1465	Refrigeration	Saturated Suction Controls	Biz-Custom	Warehouse	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
1466	Refrigeration	Compressor Retrofit	Biz-Custom	Warehouse	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	29%	25%	47.5%	35.6%	35.6%	0.2
1467	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Warehouse	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	8%	80%	86.0%	84.0%	84.0%	3.5
1468	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Warehouse	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	8%	25%	71.2%	42.9%	42.9%	1.8
1469	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Warehouse	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	11%	25%	71.2%	40.0%	40.0%	0.9
1470	Refrigeration	Refrigeration Economizer	Biz-Custom	Warehouse	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	41%	10%	71.2%	28.2%	28.2%	0.5
1471	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Warehouse	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	9%	25%	71.2%	55.0%	55.0%	1.0
1472	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Warehouse	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	7%	50%	71.2%	60.0%	60.0%	2.6
1473	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Warehouse	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	3%	25%	47.5%	40.0%	40.0%	0.5
1474	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Warehouse	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	1%	80%	86.0%	84.0%	84.0%	3.5
1475	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Warehouse	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	1%	2%	71.2%	44.4%	44.4%	2.7
1476	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Warehouse	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	9%	54%	67.8%	63.2%	63.2%	0.3
1477	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Warehouse	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	9%	54%	67.8%	61.3%	61.3%	0.1
1478	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Warehouse	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	3%	25%	71.2%	60.6%	60.6%	4.1
1479	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Warehouse	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	3%	50%	71.2%	60.0%	60.0%	6.4
1480	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Warehouse	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	3%	25%	71.2%	41.5%	41.5%	1.2
1481	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Warehouse	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	3%	54%	67.8%	63.2%	63.2%	0.5
1482	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Warehouse	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	3%	54%	67.8%	61.3%	61.3%	0.1
1483	Refrigeration	Refrigeration - Custom	Biz-Custom	Warehouse	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
1484	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Warehouse	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
1485	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Warehouse	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	0%	44%	60.8%	55.2%	55.2%	0.3
1486	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Warehouse	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	9%	30%	62.5%	55.6%	55.6%	0.6
1487	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Warehouse	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	6%	35%	71.2%	62.3%	62.3%	10.5
1488	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Warehouse	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	6%	18%	71.2%	61.2%	61.2%	5.4
1489	Ventilation	Demand Controlled Ventilation	Biz-Custom	Warehouse	Retro	2,298	2,298	20%	460	0.00	15	$227	100%	40%	40%	1	100%	14%	75.1%	38.1%	38.1%	1.6
1490	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Warehouse	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	14%	75.1%	56.3%	56.3%	2.5
1491	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Warehouse	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	39.8%	39.8%	1.7
1492	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Warehouse	Retro	0	0	0%	0	0.00	15	$260	40%	40%	40%	2	100%	20%	75.1%	50.0%	50.0%	0.0
1493	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Warehouse	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.7
1494	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Warehouse	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
1495	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Warehouse	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
1496	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Warehouse	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
1497	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Warehouse	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	2.9
1498	Behavioral	COM Competitions	Biz-Custom	Warehouse	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.0
1499	Behavioral	Business Energy Reports	Biz-Custom	Warehouse	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.0
1500	Behavioral	Building Benchmarking	Biz-Custom	Warehouse	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.0
1501	Behavioral	Strategic Energy Management	Biz-Custom SEM	Warehouse	Retro	0	0	0%	0	0.00	5	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.0
1502	Behavioral	BEIMS	Biz-Custom	Warehouse	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.0
1503	Behavioral	Building Operator Certification	Biz-Custom	Warehouse	Retro	4	4	3%	0	0.00	3	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.1
1504	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	Other	ROB	1,583	1,583	21%	329	0.00	13	$127	100%	40%	40%	1	100%	33%	75.1%	53.5%	53.5%	1.6
1505	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Other	Retro	1,480	1,480	50%	740	0.00	15	$50	100%	40%	40%	2	35%	33%	75.1%	63.7%	63.7%	10.2
1506	CompressedAir	AODD Pump Controls	Biz-Custom	Other	Retro	103,919	103,919	35%	36,372	0.00	10	$1,150	100%	40%	40%	3	10%	33%	75.1%	49.0%	49.0%	16.3
1507	CompressedAir	Compressed Air - Custom	Biz-Custom	Other	Retro	5	5	20%	1	0.00	10	$0	100%	40%	40%	4	50%	33%	75.1%	46.4%	46.4%	2.4
1508	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Other	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	5	50%	33%	75.1%	46.4%	46.4%	1.4
1509	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	Other	ROB	38,561	38,561	48%	18,432	0.00	12	$16,884	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
1510	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	Other	ROB	12,193	12,193	15%	1,879	0.00	12	$1,706	40%	40%	40%	1	18%	53%	67.1%	62.4%	62.4%	0.7
1511	Cooking	Commercial Electric Griddle	Biz-Prescriptive	Other	ROB	17,056	17,056	15%	2,596	0.00	12	$3,604	40%	40%	40%	2	14%	17%	41.9%	33.6%	33.6%	0.4
1512	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	Other	ROB	19,549	19,549	67%	13,162	0.00	12	$2,490	100%	40%	40%	3	6%	45%	71.2%	59.3%	59.3%	3.2
1513	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	Other	ROB	39,306	39,306	44%	17,369	0.00	15	$662	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	18.2
1514	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	Other	ROB	26,901	26,901	32%	8,586	0.00	15	$995	100%	40%	40%	4	26%	61%	72.7%	68.8%	68.8%	6.0
1515	Cooking	Energy efficient electric fryer	Biz-Prescriptive	Other	ROB	18,955	18,955	17%	3,274	0.00	12	$1,500	100%	40%	40%	5	27%	24%	71.2%	55.6%	55.6%	1.3
1516	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	Other	ROB	13,697	13,697	68%	9,314	0.00	12	$1,200	100%	40%	40%	6	3%	16%	71.2%	60.5%	60.5%	4.6
1517	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	Other	ROB	4,383	4,383	60%	2,630	0.00	12	$1,500	100%	40%	40%	6	3%	16%	71.2%	53.1%	53.1%	1.0
1518	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	Other	ROB	985	985	6%	61	0.00	15	$63	40%	40%	40%	1	28%	20%	44.0%	36.4%	36.4%	0.6
1519	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	Other	ROB	985	985	13%	127	0.00	15	$127	100%	40%	40%	1	28%	20%	75.1%	36.8%	36.8%	0.7
1520	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	Other	ROB	985	985	28%	278	0.00	15	$127	100%	40%	40%	1	28%	20%	75.1%	51.7%	51.7%	1.5
1521	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	Other	ROB	985	985	42%	413	0.00	15	$127	100%	40%	40%	1	28%	20%	75.1%	55.4%	55.4%	2.2
1522	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	Other	ROB	1,054	1,054	6%	61	0.00	15	$30	100%	40%	40%	2	28%	20%	75.1%	50.8%	50.8%	1.4
1523	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	Other	ROB	1,054	1,054	12%	130	0.00	15	$37	100%	40%	40%	2	28%	20%	75.1%	56.0%	56.0%	2.3
1524	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	Other	ROB	1,054	1,054	20%	214	0.00	15	$37	100%	40%	40%	2	28%	20%	75.1%	58.9%	58.9%	3.9
1525	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	Other	ROB	1,054	1,054	46%	482	0.00	15	$37	100%	40%	40%	2	28%	20%	75.1%	63.3%	63.3%	8.7
1526	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Other	Retro	1,001	1,001	7%	70	0.00	3	$8	100%	40%	40%	3	57%	50%	75.1%	60.0%	60.0%	1.6
1527	Cooling	Air Side Economizer	Biz-Custom	Other	Retro	985	985	20%	197	0.00	10	$84	100%	40%	40%	4	57%	20%	75.1%	39.3%	39.3%	1.2
1528	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Other	Retro	1,001	1,001	5%	47	0.00	10	$100	40%	40%	40%	5	57%	20%	44.0%	36.0%	36.0%	0.2
1529	Cooling	HVAC Occupancy Controls	Biz-Custom	Other	ROB	2,900	2,900	20%	580	0.00	15	$537	100%	40%	40%	6	57%	20%	75.1%	36.0%	36.0%	0.7
1530	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	Other	ROB	858	858	13%	107	0.00	15	$47	100%	40%	40%	7	0%	20%	75.1%	52.2%	52.2%	1.5
1531	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	Other	ROB	858	858	18%	151	0.00	15	$206	40%	40%	40%	7	0%	20%	44.0%	36.0%	36.0%	0.5
1532	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	Other	ROB	858	858	22%	191	0.00	15	$206	40%	40%	40%	7	0%	20%	44.0%	36.0%	36.0%	0.6
1533	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	Other	ROB	858	858	33%	286	0.00	15	$253	100%	40%	40%	7	0%	20%	75.1%	38.3%	38.3%	0.8
1534	Cooling	Smart Thermostat	Biz-Prescriptive	Other	ROB	858	858	14%	121	0.00	11	$175	40%	40%	40%	8	0%	12%	38.4%	31.5%	31.5%	0.4
1535	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	Other	ROB	1,009	1,009	8%	85	0.00	8	$84	40%	40%	40%	9	0%	20%	44.0%	37.0%	37.0%	0.4
1536	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Other	ROB	1,107	1,107	7%	80	0.00	8	$84	40%	40%	40%	10	0%	20%	44.0%	36.3%	36.3%	0.4
1537	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	Other	ROB	1,264	1,264	10%	120	0.00	8	$84	40%	40%	40%	11	0%	20%	49.9%	44.4%	44.4%	0.6
1538	Cooling	Air Cooled Chiller	Biz-Prescriptive	Other	ROB	877	877	6%	49	0.00	23	$126	40%	40%	40%	12	43%	15%	40.5%	32.0%	32.0%	0.3
1539	Cooling	Chiller Tune-up	Biz-Prescriptive	Other	Retro	1,001	1,001	7%	70	0.00	3	$8	100%	40%	40%	13	43%	50%	75.1%	61.6%	61.6%	1.6
1540	Cooling	HVAC/Chiller Custom	Biz-Custom	Other	Retro	5	5	20%	1	0.00	20	$1	40%	40%	40%	14	100%	20%	44.0%	36.0%	36.0%	0.6
1541	Cooling	Window Film	Biz-Prescriptive	Other	Retro	6,000	6,000	4%	264	0.00	10	$154	100%	40%	40%	15	100%	20%	75.1%	48.1%	48.1%	0.8
1542	Cooling	Triple Pane Windows	Biz-Custom	Other	ROB	6,000	6,000	6%	360	0.00	25	$700	40%	40%	40%	15	100%	20%	44.0%	35.9%	35.9%	0.5
1543	Cooling	Energy Recovery Ventilator	Biz-Custom	Other	Retro	1,054	1,054	0%	0	0.00	15	$1,500	40%	40%	40%	16	100%	2%	75.1%	50.0%	50.0%	0.0
1544	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	Other	ROB	1,870	1,870	4%	74	0.00	16	$87	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.6
1545	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	Other	ROB	1,870	1,870	9%	162	0.00	16	$442	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.3
1546	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	Other	ROB	1,870	1,870	12%	233	0.00	16	$507	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.3
1547	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	Other	ROB	1,870	1,870	19%	357	0.00	16	$507	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.5
1548	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	Other	ROB	1,870	1,870	23%	423	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	34.5%	34.5%	0.2

Appendix B-1: C&I Measure Assumptions

Measure #	End-Use	Measure Name	Program	Building Type	Replacement Type	Base (Existing) Annual Electric	Base (Standard) Annual Electric	% Elec Savings	Per Unit Elec Savings	Per Unit Summer kW	EE EUL	Measure Cost	MAP Incentive (%)	RAP Incentive (%)	PP Incentive (%)	End Use Measure Group	Base Saturation	EE Saturation	MAP Adoption Rate	RAP Adoption Rate	PP Adoption Rate	TRC Ratio
1549	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	Other	ROB	1,870	1,870	27%	504	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	34.5%	34.5%	0.2
1550	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	Other	ROB	1,870	1,870	32%	598	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	34.5%	34.5%	0.2
1551	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	Other	ROB	1,870	1,870	47%	873	0.00	25	$2,576	40%	40%	40%	1	0%	20%	44.0%	36.0%	36.0%	0.3
1552	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Other	ROB	2,254	2,254	11%	247	0.00	16	$100	100%	40%	40%	2	25%	20%	75.1%	53.0%	53.0%	1.9
1553	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	Other	ROB	2,254	2,254	16%	365	0.00	16	$136	100%	40%	40%	2	25%	20%	75.1%	53.8%	53.8%	2.0
1554	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Other	ROB	2,346	2,346	14%	336	0.00	16	$100	100%	40%	40%	2	25%	20%	75.1%	55.7%	55.7%	2.5
1555	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	Other	ROB	2,346	2,346	19%	453	0.00	16	$139	100%	40%	40%	2	25%	20%	75.1%	55.5%	55.5%	2.5
1556	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	Other	ROB	2,055	2,055	30%	608	0.00	25	$2,576	40%	40%	40%	2	25%	20%	44.0%	34.5%	34.5%	0.2
1557	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	Other	ROB	2,055	2,055	34%	688	0.00	25	$2,576	40%	40%	40%	2	25%	20%	44.0%	34.5%	34.5%	0.3
1558	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	Other	ROB	2,181	2,181	42%	910	0.00	25	$2,576	40%	40%	40%	2	25%	20%	44.0%	36.0%	36.0%	0.3
1559	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	Other	ROB	2,181	2,181	54%	1,185	0.00	25	$2,576	40%	40%	40%	2	25%	20%	44.0%	36.0%	36.0%	0.4
1560	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	Other	ROB	1,742	1,742	13%	229	0.00	16	$224	100%	40%	40%	2	25%	2%	75.1%	27.8%	27.8%	0.8
1561	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	Other	ROB	2,447	2,447	9%	230	0.00	16	$100	100%	40%	40%	3	25%	20%	75.1%	52.2%	52.2%	1.7
1562	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	Other	ROB	2,447	2,447	15%	375	0.00	16	$175	100%	40%	40%	3	25%	20%	75.1%	51.4%	51.4%	1.6
1563	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	Other	ROB	2,346	2,346	38%	899	0.00	25	$2,576	40%	40%	40%	3	25%	20%	44.0%	36.0%	36.0%	0.3
1564	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	Other	ROB	2,346	2,346	42%	980	0.00	25	$2,576	40%	40%	40%	3	25%	20%	44.0%	36.0%	36.0%	0.4
1565	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	Other	ROB	2,346	2,346	46%	1,074	0.00	25	$2,576	40%	40%	40%	3	25%	20%	44.0%	36.0%	36.0%	0.4
1566	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	Other	ROB	2,346	2,346	58%	1,349	0.00	25	$2,576	40%	40%	40%	3	25%	20%	44.0%	36.0%	36.0%	0.5
1567	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	Other	ROB	1,870	1,870	19%	357	0.00	16	$224	100%	40%	40%	4	50%	20%	75.1%	46.7%	46.7%	1.2
1568	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	Other	ROB	2,059	2,059	4%	82	0.00	8	$130	40%	40%	40%	5	0%	10%	37.0%	28.0%	28.0%	0.3
1569	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	Other	ROB	2,486	2,486	16%	392	0.00	8	$130	100%	40%	40%	6	0%	10%	75.1%	54.8%	54.8%	1.4
1570	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	Other	ROB	2,256	2,256	9%	203	0.00	8	$130	40%	40%	40%	7	0%	10%	52.1%	46.3%	46.3%	0.7
1571	HotWater	Heat Pump Water Heater	Biz-Prescriptive	Other	ROB	3,027	3,027	67%	2,027	0.00	15	$1,115	100%	40%	40%	1	100%	0%	68.0%	47.4%	47.4%	1.3
1572	HotWater	Hot Water Pipe Insulation	Biz-Custom	Other	Retro	3,027	3,027	2%	61	0.00	20	$60	100%	40%	40%	2	100%	80%	86.0%	84.0%	84.0%	0.9
1573	HotWater	Faucet Aerator	Biz-Custom	Other	Retro	389	389	32%	126	0.00	10	$8	100%	40%	40%	3	20%	90%	93.0%	92.0%	92.0%	8.5
1574	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	Other	ROB	18,059	18,059	54%	9,789	0.00	5	$60	100%	40%	40%	4	20%	80%	86.0%	84.0%	84.0%	51.0
1575	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	Other	ROB	1,552	1,552	43%	671	0.00	7	$250	100%	40%	40%	5	25%	33%	68.0%	52.1%	52.1%	1.1
1576	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Other	Retro	125	125	45%	56	0.00	15	$5	100%	40%	40%	1	85%	40%	76.5%	65.2%	65.2%	7.8
1577	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Other	Retro	283	283	50%	142	0.00	15	$70	100%	40%	40%	1	85%	40%	76.5%	52.0%	52.0%	1.4
1578	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Other	Retro	283	283	50%	142	0.00	15	$70	100%	40%	40%	1	85%	40%	76.5%	52.0%	52.0%	1.4
1579	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Other	Retro	283	283	74%	210	0.00	10	$274	40%	40%	40%	2	1%	40%	58.0%	51.8%	51.8%	0.4
1580	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Other	Retro	2,636	2,636	68%	1,793	0.00	15	$330	100%	40%	40%	3	2%	34%	76.5%	62.2%	62.2%	3.8
1581	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Other	Retro	2,636	2,636	66%	1,749	0.00	15	$330	100%	40%	40%	3	2%	34%	76.5%	62.1%	62.1%	3.7
1582	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Other	Retro	561	561	61%	341	0.00	15	$44	100%	40%	40%	4	9%	34%	76.5%	64.0%	64.0%	5.4
1583	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Other	Retro	561	561	59%	330	0.00	15	$44	100%	40%	40%	4	9%	34%	76.5%	63.8%	63.8%	5.2
1584	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	Other	ROB	313	313	86%	269	0.00	6	$1	100%	40%	40%	6	0%	43%	76.5%	67.9%	67.9%	95.1
1585	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Other	Retro	194	194	68%	131	0.00	15	$27	100%	40%	40%	6	2%	45%	76.5%	61.5%	61.5%	3.4
1586	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	Other	ROB	237	237	81%	192	0.00	6	$1	100%	40%	40%	5	0%	20%	76.5%	67.9%	67.9%	67.8
1587	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Other	Retro	104	104	100%	104	0.00	11	$4	100%	40%	40%	7	85%	0%	76.5%	66.8%	66.8%	14.7
1588	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Other	Retro	476	476	30%	143	0.00	10	$65	100%	40%	40%	8	95%	10%	76.5%	52.7%	52.7%	1.1
1589	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Other	Retro	609	609	30%	183	0.00	10	$58	100%	40%	40%	8	95%	10%	76.5%	57.7%	57.7%	1.7
1590	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Other	Retro	272	272	44%	120	0.00	10	$75	100%	40%	40%	8	95%	10%	76.5%	34.1%	34.1%	0.8
1591	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Other	Retro	41,703	41,703	20%	8,341	0.00	12	$3,700	100%	40%	40%	8	95%	10%	76.5%	39.9%	39.9%	1.4
1592	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Other	Retro	3	3	49%	2	0.00	15	$1	100%	40%	40%	8	95%	10%	76.5%	42.2%	42.2%	2.0
1593	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Other	Retro	412	412	65%	268	0.00	15	$90	100%	40%	40%	8	97%	10%	76.5%	42.7%	42.7%	2.1
1594	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Other	Retro	66	66	43%	28	0.00	5	$33	40%	40%	40%	9	1%	75%	82.5%	80.0%	80.0%	0.3
1595	InteriorLighting	Lighting - Custom	Biz-Custom Light	Other	Retro	4	4	25%	1	0.00	15	$1	100%	40%	40%	10	100%	0%	76.5%	34.6%	34.6%	1.1
1596	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Other	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	1	10%	46%	76.5%	56.6%	56.6%	1.2
1597	ExteriorLighting	LED parking lot fixture (existing W≥250)	Biz-Prescriptive Light	Other	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	2	9%	54%	67.8%	63.2%	63.2%	0.7
1598	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Other	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	3	9%	54%	76.5%	63.2%	63.2%	1.2
1599	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Other	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	4	9%	54%	67.8%	63.2%	63.2%	0.7
1600	ExteriorLighting	LED parking garage fixture (existing W≥250)	Biz-Prescriptive Light	Other	Retro	3,235	3,235	60%	1,953	0.00	6	$756	40%	40%	40%	5	9%	69%	78.3%	75.2%	75.2%	0.8
1601	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Other	Retro	1,742	1,742	66%	1,154	0.00	6	$248	100%	40%	40%	6	9%	69%	78.3%	75.2%	75.2%	1.5
1602	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W ≥250)	Biz-Prescriptive Light	Other	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	7	9%	46%	62.1%	56.6%	56.6%	0.7
1603	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Other	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	8	9%	46%	76.5%	56.6%	56.6%	1.2
1604	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Other	Retro	283	283	69%	195	0.00	10	$274	40%	40%	40%	9	9%	20%	44.0%	34.7%	34.7%	0.3
1605	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Other	Retro	856	856	66%	567	0.00	12	$248	100%	40%	40%	10	9%	54%	76.5%	63.2%	63.2%	1.2
1606	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Other	Retro	1,589	1,589	60%	959	0.00	12	$756	40%	40%	40%	11	9%	54%	67.8%	63.2%	63.2%	0.7
1607	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Other	Retro	385	385	61%	237	0.00	5	$233	40%	40%	40%	1	5%	30%	51.0%	44.0%	44.0%	0.3
1608	Miscellaneous	Miscellaneous Custom	Biz-Custom	Other	Retro	7	7	2%	0	0.00	10	$0	40%	40%	40%	2	43%	10%	37.0%	20.5%	20.5%	0.2
1609	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	Other	ROB	9,932	9,932	50%	4,966	0.00	20	$1,180	100%	40%	40%	3	0%	10%	76.5%	60.4%	60.4%	3.5
1610	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Other	Retro	262	262	83%	217	0.00	10	$483	40%	40%	40%	4	5%	10%	37.0%	21.6%	21.6%	0.2
1611	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Other	Retro	2,984	2,984	25%	746	0.00	10	$20,310	40%	40%	40%	5	0%	2%	31.4%	11.1%	11.1%	0.2
1612	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	Other	ROB	3,096	3,096	3%	85	0.00	15	$59	100%	40%	40%	6	1%	70%	79.0%	76.0%	76.0%	1.0
1613	Motors	Cogged V-Belt	Biz-Custom	Other	Retro	17,237	17,237	3%	534	0.00	15	$384	100%	40%	40%	1	50%	10%	75.1%	32.8%	32.8%	1.0
1614	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Other	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5
1615	Motors	Power Drive Systems	Biz-Custom	Other	Retro	4	4	23%	1	0.00	15	$0	100%	40%	40%	2	100%	10%	75.1%	42.2%	42.2%	2.5
1616	Motors	Switch Reluctance Motors	Biz-Custom	Other	Retro	33,406	33,406	31%	10,222	0.00	15	$528	100%	40%	40%	2	100%	1%	75.1%	48.3%	48.3%	13.5
1617	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Other	Retro	7,500	7,500	20%	1,500	0.00	10	$5,000	40%	40%	40%	3	0%	10%	37.0%	23.0%	23.0%	0.2
1618	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	Other	ROB	551	551	40%	223	0.00	6	$0	0%	0%		1	30%	90%	93.0%	92.0%	92.0%	0.0
1619	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Other	Retro	1,086	1,086	10%	109	0.00	7	$50	100%	40%	40%	2	35%	15%	76.5%	39.5%	39.5%	0.9
1620	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Other	Retro	1,126	1,126	15%	169	0.00	8	$70	100%	40%	40%	2	35%	15%	76.5%	40.7%	40.7%	1.0
1621	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Other	Retro	86,783	86,783	18%	15,778	0.00	15	$480	100%	40%	40%	1	65%	20%	76.5%	50.3%	50.3%	22.5
1622	Office_PC	Energy Star Server	Biz-Custom	Other	ROB	1,621	1,621	23%	368	0.00	8	$118	100%	40%	40%	1	65%	25%	76.5%	43.1%	43.1%	1.4
1623	Office_PC	Server Virtualization	Biz-Custom	Other	Retro	2	2	45%	1	0.00	8	$0	100%	40%	40%	1	65%	25%	76.5%	41.0%	41.0%	1.1
1624	Office_PC	High Efficiency CRAC unit	Biz-Custom	Other	ROB	541	541	30%	162	0.00	15	$63	100%	40%	40%	2	65%	20%	76.5%	41.4%	41.4%	1.8
1625	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Other	Retro	764	764	47%	358	0.00	15	$82	100%	40%	40%	2	65%	20%	76.5%	45.5%	45.5%	3.0
1626	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Other	Retro	4	4	25%	1	0.00	15	$0	100%	40%	40%	3	3%	10%	76.5%	41.0%	41.0%	1.7
1627	Office_PC	Energy Star Laptop	Biz-Custom	Other	ROB	126	126	33%	41	0.00	4	$0	0%	0%		4	11%	85%	89.5%	88.0%	88.0%	0.0
1628	Office_PC	Energy Star Monitor	Biz-Custom	Other	ROB	72	72	21%	15	0.00	4	$0	0%	0%		5	25%	85%	89.5%	88.0%	88.0%	0.0
1629	Refrigeration	Strip Curtains	Biz-Custom	Other	Retro	37	37	50%	18	0.00	4	$10	40%	40%	40%	1	10%	30%	60.2%	44.0%	44.0%	0.4
1630	Refrigeration	Bare Suction Line	Biz-Custom	Other	Retro	23	23	93%	21	0.00	15	$4	100%	40%	40%	2	0%	50%	71.2%	60.0%	60.0%	3.6
1631	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Other	Retro	1,112	1,112	25%	278	0.00	15	$431	40%	40%	40%	3	7%	25%	47.5%	40.0%	40.0%	0.4
1632	Refrigeration	Saturated Suction Controls	Biz-Custom	Other	Retro	831	831	50%	416	0.00	15	$559	40%	40%	40%	4	2%	10%	37.0%	28.0%	28.0%	0.5
1633	Refrigeration	Compressor Retrofit	Biz-Custom	Other	Retro	813	813	20%	163	0.00	15	$477	40%	40%	40%	5	23%	25%	47.5%	35.6%	35.6%	0.2
1634	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Other	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	6	6%	80%	86.0%	84.0%	84.0%	3.5

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1635	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Other	Retro	1,912	1,912	25%	478	0.00	13	$162	100%	40%	40%	7	6%	25%	71.2%	42.9%	42.9%	1.8
1636	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Other	Retro	2,960	2,960	50%	1,480	0.00	15	$1,170	100%	40%	40%	8	9%	25%	71.2%	40.0%	40.0%	0.9
1637	Refrigeration	Refrigeration Economizer	Biz-Custom	Other	Retro	7	7	2%	0	0.00	10	$0	100%	40%	40%	9	32%	10%	71.2%	28.2%	28.2%	0.5
1638	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Other	Retro	579	579	59%	338	0.00	10	$170	100%	40%	40%	10	11%	25%	71.2%	55.0%	55.0%	1.0
1639	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Other	Retro	471,500	471,500	0%	943	0.00	8	$157	100%	40%	40%	11	8%	50%	71.2%	60.0%	60.0%	2.6
1640	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Other	Retro	1,584	1,584	36%	578	0.00	12	$686	40%	40%	40%	11	3%	25%	47.5%	40.0%	40.0%	0.5
1641	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Other	Retro	2,440	2,440	65%	1,586	0.00	15	$305	100%	40%	40%	12	2%	80%	86.0%	84.0%	84.0%	3.5
1642	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Other	Retro	1,911	1,911	26%	504	0.00	10	$96	100%	40%	40%	12	2%	2%	71.2%	44.4%	44.4%	2.7
1643	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	Other	ROB	2,140	2,140	29%	629	0.00	12	$1,239	40%	40%	40%	13	11%	54%	67.8%	63.2%	63.2%	0.3
1644	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	Other	ROB	1,410	1,410	20%	281	0.00	12	$1,211	40%	40%	40%	14	11%	54%	67.8%	61.3%	61.3%	0.1
1645	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Other	Retro	2,016	2,016	68%	1,361	0.00	10	$170	100%	40%	40%	15	4%	25%	71.2%	60.6%	60.6%	4.1
1646	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Other	Retro	419,455	419,455	1%	2,307	0.00	8	$157	100%	40%	40%	16	4%	50%	71.2%	60.0%	60.0%	6.4
1647	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Other	Retro	2,922	2,922	50%	1,453	0.00	12	$686	100%	40%	40%	16	4%	25%	71.2%	41.5%	41.5%	1.2
1648	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	Other	ROB	6,374	6,374	20%	1,275	0.00	12	$1,651	40%	40%	40%	17	4%	54%	67.8%	63.2%	63.2%	0.5
1649	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	Other	ROB	4,522	4,522	7%	305	0.00	12	$1,521	40%	40%	40%	18	4%	54%	67.8%	61.3%	61.3%	0.1
1650	Refrigeration	Refrigeration - Custom	Biz-Custom	Other	ROB	7	7	2%	0	0.00	10	$0	40%	40%	40%	19	90%	25%	47.5%	36.3%	36.3%	0.2
1651	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Other	Retro	3	3	30%	1	0.00	5	$0	100%	40%	40%	20	90%	25%	71.2%	44.2%	44.2%	1.4
1652	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	Other	ROB	6,993	6,993	10%	721	0.00	15	$1,426	40%	40%	40%	21	8%	44%	60.8%	55.2%	55.2%	0.3
1653	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Other	Retro	1,586	1,586	34%	537	0.00	5	$245	40%	40%	40%	22	5%	30%	62.5%	55.6%	55.6%	0.6
1654	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Other	Retro	273	273	89%	243	0.00	9	$11	100%	40%	40%	23	7%	35%	71.2%	62.3%	62.3%	10.5
1655	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Other	Retro	522	522	27%	141	0.00	10	$14	100%	40%	40%	24	7%	18%	71.2%	61.2%	61.2%	5.4
1656	Ventilation	Demand Controlled Ventilation	Biz-Custom	Other	Retro	2,627	2,627	20%	525	0.00	15	$227	100%	40%	40%	1	100%	17%	75.1%	39.2%	39.2%	1.8
1657	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Other	Retro	1,902	1,902	38%	731	0.00	15	$200	100%	40%	40%	2	100%	17%	75.1%	56.3%	56.3%	2.6
1658	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Other	Retro	13	13	8%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	39.8%	39.8%	1.7
1659	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Other	Retro	0	0	0%	0	0.00	15	$260	40%	40%	40%	2	100%	20%	75.1%	50.0%	50.0%	0.0
1660	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Other	Retro	10	10	10%	1	0.00	15	$0	100%	40%	40%	3	100%	0%	75.1%	39.8%	39.8%	1.7
1661	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Other	Retro	7	7	15%	1	0.00	12	$0	100%	40%	40%	1	90%	0%	75.1%	39.8%	39.8%	1.5
1662	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Other	Retro	5	5	20%	1	0.00	12	$0	100%	40%	40%	2	90%	0%	75.1%	39.8%	39.8%	1.5
1663	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Other	Retro	1,150	1,150	1%	6	0.00	30	$8	100%	40%	40%	3	100%	20%	75.1%	36.0%	36.0%	0.9
1664	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	Other	NC	4	4	25%	1	0.00	12	$0	100%	40%	40%	1	100%	60%	75.1%	68.0%	68.0%	3.0
1665	Behavioral	COM Competitions	Biz-Custom	Other	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.0
1666	Behavioral	Business Energy Reports	Biz-Custom	Other	Retro	313	313	0%	1	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.7
1667	Behavioral	Building Benchmarking	Biz-Custom	Other	Retro	0	0	0%	0	0.00	2	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.0
1668	Behavioral	Strategic Energy Management	Biz-Custom SEM	Other	Retro	0	0	0%	0	0.00	5	$0	40%	40%	40%	1	100%	0%	45.0%	30.0%	30.0%	0.0
1669	Behavioral	BEIMS	Biz-Custom	Other	Retro	50	50	2%	1	0.00	2	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.3
1670	Behavioral	Building Operator Certification	Biz-Custom	Other	Retro	10	10	3%	0	0.00	3	$0	40%	40%	40%	1	100%	2%	45.0%	30.0%	30.0%	0.3
1671	CompressedAir	Efficient Air Compressor Equipment	Biz-Custom	Industrial	ROB	9	9	11%	1	0.00	13	$0	100%	40%	40%	1	100%	20%	75.1%	36.0%	36.0%	1.6
1672	CompressedAir	Efficient Air Compressor Controls	Biz-Custom RCx	Industrial	Retro	15	15	7%	1	0.00	3	$0	100%	40%	40%	2	100%	20%	75.1%	44.8%	44.8%	1.7
1673	HVAC	Efficient HVAC Equipment	Biz-Custom	Industrial	ROB	8	8	13%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	42.7%	42.7%	3.8
1674	HVAC	Efficient HVAC O&M	Biz-Custom RCx	Industrial	Retro	33	33	3%	1	0.00	3	$0	100%	40%	40%	2	100%	20%	75.1%	45.7%	45.7%	2.0
1675	Lighting	Efficient Lighting Equipment	Biz-Prescriptive Light	Industrial	Retro	2	2	50%	1	0.00	15	$0	100%	40%	40%	1	100%	40%	76.5%	60.9%	60.9%	4.2
1676	Lighting	Efficient Lighting O&M	Biz-Custom Light	Industrial	Retro	33	33	3%	1	0.00	3	$0	100%	40%	40%	2	100%	20%	76.5%	48.9%	48.9%	2.9
1677	Machine Drive	Efficient MachDr Equipment	Biz-Custom	Industrial	ROB	5	5	20%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	43.2%	43.2%	4.3
1678	Machine Drive	Efficient MachDr O&M	Biz-Custom RCx	Industrial	Retro	33	33	3%	1	0.00	3	$0	100%	40%	40%	2	100%	20%	75.1%	45.7%	45.7%	2.1
1679	Process Heat	Efficient ProcHeat Equipment	Biz-Custom	Industrial	ROB	10	10	10%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	75.1%	43.2%	43.2%	4.3
1680	Process Heat	Efficient ProcHeat O&M	Biz-Custom RCx	Industrial	Retro	33	33	3%	1	0.00	3	$0	100%	40%	40%	2	100%	20%	75.1%	46.5%	46.5%	2.5
1681	Process Refrig	Efficient ProcRefrig Equipment	Biz-Custom	Industrial	ROB	6	6	17%	1	0.00	15	$0	100%	40%	40%	1	100%	20%	71.2%	44.0%	44.0%	3.8
1682	Process Refrig	Efficient ProcRefrig O&M	Biz-Custom RCx	Industrial	Retro	33	33	3%	1	0.00	3	$0	100%	40%	40%	2	100%	20%	71.2%	45.1%	45.1%	1.7
1683	Other Process	Efficient Other Facility Process Equipment	Biz-Custom	Industrial	ROB	4	4	25%	1	0.00	11	$0	100%	40%	40%	1	100%	20%	75.1%	38.8%	38.8%	1.6
1684	Other Process	Efficient Other Facility Process O&M	Biz-Custom RCx	Industrial	Retro	14	14	7%	1	0.00	11	$0	100%	40%	40%	2	100%	20%	75.1%	40.0%	40.0%	1.9
1685	WholeBuilding	Power Distribution (Transformers)	Biz-Custom	Industrial	Retro	179	179	1%	1	0.00	30	$1	100%	40%	40%	1	100%	20%	75.1%	36.0%	36.0%	0.9
1686	WholeBuilding	Strategic Energy Management	Biz-Custom SEM	Industrial	Retro	33	33	3%	1	0.00	3	$0	100%	40%	40%	2	100%	20%	75.1%	46.1%	46.1%	2.2
1687	WaterWasteWater	Water Supply & Wastewater treatment pumps and process efficiency	Biz-Custom	Industrial	Retro	5	5	20%	1	0.00	11	$0	100%	40%	40%	1	100%	20%	75.1%	36.1%	36.1%	1.3

Appendix B-2: 10-YR Program Potential Energy Savings (Incremental & Cumulative Annual) - Measure Level

						Incremental Annual Energy Savings (MWh)										*Cumulative Annual Energy Savings (MWh)*									
Measure #	Sector	End-Use	Measure Name	Program	Replacement Type	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
1	Commercial	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Retro	55,075	52,179	46,966	40,363	33,333	26,633	20,723	15,795	11,850	8,785	55,075	107,255	154,221	194,584	227,917	254,550	275,273	291,068	302,918	311,703
2	Commercial	ExteriorLighting	LED parking lot fixture (existing W ≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Commercial	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Retro	54,825	49,347	42,410	35,023	27,983	21,774	16,595	12,451	9,231	0	54,825	104,172	146,581	181,604	209,587	231,361	247,956	260,407	269,638	269,638
4	Commercial	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Commercial	ExteriorLighting	LED parking garage fixture (existing W ≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Commercial	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Retro	62,009	51,209	40,915	31,836	24,265	18,205	22,798	7,681	6,137	4,775	62,009	113,218	154,133	185,969	210,234	228,438	241,935	241,935	241,935	241,935
7	Commercial	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Commercial	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Retro	50,319	47,673	42,910	36,877	30,454	24,332	18,933	14,431	10,826	8,027	50,319	97,991	140,901	177,778	208,232	232,565	251,498	265,929	276,755	284,782
9	Commercial	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Retro	9,835	8,853	7,608	6,283	5,020	3,906	2,977	2,234	1,656	0	9,835	18,688	26,296	32,579	37,599	41,505	44,482	46,716	48,372	48,372
10	Commercial	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Commercial	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Retro	959,283	1,015,713	1,019,256	969,204	875,560	755,065	625,482	501,077	392,693	310,124	959,283	1,974,996	2,994,252	3,963,457	4,839,016	5,594,082	6,219,563	6,720,640	7,111,381	7,409,717
12	Commercial	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Retro	144,359	139,794	128,613	112,855	94,965	77,116	60,816	46,855	35,823	28,708	144,359	284,153	412,766	525,621	620,587	697,702	758,518	805,373	840,823	867,275
13	Commercial	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Retro	144,359	139,794	128,613	112,855	94,965	77,116	60,816	46,855	35,823	28,708	144,359	284,153	412,766	525,621	620,587	697,702	758,518	805,373	840,823	867,275
14	Commercial	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Retro	57,146	63,489	67,013	67,013	63,489	57,146	49,112	40,558	32,707	26,498	57,146	120,635	187,647	254,660	318,149	375,295	424,407	464,965	497,370	522,584
15	Commercial	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Retro	54,084	60,087	63,422	63,422	60,087	54,084	46,480	38,385	30,956	25,081	54,084	114,171	177,593	241,015	301,102	355,186	401,666	440,051	470,719	494,583
16	Commercial	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Retro	138,351	153,956	162,806	163,145	154,905	139,733	120,337	99,562	79,849	64,208	138,351	292,307	455,113	618,258	773,162	912,895	1,033,232	1,132,794	1,212,469	1,274,546
17	Commercial	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Retro	128,522	143,019	151,241	151,556	143,902	129,809	111,791	92,491	74,179	59,653	128,522	271,541	422,781	574,337	718,239	848,048	959,839	1,052,330	1,126,347	1,184,016
18	Commercial	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Commercial	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Retro	9,873	9,856	9,323	8,380	7,194	5,935	4,739	3,685	3,290	3,160	9,873	19,729	29,052	37,432	44,625	50,560	55,299	58,984	61,792	63,898
20	Commercial	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	ROB	11,449	15,007	19,316	20,272	24,068	26,722	27,712	28,302	28,865	28,351	11,449	26,457	45,773	65,329	88,368	113,491	139,459	165,360	191,398	216,520
21	Commercial	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Retro	110,634	163,854	179,765	190,305	207,294	257,038	308,855	357,162	394,896	415,279	110,634	274,488	454,253	644,558	851,852	1,108,890	1,417,745	1,774,907	2,169,803	2,585,082
22	Commercial	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Retro	62,857	66,108	71,411	87,711	104,336	119,407	130,673	136,065	134,427	126,002	62,857	128,966	200,377	288,087	392,423	511,830	642,503	778,568	912,995	1,038,997
23	Commercial	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Retro	112,084	118,367	127,475	154,489	184,380	211,889	233,041	244,065	242,674	228,997	112,084	230,451	357,926	512,414	696,795	908,684	1,141,725	1,385,790	1,628,463	1,857,461
24	Commercial	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Industrial	Lighting	Efficient Lighting Equipment	Biz-Prescriptive Light	Retro	2,551,720	2,839,625	3,002,862	2,961,861	2,812,940	2,511,138	2,155,881	1,780,050	1,391,223	1,075,788	2,551,720	5,391,346	8,394,207	11,356,068	14,169,009	16,680,147	18,836,028	20,616,078	22,007,301	23,083,088
26	Commercial	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	ROB	23,045	29,662	37,361	45,914	54,942	63,970	72,523	80,222	86,838	92,302	23,045	52,707	90,068	135,982	190,923	254,893	327,417	407,638	494,477	586,779
27	Commercial	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	ROB	43,738	48,161	60,277	72,990	84,930	94,358	99,595	99,595	94,358	84,930	43,738	91,898	152,176	225,166	310,096	404,454	504,049	603,643	698,001	782,931
28	Commercial	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Commercial	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Commercial	Cooking	Commercial Electric Griddle	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Commercial	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	ROB	14,449	17,757	21,249	24,740	28,048	31,026	33,584	35,698	37,386	38,700	14,449	32,206	53,455	78,195	106,243	137,268	170,853	206,550	243,936	282,636
32	Commercial	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	ROB	36,136	42,074	47,700	52,764	57,115	60,709	63,581	65,815	67,518	68,795	36,136	78,211	125,911	178,674	235,790	296,499	360,079	425,894	493,412	562,207
33	Commercial	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	ROB	8,584	9,995	11,331	12,534	13,568	14,422	15,104	15,634	16,039	16,342	8,584	18,579	29,910	42,444	56,012	70,434	85,537	101,172	117,211	133,553
34	Commercial	Cooking	Energy efficient electric fryer	Biz-Prescriptive	ROB	4,623	6,605	8,787	11,518	14,824	18,672	22,947	27,459	31,971	36,245	4,623	11,228	20,015	31,533	46,357	65,029	87,975	115,434	147,405	183,650
35	Commercial	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	ROB	441	1,104	1,840	2,628	3,496	4,582	5,898	7,429	9,130	10,925	441	1,545	3,385	6,013	9,509	14,091	19,989	27,418	36,548	47,473
36	Commercial	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	ROB	189	315	450	599	785	1,010	1,272	1,564	1,871	2,178	189	504	954	1,553	2,338	3,348	4,620	6,184	8,055	10,233
37	Commercial	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	ROB	15	22	29	38	49	62	76	91	106	120	15	37	66	104	153	215	291	382	487	607
38	Commercial	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	ROB	33	48	64	83	107	135	166	199	231	262	33	81	145	228	335	470	636	835	1,066	1,328
39	Commercial	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	ROB	4,471	6,413	8,550	11,212	14,440	18,200	22,385	26,811	31,247	35,458	4,471	10,884	19,434	30,646	45,086	63,287	85,672	112,483	143,730	179,189
40	Commercial	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	ROB	9,049	13,590	18,536	24,426	31,648	40,182	49,837	60,242	70,886	81,208	9,049	22,639	41,175	65,602	97,250	137,431	187,268	247,510	318,396	399,604
41	Commercial	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	ROB	158	227	303	398	512	646	795	953	1,111	1,261	158	385	688	1,086	1,598	2,244	3,039	3,991	5,102	6,363
42	Commercial	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	ROB	668	1,003	1,368	1,803	2,336	2,965	3,678	4,446	5,231	5,993	668	1,671	3,039	4,841	7,177	10,142	13,820	18,266	23,498	29,491
43	Commercial	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	ROB	1,400	2,334	3,334	4,435	5,813	7,482	9,424	11,582	13,859	16,137	1,400	3,734	7,068	11,503	17,316	24,798	34,223	45,805	59,664	75,801
44	Commercial	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	ROB	7,676	12,793	18,276	24,314	31,870	41,020	51,667	63,495	75,980	88,466	7,676	20,470	38,746	63,060	94,930	135,950	187,617	251,112	327,092	415,558
45	Commercial	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Commercial	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	ROB	2,982	4,261	5,668	7,430	9,563	12,045	14,802	17,713	20,623	23,381	2,982	7,243	12,911	20,341	29,903	41,948	56,750	74,463	95,086	118,466
47	Commercial	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Commercial	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Commercial	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	ROB	436	583	765	985	1,243	1,530	1,834	2,139	2,429	2,692	436	1,019	1,784	2,769	4,012	5,541	7,375	9,514	11,943	14,635
50	Commercial	Cooling	Smart Thermostat	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Commercial	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Commercial	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	Commercial	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	Commercial	Cooling	Air Cooled Chiller	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Commercial	Cooling	Chiller Tune-up	Biz-Prescriptive	ROB	32,965	36,105	37,552	61,637	61,532	58,731	72,000	67,082	60,482	66,390	32,965	69,071	106,623	143,503	177,911	208,421	234,019	254,736	270,919	282,818
56	Commercial	Cooling	Window Film	Biz-Prescriptive	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Commercial	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Commercial	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Commercial	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Commercial	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	Commercial	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Commercial	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	Commercial	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	Commercial	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Commercial	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	ROB	560	805	1,074	1,409	1,816	2,289	2,817	3,376	3,936	4,469	560	1,365	2,439	3,848	5,664	7,953	10,770	14,146	18,082	22,552
66	Commercial	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	ROB	909	1,307	1,744	2,288	2,948	3,717	4,573	5,480	6,390	7,255	909	2,216	3,960	6,248	9,196	12,913	17,486	22,966	29,357	36,612
67	Commercial	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	ROB	1,047	1,516	2,031	2,666	3,438	4,341	5,349	6,420	7,498	8,527	1,047	2,562	4,593	7,260	10,698	15,039	20,387	26,807	34,305	42,831
68	Commercial	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	ROB	1,348	1,953	2,616	3,434	4,429	5,591	6,889	8,268	9,657	10,982	1,348	3,301	5,917	9,352	13,780	19,371	26,261	34,529	44,186	55,167
69	Commercial	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	Commercial	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Commercial	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Commercial	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Commercial	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	ROB	1,216	1,750	2,337	3,065	3,950	4,981	6,130	7,347	8,569	9,731	1,216	2,965	5,302	8,367	12,317	17,298	23,428	30,775	39,344	49,075
74	Commercial	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	ROB	1,787	2,571	3,434	4,504	5,803	7,319	9,007	10,795	12,589	14,296	1,787	4,359	7,792	12,297	18,100	25,419	34,426	45,221	57,810	72,106
75	Commercial	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	Commercial	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	Commercial	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	Commercial	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	Commercial	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	ROB	4,100	5,804	7,707	10,080	12,940	16,252	19,911	23,753	27,576	31,181	4,100	9,904	17,611	27,690	40,630	56,882	76,793	100,547	128,123	159,304
80	Commercial	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	ROB	186	464	773	1,105	1,469	1,926	2,479	3,123	3,791	4,476	186	649	1,423	2,527	3,997	5,923	8,402	11,524	15,176	19,304
81	Commercial	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	ROB	17	41	69	99	131	172	221	279	339	400	17	58	127	226	357	529	750	1,029	1,355	1,724
82	Commercial	HotWater	Heat Pump Water Heater	Biz-Prescriptive	ROB	1,949	4,871	8,119	11,598	15,430	20,225	26,032	32,788	40,295	48,218	1,949	6,820	14,939	26,537	41,967	62,192	88,224	121,012	161,307	209,525
83	Commercial	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	ROB	32,138	35,515	38,380	40,699	42,490	35,864	35,962	35,843	35,574	34,751	32,138	67,653	106,033	146,732	189,222	200,884	210,063	216,914	221,684	224,203
84	Commercial	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	ROB	5,882	7,563	9,510	11,660	13,909	16,127	18,185	18,545	19,615	20,282	5,882	13,445	22,955	34,615	48,523	64,650	82,836	96,934	110,817	123,872
85	Commercial	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Commercial	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	ROB	8,283	20,709	34,515	49,306	65,594	85,980	110,665	139,388	171,299	204,982	8,283	28,992	63,507	112,813	178,407	264,387	375,052	514,440	685,740	890,721
87	Commercial	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Retro	15,470	23,199	25,771	27,604	30,387	38,018	46,016	53,517	59,423	62,683	15,470	38,669	64,440	92,044	122,432	160,450	206,466	259,983	319,406	382,089
88	Commercial	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Retro	3,720	5,580	6,200	6,643	7,314	9,155	11,085	12,899	14,331	15,126	3,720	9,300	15,500	22,142	29,457	38,611	49,697	62,596	76,926	92,052
89	Commercial	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Retro	2,346	3,519	3,910	4,189	4,613	5,773	6,991	8,134	9,037	9,539	2,346	5,865	9,774	13,963	18,576	24,349	31,340	39,474	48,511	58,050
90	Commercial	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	Commercial	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	Commercial	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Retro	1,554	2,331	2,590	2,775	3,056	3,825	4,632	5,389	5,988	6,320	1,554	3,886	6,476	9,251	12,308	16,133	20,764	26,154	32,141	38,461
93	Commercial	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-2: 10-YR Program Potential Energy Savings (Incremental & Cumulative Annual) - Measure Level

						Incremental Annual Energy Savings (MWh)										*Cumulative Annual Energy Savings (MWh)*									
Measure #	Sector	End-Use	Measure Name	Program	Replacement Type	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
94	Commercial	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Commercial	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Commercial	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Commercial	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Retro	57,678	86,517	96,130	102,997	113,412	141,945	171,883	200,001	222,201	277,792	57,678	144,196	240,326	343,323	456,736	598,681	770,564	970,565	1,192,766	1,427,299
98	Commercial	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Retro	25,819	38,729	43,032	46,106	50,768	63,541	76,943	89,529	99,467	104,987	25,819	64,548	107,581	153,687	204,455	267,996	344,939	434,468	533,935	638,922
99	Commercial	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Retro	413,824	464,440	489,150	515,700	556,993	605,463	646,172	672,552	677,622	656,864	413,824	878,264	1,367,415	1,883,115	2,440,108	3,045,570	3,691,742	4,364,294	5,041,917	5,698,781
100	Commercial	Behavioral	Strategic Energy Management	Biz-Custom SEM	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Industrial	WholeBuilding	Strategic Energy Management	Biz-Custom SEM	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Commercial	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Retro	8,236	5,731	5,749	6,946	8,276	12,012	12,217	12,566	13,373	13,999	8,236	13,967	19,716	26,662	34,938	39,775	47,311	55,244	63,063	70,499
103	Commercial	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Retro	62,713	61,383	62,495	65,107	71,165	107,609	128,531	143,987	159,878	175,434	62,713	124,096	186,591	251,698	322,863	376,136	455,026	549,236	657,754	777,587
104	Commercial	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Retro	29,164	28,474	28,910	30,028	32,713	37,773	42,565	48,079	53,661	57,981	29,164	57,638	86,548	116,576	149,289	187,062	229,627	277,706	331,367	389,348
105	Commercial	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Retro	69,024	67,392	68,427	71,073	77,428	89,404	100,746	113,795	127,005	137,226	69,024	136,417	204,844	275,917	353,345	442,749	543,495	657,289	784,294	921,520
106	Industrial	CompressedAir	Efficient Air Compressor Controls	Biz-Custom RCx	Retro	136,887	134,264	137,018	200,018	242,751	267,773	328,979	380,286	430,728	512,852	136,887	271,151	408,168	491,020	628,955	789,775	958,583	1,142,111	1,362,269	1,626,235
107	Industrial	HVAC	Efficient HVAC O&M	Biz-Custom RCx	Retro	54,855	53,802	54,903	80,143	97,256	107,268	131,768	152,290	172,448	205,270	54,855	108,657	163,561	196,750	252,002	316,411	383,993	457,441	545,515	651,058
108	Industrial	Machine Drive	Efficient MachDr O&M	Biz-Custom RCx	Retro	161,231	158,126	161,344	235,475	285,697	315,017	386,824	446,863	505,706	601,537	161,231	319,357	480,701	578,161	740,390	929,433	1,127,606	1,342,763	1,600,540	1,909,023
109	Industrial	Other Process	Efficient Other Facility Process O&M	Biz-Custom RCx	Retro	55,986	54,904	56,015	57,561	63,065	72,477	81,890	92,829	101,704	109,567	55,986	110,890	166,905	224,466	287,531	360,008	441,898	534,726	636,430	745,997
110	Industrial	Process Heat	Efficient ProcHeat O&M	Biz-Custom RCx	Retro	49,169	48,227	49,215	71,843	87,190	96,173	118,152	136,572	154,676	184,153	49,169	97,396	146,611	176,367	225,907	283,664	344,283	410,181	489,224	583,981
111	Industrial	Process Refrig	Efficient ProcRefrig O&M	Biz-Custom RCx	Retro	27,787	27,252	27,808	40,587	49,248	54,308	66,696	77,061	87,228	103,784	27,787	55,039	82,848	99,650	127,619	160,216	194,399	231,525	276,020	329,295
112	Commercial	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	Commercial	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	Commercial	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Retro	10,640	10,228	10,220	10,451	11,225	12,800	14,273	15,984	17,721	19,050	10,640	20,868	31,087	41,539	52,764	65,564	79,837	95,821	113,542	132,592
115	Commercial	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Retro	22,419	21,553	21,542	22,038	23,681	27,019	30,144	33,776	37,463	40,287	22,419	43,973	65,514	87,552	111,234	138,252	168,396	202,172	239,635	279,922
116	Commercial	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Retro	75,734	72,805	72,767	74,451	80,011	91,295	101,860	114,133	126,581	136,109	75,734	148,539	221,305	295,756	375,767	467,062	568,922	683,054	809,635	945,745
117	Commercial	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Retro	100,670	97,202	97,627	100,404	108,483	124,502	139,761	157,595	175,913	190,364	100,670	197,872	295,499	395,903	504,386	628,889	768,649	926,244	1,102,157	1,292,521
118	Commercial	InteriorLighting	Lighting - Custom	Biz-Custom Light	Retro	59,626	57,030	56,672	57,598	61,418	69,412	76,567	84,683	92,594	98,103	59,626	116,657	173,329	230,927	292,345	361,757	438,324	523,007	615,601	713,704
119	Industrial	Lighting	Efficient Lighting O&M	Biz-Custom Light	Retro	32,629	31,554	31,720	36,587	41,288	45,985	51,473	57,772	63,731	69,946	32,629	64,184	95,903	113,341	142,913	177,153	212,149	249,862	295,143	349,335
120	Commercial	Behavioral	COM Competitions	Biz-Custom	Retro	4,502	4,388	7,117	8,487	11,821	13,506	16,621	19,492	24,316	28,771	4,502	8,890	11,505	15,604	20,308	25,327	30,127	36,113	43,808	53,088
121	Commercial	Behavioral	Business Energy Reports	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Commercial	Behavioral	Building Benchmarking	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Commercial	Behavioral	BEIMS	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Commercial	Behavioral	Building Operator Certification	Biz-Custom	Retro	19,933	19,433	19,700	31,869	39,170	42,959	55,734	64,920	74,876	94,191	19,933	39,366	59,066	71,002	90,739	113,998	137,863	163,613	195,530	233,987
125	Commercial	CompressedAir	AODD Pump Controls	Biz-Custom	Retro	3,105	2,253	2,213	2,371	2,947	3,308	3,600	3,904	4,163	4,286	3,105	5,358	7,571	9,941	12,889	16,197	19,796	23,700	27,863	32,149
126	Commercial	CompressedAir	Compressed Air - Custom	Biz-Custom	Retro	10,988	7,651	7,681	9,288	11,080	11,836	12,171	12,400	12,388	11,950	10,988	18,639	26,320	35,608	46,688	58,524	70,694	83,095	95,483	107,433
127	Commercial	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Retro	13,084	10,686	11,856	19,113	21,863	22,373	25,762	26,226	26,643	29,401	13,084	23,770	35,626	43,556	57,094	70,256	80,729	89,314	98,483	108,647
128	Commercial	Cooling	Air Side Economizer	Biz-Custom	Retro	14,746	14,431	14,687	15,292	16,701	19,336	21,850	24,749	27,696	29,996	14,746	29,177	43,865	59,157	75,858	95,195	117,044	141,793	169,489	199,486
129	Commercial	Cooling	HVAC Occupancy Controls	Biz-Custom	ROB	36	58	89	123	163	198	238	292	361	444	36	94	183	306	469	667	905	1,196	1,558	2,002
130	Commercial	Cooling	HVAC/Chiller Custom	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Commercial	Cooling	Triple Pane Windows	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Commercial	Cooling	Energy Recovery Ventilator	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Commercial	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	ROB	21	34	52	72	96	116	140	172	213	263	21	55	107	179	275	391	531	702	916	1,179
134	Commercial	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	Commercial	HotWater	Hot Water Pipe Insulation	Biz-Custom	Retro	921	668	645	626	587	488	390	312	250	198	921	1,589	2,234	2,860	3,448	3,936	4,326	4,638	4,888	5,086
136	Commercial	HotWater	Faucet Aerator	Biz-Custom	Retro	4,369	3,008	2,753	2,532	2,257	1,790	1,375	1,065	830	645	4,369	7,377	10,131	12,663	14,920	16,710	18,085	19,150	19,981	20,626
137	Commercial	Miscellaneous	Miscellaneous Custom	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Commercial	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Retro	20,469	20,046	20,421	21,288	23,285	27,010	30,590	34,741	38,997	42,381	20,469	40,515	60,936	82,224	105,510	132,519	163,110	197,851	236,847	279,229
139	Commercial	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Commercial	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	ROB	445	366	412	480	555	583	603	637	684	738	445	810	1,222	1,702	2,257	2,839	3,442	4,079	4,764	5,501
141	Commercial	Motors	Cogged V-Belt	Biz-Custom	Retro	903	885	901	940	1,028	1,192	1,350	1,533	1,721	1,871	903	1,788	2,690	3,629	4,657	5,849	7,200	8,733	10,454	12,325
142	Commercial	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Retro	16,895	16,545	16,855	17,571	19,220	22,294	25,249	28,675	32,187	34,981	16,895	33,440	50,296	67,867	87,086	109,380	134,629	163,304	195,491	230,472
143	Commercial	Motors	Power Drive Systems	Biz-Custom	Retro	10,112	9,902	10,088	10,516	11,503	13,343	15,111	17,162	19,264	20,936	10,112	20,014	30,102	40,619	52,121	65,464	80,576	97,738	117,002	137,938
144	Commercial	Motors	Switch Reluctance Motors	Biz-Custom	Retro	174,531	170,919	174,121	181,515	198,544	230,301	260,828	296,220	332,506	361,366	174,531	345,451	519,572	701,086	899,630	1,129,931	1,390,759	1,686,979	2,019,485	2,380,851
145	Commercial	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Commercial	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	Commercial	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	Commercial	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Retro	32,072	31,408	31,997	33,355	36,485	42,320	47,930	54,434	72,997	84,777	32,072	63,480	95,477	128,833	165,317	207,638	255,568	310,001	354,892	414,385
149	Commercial	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Retro	51,864	50,791	51,742	53,939	59,000	68,437	77,508	88,025	98,808	107,385	51,864	102,655	154,397	208,337	267,337	335,773	413,282	501,307	600,116	707,500
150	Commercial	Office_PC	Energy Star Server	Biz-Custom	ROB	463	756	1,156	1,606	2,123	2,579	3,105	3,817	4,682	5,691	463	1,220	2,375	3,982	6,105	8,684	11,788	15,605	19,881	24,963
151	Commercial	Office_PC	Server Virtualization	Biz-Custom	Retro	5,468	3,967	3,897	4,175	5,190	5,825	6,339	6,874	9,359	9,868	5,468	9,435	13,331	17,506	22,696	28,521	34,860	41,734	46,300	52,975
152	Commercial	Office_PC	High Efficiency CRAC unit	Biz-Custom	ROB	2,721	4,436	6,769	9,395	12,396	15,028	18,048	22,124	27,384	33,627	2,721	7,156	13,925	23,321	35,716	50,745	68,792	90,916	118,300	151,928
153	Commercial	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Retro	70,284	68,748	69,943	72,809	79,512	92,046	103,993	117,769	131,779	142,739	70,284	139,032	208,976	281,785	361,298	453,343	557,336	675,105	806,884	949,623
154	Commercial	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Retro	3,017	2,955	3,010	3,138	3,432	3,981	4,509	5,120	5,748	6,247	3,017	5,971	8,981	12,119	15,551	19,532	24,041	29,161	34,909	41,155
155	Commercial	Office_PC	Energy Star Laptop	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	Commercial	Office_PC	Energy Star Monitor	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	Commercial	Refrigeration	Strip Curtains	Biz-Custom	Retro	14,858	14,550	14,823	15,452	23,349	28,567	31,518	34,957	43,274	51,110	14,858	29,408	44,231	59,683	70,323	87,327	107,127	129,878	154,481	183,655
158	Commercial	Refrigeration	Bare Suction Line	Biz-Custom	Retro	1,507	1,476	1,503	1,567	1,713	1,986	2,249	2,553	2,864	3,110	1,507	2,983	4,487	6,053	7,767	9,753	12,002	14,554	17,418	20,528
159	Commercial	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	Commercial	Refrigeration	Saturated Suction Controls	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	Commercial	Refrigeration	Compressor Retrofit	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	Commercial	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Retro	8,430	8,252	8,402	8,755	9,571	11,094	12,553	14,243	15,969	17,335	8,430	16,682	25,084	33,839	43,409	54,503	67,056	81,299	97,269	114,604
163	Commercial	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Commercial	Refrigeration	Refrigeration Economizer	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	Commercial	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Retro	77	76	77	81	88	102	116	131	176	205	77	153	230	311	399	501	617	748	857	1,000
166	Commercial	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	Commercial	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Retro	2,569	2,516	2,563	2,672	2,923	3,390	3,839	4,360	4,894	5,319	2,569	5,085	7,648	10,320	13,242	16,632	20,472	24,832	29,726	35,046
1671	Commercial	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Retro	81	80	81	84	92	107	121	138	185	215	81	161	242	326	419	526	647	785	899	1,050
1672	Commercial	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Retro	1,810	1,772	1,806	1,882	2,059	2,388	2,705	3,072	3,448	3,747	1,810	3,582	5,388	7,270	9,329	11,717	14,421	17,493	20,941	24,688
1673	Commercial	Refrigeration	Refrigeration - Custom	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1674	Commercial	Ventilation	Demand Controlled Ventilation	Biz-Custom	Retro	83,770	74,704	79,027	86,004	94,786	101,549	106,044	111,403	116,549	119,277	83,770	158,474	237,501	323,504	418,290	519,839	625,883	737,286	853,835	973,112
1675	Commercial	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Retro	6,310	6,165	6,263	6,507	7,089	8,185	9,220	10,410	11,613	12,544	6,310	12,475	18,738	25,245	32,334	40,518	49,738	60,148	71,762	84,305
1676	Commercial	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	NC	211,965	172,656	201,679	230,990	251,742	254,193	265,276	282,372	306,027	327,183	211,965	384,621	586,301	817,291	1,069,033	1,323,226	1,588,503	1,870,874	2,176,902	2,504,084
1677	Commercial	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Retro	219,210	213,579	216,382	224,265	243,813	280,928	315,850	355,901	396,206	426,972	219,210	432,789	649,171	873,436	1,117,249	1,398,177	1,714,027	2,069,929	2,466,134	2,893,106
1678	Commercial	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Retro	160,777	156,673	158,756	164,566	178,941	206,217	231,894	261,347	290,998	313,650	160,777	317,450	476,206	640,772	819,713	1,025,930	1,257,824	1,519,171	1,810,169	2,123,819
1679	Commercial	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1680	Industrial	CompressedAir	Efficient Air Compressor Equipment	Biz-Custom	ROB	9,080	14,845	22,727	31,159	41,276	49,732	59,806	73,510	89,283	109,323	9,080	23,925	46,653	77,811	119,088	168,820	228,626	302,135	391,419	500,742
1681	Industrial	HVAC	Efficient HVAC Equipment	Biz-Custom	ROB	10,467	17,113	26,199	35,918	47,582	57,329	68,942	84,739	102,922	126,024	10,467	27,580	53,779	89,698	137,279	194,608	263,550	348,289	451,212	577,235
1682	Industrial	Machine Drive	Efficient MachDr Equipment	Biz-Custom	ROB	76,073	124,368	190,404	261,038	345,803	416,641	501,041	615,845	747,994	915,883	76,073	200,441	390,845	651,883	997,686	1,414,327	1,915,368	2,531,212	3,279,206	4,195,089
1683	Industrial	Other Process	Efficient Other Facility Process Equipment	Biz-Custom	ROB	18,695	30,564	46,793	64,152	84,984	102,393	123,134	151,348	183,825	225,085	18,695	49,260	96,053	160,205	245,189	347,581	470,716	622,064	805,889	1,030,974
1684	Industrial	Process Heat	Efficient ProcHeat Equipment	Biz-Custom	ROB	11,322	18,509	28,337	38,849	51,464	62,007	74,567	91,653	111,320	136,306	11,322	29,831	58,167	97,017	148,481	210,487	285,055	376,708	488,028	624,334
1685	Industrial	Process Refrig	Efficient ProcRefrig Equipment	Biz-Custom	ROB	11,417	18,664	28,575	39,175	51,896	62,527	75,193	92,422	112,254	137,450	11,417	30,081	58,656	97,831	149,727	212,254	287,447	379,869	492,123	629,574
1686	Industrial	WaterWasteWater	Water Supply & Wastewater treatment pumps and process efficiency	Biz-Custom	ROB	153,781	150,846	153,961	158,307	173,580	199,693	225,929	256,538	281,684	304,231	153,781	304,627	458,588	616,895	790,475	990,168	1,216,098	1,472,636	1,754,321	2,058,552
1687	Industrial	WholeBuilding	Power Distribution (Transformers)	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-3: 10-YR Program Potential Summer Peak Demand Savings (Incremental & Cumulative Annual) - Measure Level

						Incremental Summer Peak Demand Savings (MW)										*Cumulative Annual Summer Peak Demand Savings (MW)*									
Measure #	**Sector**	End-Use	Measure Name	Program	Replacement Type	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
1	Commercial	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Commercial	ExteriorLighting	LED parking lot fixture (existing W ≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Commercial	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Commercial	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Commercial	ExteriorLighting	LED parking garage fixture (existing W ≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Commercial	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Commercial	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Commercial	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Commercial	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Commercial	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Commercial	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Retro	122	129	130	123	111	96	80	64	50	40	122	251	381	504	616	712	791	855	904	933
12	Commercial	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Retro	18	18	16	14	12	10	8	6	4	4	18	36	52	67	79	88	96	102	106	108
13	Commercial	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Retro	18	18	16	14	12	10	8	6	4	4	18	36	52	67	79	88	96	102	106	108
14	Commercial	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Retro	8	9	9	9	9	8	7	6	4	4	8	16	26	35	43	51	58	63	67	70
15	Commercial	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Retro	7	8	9	9	8	7	6	5	4	3	7	16	24	33	41	48	55	60	64	66
16	Commercial	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Retro	18	20	21	21	20	18	15	13	10	8	18	37	58	79	98	116	132	144	154	160
17	Commercial	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Retro	16	18	19	19	18	17	14	12	9	8	16	35	54	73	91	108	122	134	143	149
18	Commercial	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Commercial	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Retro	1	1	1	1	1	1	1	0	0	0	1	2	3	4	5	6	6	7	6	6
20	Commercial	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	ROB	1	2	2	3	3	3	3	4	4	4	1	3	6	8	10	12	14	16	17	18
21	Commercial	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Retro	14	21	23	24	26	33	39	46	50	53	14	35	58	82	109	141	181	226	276	329
22	Commercial	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Retro	8	8	9	11	13	15	16	17	17	16	8	16	25	36	49	64	80	97	113	129
23	Commercial	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Retro	14	15	16	19	23	27	29	31	30	29	14	29	45	64	87	114	143	173	204	232
24	Commercial	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Industrial	Lighting	Efficient Lighting Equipment	Biz-Prescriptive Light	Retro	330	368	389	383	364	325	279	230	180	139	330	698	1,086	1,470	1,834	2,159	2,438	2,668	2,848	2,987
26	Commercial	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	ROB	3	3	4	5	6	7	8	9	10	11	3	6	10	16	22	29	38	47	57	68
27	Commercial	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Retro	5	6	7	8	10	11	11	11	11	10	5	11	18	26	36	47	58	70	81	90
28	Commercial	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Commercial	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Commercial	Cooking	Commercial Electric Griddle	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Commercial	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	ROB	2	3	3	4	4	5	5	5	6	6	2	5	8	12	16	21	26	31	37	43
32	Commercial	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	ROB	5	6	7	8	9	9	10	10	10	10	5	12	19	27	36	45	54	64	75	85
33	Commercial	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	ROB	1	2	2	2	2	2	2	2	2	2	1	3	5	6	8	11	13	15	18	20
34	Commercial	Cooking	Energy efficient electric fryer	Biz-Prescriptive	ROB	1	1	1	2	2	3	3	4	5	5	1	2	3	5	7	10	13	17	22	28
35	Commercial	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	ROB	0	0	0	0	1	1	1	1	1	2	0	0	1	1	1	2	3	4	6	7
36	Commercial	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2
37	Commercial	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Commercial	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
39	Commercial	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	ROB	2	3	5	6	8	10	12	14	17	19	2	6	10	16	24	34	45	60	76	95
40	Commercial	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	ROB	5	7	10	13	17	21	27	32	38	43	5	12	22	35	52	73	100	132	169	212
41	Commercial	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1	2	2	3	3
42	Commercial	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	ROB	0	1	1	1	1	2	2	2	3	3	0	1	2	3	4	5	7	10	12	16
43	Commercial	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	ROB	1	1	2	2	3	4	5	6	7	9	1	2	4	6	9	13	18	24	32	40
44	Commercial	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	ROB	4	7	10	13	17	22	27	34	40	47	4	11	21	33	50	72	99	133	173	220
45	Commercial	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Commercial	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	ROB	1	2	3	4	5	6	7	8	10	11	1	3	6	10	14	20	27	36	46	57
47	Commercial	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Commercial	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Commercial	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	ROB	0	0	0	1	1	1	1	1	2	2	0	1	1	2	3	4	5	6	8	9
50	Commercial	Cooling	Smart Thermostat	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Commercial	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Commercial	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	Commercial	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	Commercial	Cooling	Air Cooled Chiller	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Commercial	Cooling	Chiller Tune-up	Biz-Prescriptive	Retro	17	18	19	31	31	29	36	34	30	33	17	35	54	68	81	91	96	99	100	97
56	Commercial	Cooling	Window Film	Biz-Prescriptive	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Commercial	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Commercial	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Commercial	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Commercial	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	Commercial	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Commercial	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	Commercial	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	Commercial	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Commercial	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	2	2	3	4
66	Commercial	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	ROB	0	0	0	0	1	1	1	1	1	1	0	0	1	1	2	2	3	4	5	6
67	Commercial	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	ROB	0	0	0	0	1	1	1	1	1	1	0	0	1	1	2	3	4	5	6	7
68	Commercial	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	ROB	0	0	0	1	1	1	1	1	2	2	0	1	1	2	2	3	5	6	8	10
69	Commercial	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	Commercial	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Commercial	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Commercial	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Commercial	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	ROB	0	0	0	1	1	1	1	1	1	2	0	1	1	1	2	3	4	5	7	8
74	Commercial	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	ROB	0	0	1	1	1	1	2	2	2	2	0	1	1	2	3	4	6	8	10	12
75	Commercial	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	Commercial	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	Commercial	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	Commercial	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	Commercial	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	ROB	1	1	1	2	2	3	3	4	5	5	1	2	3	5	7	10	13	17	22	27
80	Commercial	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	1	1	2	2	3
81	Commercial	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	Commercial	HotWater	Heat Pump Water Heater	Biz-Prescriptive	ROB	0	1	1	2	2	3	3	4	5	6	0	1	2	4	6	8	12	16	21	28
83	Commercial	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	ROB	4	5	5	5	6	5	5	5	5	5	4	9	14	20	25	26	26	25	25	24
84	Commercial	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	ROB	1	1	1	2	2	2	2	2	3	3	1	2	3	5	6	9	11	13	14	16
85	Commercial	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Commercial	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	ROB	2	4	7	10	13	17	22	28	35	41	2	6	13	23	36	53	76	104	138	179
87	Commercial	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Retro	2	3	4	4	4	5	6	7	8	9	2	5	9	13	17	22	28	36	44	53
88	Commercial	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Retro	1	1	1	1	1	1	2	2	2	2	1	1	2	3	4	5	7	9	11	13
89	Commercial	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Retro	0	0	1	1	1	1	1	1	1	1	0	1	1	2	3	3	4	6	7	8
90	Commercial	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	Commercial	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	Commercial	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Retro	0	0	0	0	0	1	1	1	1	1	0	1	1	1	2	2	3	4	5	5
93	Commercial	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-3: 10-YR Program Potential Summer Peak Demand Savings (Incremental & Cumulative Annual) - Measure Level

						Incremental Summer Peak Demand Savings (MW)										*Cumulative Annual Summer Peak Demand Savings (MW)*									
Measure #	Sector	End-Use	Measure Name	Program	Replacement Type	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
94	Commercial	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Commercial	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Commercial	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Commercial	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Retro	8	12	13	14	16	20	24	28	31	39	8	20	34	48	64	83	107	135	166	197
98	Commercial	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Retro	4	5	6	6	7	9	11	12	14	15	4	9	15	21	29	37	48	61	74	89
99	Commercial	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Retro	65	72	76	79	84	90	95	97	97	94	65	137	212	291	375	465	559	657	754	848
100	Commercial	Behavioral	Strategic Energy Management	Biz-Custom SEM	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Industrial	WholeBuilding	Strategic Energy Management	Biz-Custom SEM	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Commercial	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Retro	1	1	1	1	1	1	1	1	2	2	1	2	2	3	4	4	5	6	7	7
103	Commercial	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Retro	9	9	9	9	10	15	18	20	22	24	9	17	26	35	45	51	60	72	85	99
104	Commercial	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Retro	5	5	5	5	5	6	7	8	9	10	5	10	14	19	25	31	38	46	55	65
105	Commercial	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Retro	11	11	11	12	13	15	17	19	21	23	11	23	34	46	59	73	90	109	130	153
106	Industrial	CompressedAir	Efficient Air Compressor Controls	Biz-Custom RCx	Retro	20	20	20	30	36	40	49	56	64	76	20	40	60	70	86	105	124	145	169	196
107	Industrial	HVAC	Efficient HVAC O&M	Biz-Custom RCx	Retro	9	9	9	14	17	19	23	26	30	35	9	19	28	33	40	49	58	68	79	92
108	Industrial	Machine Drive	Efficient MachDr O&M	Biz-Custom RCx	Retro	28	27	28	41	49	54	67	77	87	104	28	55	83	96	118	144	171	198	231	268
109	Industrial	Other Process	Efficient Other Facility Process O&M	Biz-Custom RCx	Retro	10	9	10	10	11	13	14	16	18	19	10	19	29	39	50	62	76	92	110	129
110	Industrial	Process Heat	Efficient ProcHeat O&M	Biz-Custom RCx	Retro	7	7	7	11	13	14	17	20	23	27	7	14	22	25	31	38	45	52	61	70
111	Industrial	Process Refrig	Efficient ProcRefrig O&M	Biz-Custom RCx	Retro	3	3	3	5	6	6	8	9	10	12	3	6	10	11	14	17	20	23	27	31
112	Commercial	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	Commercial	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	Commercial	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Retro	1	1	1	1	1	1	2	2	2	2	1	2	3	5	6	7	9	11	13	15
115	Commercial	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Retro	3	3	3	3	3	3	4	4	5	5	3	6	8	11	14	18	21	26	31	36
116	Commercial	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Retro	10	10	10	10	11	12	13	15	17	18	10	20	29	39	49	61	75	90	106	124
117	Commercial	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Retro	13	13	13	13	14	17	19	21	23	25	13	26	39	53	67	84	103	124	147	172
118	Commercial	InteriorLighting	Lighting - Custom	Biz-Custom Light	Retro	8	7	7	7	8	9	10	11	12	12	8	15	22	29	37	46	55	66	78	90
119	Industrial	Lighting	Efficient Lighting O&M	Biz-Custom Light	Retro	5	5	5	5	6	7	7	8	9	10	5	9	14	14	16	18	20	22	25	27
120	Commercial	Behavioral	COM Competitions	Biz-Custom	Retro	1	1	1	1	2	2	3	3	4	5	1	1	2	2	3	4	5	6	7	8
121	Commercial	Behavioral	Business Energy Reports	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Commercial	Behavioral	Building Benchmarking	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Commercial	Behavioral	BEIMS	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Commercial	Behavioral	Building Operator Certification	Biz-Custom	Retro	3	3	3	6	7	8	10	11	13	16	3	7	10	12	16	20	24	29	34	41
125	Commercial	CompressedAir	AODD Pump Controls	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	3	3	4
126	Commercial	CompressedAir	Compressed Air - Custom	Biz-Custom	Retro	1	1	1	1	1	1	1	1	1	1	1	2	3	4	5	7	8	10	11	12
127	Commercial	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Retro	7	6	6	10	12	12	14	14	14	16	7	13	19	22	28	34	37	39	42	44
128	Commercial	Cooling	Air Side Economizer	Biz-Custom	Retro	7	7	7	8	8	10	11	13	14	15	7	15	22	30	39	48	59	72	86	101
129	Commercial	Cooling	HVAC Occupancy Controls	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
130	Commercial	Cooling	HVAC/Chiller Custom	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Commercial	Cooling	Triple Pane Windows	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Commercial	Cooling	Energy Recovery Ventilator	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Commercial	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	Commercial	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	Commercial	HotWater	Hot Water Pipe Insulation	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
136	Commercial	HotWater	Faucet Aerator	Biz-Custom	Retro	1	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2	2	3	3	3
137	Commercial	Miscellaneous	Miscellaneous Custom	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Commercial	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Retro	2	2	2	2	3	3	3	4	4	5	2	4	7	9	12	15	18	22	26	31
139	Commercial	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Commercial	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
141	Commercial	Motors	Cogged V-Belt	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2
142	Commercial	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Retro	2	2	2	2	2	3	3	4	4	4	2	4	6	9	11	14	17	21	25	30
143	Commercial	Motors	Power Drive Systems	Biz-Custom	Retro	1	1	1	1	1	2	2	2	2	3	1	3	4	5	7	8	10	13	15	18
144	Commercial	Motors	Switch Reluctance Motors	Biz-Custom	Retro	23	23	23	24	26	30	34	39	44	48	23	46	69	93	119	149	184	223	267	315
145	Commercial	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Commercial	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	Commercial	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	Commercial	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Retro	4	4	4	4	4	5	6	6	8	10	4	7	11	15	19	24	29	36	40	47
149	Commercial	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Retro	6	6	6	6	7	8	9	11	12	13	6	12	19	25	32	40	50	60	72	85
150	Commercial	Office_PC	Energy Star Server	Biz-Custom	ROB	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	2	2	3
151	Commercial	Office_PC	Server Virtualization	Biz-Custom	Retro	1	0	0	1	1	1	1	1	1	1	1	1	2	2	3	3	4	5	5	6
152	Commercial	Office_PC	High Efficiency CRAC unit	Biz-Custom	ROB	0	1	1	1	1	2	2	3	3	4	0	1	2	3	4	6	8	11	14	18
153	Commercial	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Retro	8	8	8	9	10	11	12	14	16	17	8	17	25	34	43	54	67	81	97	114
154	Commercial	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Retro	0	0	0	0	0	0	1	1	1	1	0	1	1	1	2	2	3	3	4	5
155	Commercial	Office_PC	Energy Star Laptop	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	Commercial	Office_PC	Energy Star Monitor	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	Commercial	Refrigeration	Strip Curtains	Biz-Custom	Retro	2	2	2	2	3	4	4	5	6	7	2	4	6	8	9	11	13	16	19	22
158	Commercial	Refrigeration	Bare Suction Line	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	3
159	Commercial	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	Commercial	Refrigeration	Saturated Suction Controls	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	Commercial	Refrigeration	Compressor Retrofit	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	Commercial	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Retro	1	1	1	1	1	2	2	2	2	2	1	2	3	5	6	8	9	11	13	16
163	Commercial	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Commercial	Refrigeration	Refrigeration Economizer	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	Commercial	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Commercial	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	Commercial	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Retro	0	0	0	0	0	0	1	1	1	1	0	1	1	1	2	2	3	3	4	5
1671	Commercial	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1672	Commercial	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	2	2	2	3	3
1673	Commercial	Refrigeration	Refrigeration - Custom	Biz-Custom	ROB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1674	Commercial	Ventilation	Demand Controlled Ventilation	Biz-Custom	Retro	13	12	12	13	15	16	16	17	17	18	13	25	37	50	65	81	97	114	131	149
1675	Commercial	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Retro	1	1	1	1	1	1	1	2	2	2	1	2	3	4	5	6	7	9	10	12
1676	Commercial	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	NC	34	28	32	37	40	41	43	45	49	52	34	62	94	131	171	212	255	300	349	401
1677	Commercial	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Retro	35	34	35	36	39	45	51	57	64	68	35	69	104	140	179	224	275	332	395	464
1678	Commercial	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Retro	26	25	25	26	29	33	37	42	47	50	26	51	76	103	132	165	202	244	291	341
1679	Commercial	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1680	Industrial	CompressedAir	Efficient Air Compressor Equipment	Biz-Custom	ROB	1	2	3	5	6	7	9	11	13	16	1	4	7	12	18	25	34	45	58	74
1681	Industrial	HVAC	Efficient HVAC Equipment	Biz-Custom	ROB	2	3	5	6	8	10	12	15	18	22	2	5	9	15	24	34	46	60	78	100
1682	Industrial	Machine Drive	Efficient MachDr Equipment	Biz-Custom	ROB	13	21	33	45	60	72	87	106	129	158	13	35	68	113	172	244	331	437	566	725
1683	Industrial	Other Process	Efficient Other Facility Process Equipment	Biz-Custom	ROB	3	5	8	11	15	18	21	26	32	39	3	9	17	28	42	60	81	107	139	178
1684	Industrial	Process Heat	Efficient ProcHeat Equipment	Biz-Custom	ROB	2	3	4	6	8	9	11	14	16	20	2	4	9	14	22	31	42	56	72	92
1685	Industrial	Process Refrig	Efficient ProcRefrig Equipment	Biz-Custom	ROB	1	2	3	5	6	7	9	11	13	16	1	4	7	11	17	25	34	44	57	73
1686	Industrial	WaterWasteWater	Water Supply & Wastewater treatment pumps and process efficiency	Biz-Custom	Retro	27	26	27	27	30	34	39	44	49	53	27	53	79	107	137	171	210	254	303	356
1687	Industrial	WholeBuilding	Power Distribution (Transformers)	Biz-Custom	Retro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-4: 10-YR Program Potential Energy Budgets (Incentives & Admin) - Measure Level

					Incentives										Admin								
Measure #	Sector	End-Use	Measure Name	Program	Replacement Type	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
1	Commercial	ExteriorLighting	LED wallpack (existing W<250)	Biz-Prescriptive Light	Retro	$9,641	$9,134	$8,221	$7,065	$5,835	$4,662	$3,627	$2,765	$2,074	$1,538	$826	$800	$736	$646	$545	$445	$354	$276	$212	$160
2	Commercial	ExteriorLighting	LED parking lot fixture (existing W ≥250)	Biz-Prescriptive Light	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Commercial	ExteriorLighting	LED parking lot fixture (existing W<250)	Biz-Prescriptive Light	Retro	$9,597	$8,638	$7,424	$6,131	$4,898	$3,811	$2,905	$2,179	$1,616	$0	$822	$756	$664	$561	$458	$364	$284	$217	$165	$0
4	Commercial	ExteriorLighting	LED outdoor pole decorative fixture (existing W≥250)	Biz-Prescriptive Light	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	Commercial	ExteriorLighting	LED parking garage fixture (existing W ≥250)	Biz-Prescriptive Light	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Commercial	ExteriorLighting	LED parking garage fixture (existing W<250)	Biz-Prescriptive Light	Retro	$5,332	$4,403	$3,518	$2,737	$2,086	$1,565	$1,960	$660	$528	$411	$930	$785	$641	$510	$397	$304	$390	$134	$110	$87
7	Commercial	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W≥250)	Biz-Prescriptive Light	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Commercial	ExteriorLighting	LED Mogul-base HID Lamp Replacing Exterior HID (existing W<250)	Biz-Prescriptive Light	Retro	$8,808	$8,345	$7,511	$6,455	$5,331	$4,259	$3,314	$2,526	$1,895	$1,405	$755	$731	$672	$590	$498	$407	$324	$252	$193	$146
9	Commercial	ExteriorLighting	LED fuel pump canopy fixture (existing W<250)	Biz-Prescriptive Light	Retro	$1,722	$1,550	$1,332	$1,100	$879	$684	$521	$391	$290	$0	$148	$136	$119	$101	$82	$65	$51	$39	$30	$0
10	Commercial	ExteriorLighting	LED fuel pump canopy fixture (existing W≥250)	Biz-Prescriptive Light	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
11	Commercial	InteriorLighting	LED T8 Tube Replacement	Biz-Prescriptive Light	Retro	$34,028	$35,982	$36,054	$34,230	$30,875	$26,587	$21,995	$17,601	$13,751	$10,709	$14,389	$15,571	$15,969	$15,519	$14,328	$12,628	$10,691	$8,753	$7,011	$5,658
12	Commercial	InteriorLighting	LED troffer retrofit kit, 2'X2' and 2'X4'	Biz-Prescriptive Light	Retro	$27,121	$26,125	$23,909	$20,875	$17,486	$14,144	$11,118	$8,543	$6,491	$5,066	$2,165	$2,143	$2,015	$1,807	$1,554	$1,290	$1,039	$818	$640	$524
13	Commercial	InteriorLighting	LED troffer, 2'X2' and 2'X4'	Biz-Prescriptive Light	Retro	$27,121	$26,125	$23,909	$20,875	$17,486	$14,144	$11,118	$8,543	$6,491	$5,066	$2,165	$2,143	$2,015	$1,807	$1,554	$1,290	$1,039	$818	$640	$524
14	Commercial	InteriorLighting	LED high bay fixture	Biz-Prescriptive Light	Retro	$4,139	$4,598	$4,853	$4,853	$4,598	$4,139	$3,557	$2,937	$2,359	$1,881	$857	$973	$1,050	$1,073	$1,039	$956	$839	$708	$584	$483
15	Commercial	InteriorLighting	LED Mogul-base HID Lamp Replacing High Bay HID	Biz-Prescriptive Light	Retro	$4,015	$4,461	$4,708	$4,708	$4,461	$4,015	$3,451	$2,850	$2,289	$1,825	$811	$921	$994	$1,016	$983	$905	$794	$671	$553	$458
16	Commercial	InteriorLighting	LED low bay fixture	Biz-Prescriptive Light	Retro	$7,268	$8,082	$8,539	$8,549	$8,109	$7,308	$6,287	$5,198	$4,161	$3,301	$2,075	$2,360	$2,551	$2,612	$2,535	$2,337	$2,057	$1,739	$1,425	$1,171
17	Commercial	InteriorLighting	LED Mogul-base HID Lamp Replacing Low Bay HID	Biz-Prescriptive Light	Retro	$6,986	$7,769	$8,208	$8,217	$7,795	$7,024	$6,044	$4,996	$4,000	$3,174	$1,928	$2,192	$2,370	$2,427	$2,355	$2,171	$1,911	$1,616	$1,324	$1,088
18	Commercial	InteriorLighting	LED Screw-In Lamps (Directional)	Biz-Prescriptive Light	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
19	Commercial	InteriorLighting	LED downlight fixture	Biz-Prescriptive Light	Retro	$556	$554	$522	$469	$402	$331	$264	$205	$200	$165	$148	$151	$146	$134	$118	$99	$81	$64	$68	$58
20	Commercial	InteriorLighting	LED Screw-In Lamps (Omnidirectional & Decorative)	Biz-Prescriptive Light	ROB	$58	$76	$98	$88	$104	$116	$120	$122	$123	$118	$172	$230	$303	$325	$394	$447	$474	$494	$515	$517
21	Commercial	InteriorLighting	DeLamp Fluorescent Fixture Average Lamp Wattage 28W	Biz-Prescriptive Light	Retro	$1,685	$2,528	$2,809	$3,010	$3,314	$4,148	$5,023	$5,844	$6,493	$6,854	$1,680	$2,575	$2,924	$3,202	$3,603	$4,609	$5,704	$6,783	$7,702	$8,308
22	Commercial	InteriorLighting	Occupancy Sensors	Biz-Prescriptive Light	Retro	$10,744	$11,512	$12,676	$15,865	$19,211	$22,354	$24,835	$26,213	$26,213	$24,835	$959	$1,050	$1,182	$1,511	$1,870	$2,224	$2,525	$2,724	$2,784	$2,696
23	Commercial	InteriorLighting	Daylighting Controls	Biz-Prescriptive Light	Retro	$14,348	$15,409	$16,938	$21,036	$25,521	$29,766	$33,166	$35,123	$35,253	$33,529	$1,710	$1,880	$2,109	$2,662	$3,305	$3,946	$4,503	$4,886	$5,025	$4,898
24	Commercial	InteriorLighting	LED Exit Sign - 4 Watt Fixture (2 lamp)	Biz-Prescriptive Light	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
25	Industrial	Lighting	Efficient Lighting Equipment	Biz-Prescriptive Light	Retro	$173,517	$193,095	$204,195	$201,407	$191,280	$170,757	$146,600	$121,043	$94,603	$73,154	$38,276	$43,531	$47,047	$47,425	$46,032	$41,997	$36,849	$31,094	$24,837	$19,628
26	Commercial	CompressedAir	Efficient Air Compressors (VSD)	Biz-Prescriptive	ROB	$3,558	$4,580	$5,769	$7,089	$8,483	$9,877	$11,198	$12,387	$13,408	$14,252	$346	$455	$585	$735	$899	$1,070	$1,240	$1,401	$1,550	$1,684
27	Commercial	CompressedAir	Efficient Air Nozzles	Biz-Prescriptive	Retro	$1,170	$1,289	$1,613	$1,953	$2,272	$2,525	$2,665	$2,665	$2,525	$2,272	$656	$738	$944	$1,169	$1,390	$1,578	$1,702	$1,740	$1,685	$1,550
28	Commercial	Cooking	Commercial Combination Oven (Electric)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
29	Commercial	Cooking	Commercial Electric Convection Oven	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
30	Commercial	Cooking	Commercial Electric Griddle	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
31	Commercial	Cooking	Commercial Electric Steam Cooker	Biz-Prescriptive	ROB	$1,093	$1,344	$1,608	$1,872	$2,122	$2,348	$2,541	$2,701	$2,829	$2,929	$217	$272	$333	$396	$459	$519	$574	$624	$667	$706
32	Commercial	Cooking	Dishwasher Low Temp Door (Energy Star)	Biz-Prescriptive	ROB	$551	$641	$727	$804	$871	$926	$969	$1,003	$1,029	$1,049	$542	$645	$747	$845	$935	$1,015	$1,087	$1,150	$1,205	$1,255
33	Commercial	Cooking	Dishwasher High Temp Door (Energy Star)	Biz-Prescriptive	ROB	$398	$463	$525	$581	$629	$669	$700	$725	$743	$758	$129	$153	$178	$201	$222	$241	$258	$273	$286	$298
34	Commercial	Cooking	Energy efficient electric fryer	Biz-Prescriptive	ROB	$847	$1,210	$1,610	$2,111	$2,717	$3,422	$4,205	$5,032	$5,859	$6,642	$69	$101	$138	$184	$243	$312	$392	$480	$571	$661
35	Commercial	Cooking	Insulated Holding Cabinets (Full Size)	Biz-Prescriptive	ROB	$23	$57	$95	$135	$180	$236	$304	$383	$471	$563	$7	$17	$29	$42	$57	$77	$101	$130	$163	$199
36	Commercial	Cooking	Insulated Holding Cabinets (Half-Size)	Biz-Prescriptive	ROB	$43	$72	$103	$137	$179	$230	$290	$357	$427	$497	$3	$5	$7	$10	$13	$17	$22	$27	$33	$40
37	Commercial	Cooling	Air Conditioner - 13 IEER (5-20 Tons)	Biz-Prescriptive	ROB	$3	$4	$6	$7	$9	$12	$14	$17	$20	$23	$0	$0	$0	$1	$1	$1	$1	$2	$2	$2
38	Commercial	Cooling	Air Conditioner - 14 IEER (5-20 Tons)	Biz-Prescriptive	ROB	$6	$9	$12	$15	$20	$25	$30	$36	$42	$48	$1	$1	$1	$1	$2	$2	$3	$3	$4	$5
39	Commercial	Cooling	Air Conditioner - 17 IEER (5-20 Tons)	Biz-Prescriptive	ROB	$776	$1,111	$1,480	$1,940	$2,498	$3,147	$3,869	$4,632	$5,395	$6,119	$67	$98	$134	$180	$236	$304	$383	$468	$558	$647
40	Commercial	Cooling	Air Conditioner - 21 IEER (5-20 Tons)	Biz-Prescriptive	ROB	$1,105	$1,639	$2,222	$2,924	$3,783	$4,794	$5,933	$7,154	$8,397	$9,597	$136	$208	$290	$391	$518	$672	$852	$1,052	$1,265	$1,482
41	Commercial	Cooling	Air Conditioner - 12.1 IEER (20+ Tons)	Biz-Prescriptive	ROB	$27	$39	$51	$67	$87	$109	$134	$161	$188	$213	$2	$3	$5	$6	$8	$11	$14	$17	$20	$23
42	Commercial	Cooling	Air Conditioner - 13 IEER (20+ Tons)	Biz-Prescriptive	ROB	$76	$112	$152	$200	$259	$328	$406	$490	$575	$657	$10	$15	$21	$29	$38	$50	$63	$78	$93	$109
43	Commercial	Cooling	Air Conditioner - 14.3 IEER (20+ Tons)	Biz-Prescriptive	ROB	$92	$154	$220	$292	$383	$493	$621	$763	$913	$1,063	$21	$36	$52	$71	$95	$125	$161	$202	$247	$294
44	Commercial	Cooling	Air Conditioner - 21 IEER (20+ Tons)	Biz-Prescriptive	ROB	$225	$375	$536	$713	$935	$1,203	$1,516	$1,863	$2,229	$2,595	$115	$196	$286	$389	$522	$686	$883	$1,109	$1,356	$1,614
45	Commercial	Cooling	Advanced Rooftop Controls	Biz-Prescriptive	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
46	Commercial	Cooling	Air Conditioner - 16 SEER (<5 Tons)	Biz-Prescriptive	ROB	$478	$683	$909	$1,191	$1,534	$1,932	$2,374	$2,841	$3,307	$3,750	$45	$65	$89	$119	$156	$201	$253	$309	$368	$427
47	Commercial	Cooling	Air Conditioner - 17 SEER (<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
48	Commercial	Cooling	Air Conditioner - 18 SEER(<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
49	Commercial	Cooling	Air Conditioner - 21 SEER(<5 Tons)	Biz-Prescriptive	ROB	$118	$158	$207	$267	$337	$415	$497	$580	$658	$729	$7	$9	$12	$16	$20	$26	$31	$37	$43	$49
50	Commercial	Cooling	Smart Thermostat	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
51	Commercial	Cooling	PTAC - <7,000 Btuh - lodging	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
52	Commercial	Cooling	PTAC - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
53	Commercial	Cooling	PTAC - >15,000 Btuh - lodging	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
54	Commercial	Cooling	Air Cooled Chiller	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
55	Commercial	Cooling	Chiller Tune-up	Biz-Prescriptive	Retro	$1,443	$1,573	$1,629	$2,682	$2,670	$2,543	$3,132	$2,919	$2,634	$2,911	$495	$554	$590	$992	$1,014	$991	$1,246	$1,190	$1,101	$1,241
56	Commercial	Cooling	Window Film	Biz-Prescriptive	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
57	Commercial	Heating	Heat Pump - 16 SEER (<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
58	Commercial	Heating	Heat Pump - 17 SEER (<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
59	Commercial	Heating	Heat Pump - 18 SEER(<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
60	Commercial	Heating	Heat Pump - 21 SEER(<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
61	Commercial	Heating	Geothermal HP - SEER 20.3 (<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
62	Commercial	Heating	Geothermal HP - SEER 21.5 (<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
63	Commercial	Heating	Geothermal HP - SEER 23.1 (<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
64	Commercial	Heating	Geothermal HP - SEER 29.3 (<5 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
65	Commercial	Heating	Heat Pump - 14.0 IEER COP 3.6 (65,000-134,000 Btu/hr)	Biz-Prescriptive	ROB	$86	$123	$164	$214	$276	$348	$428	$513	$597	$678	$8	$12	$17	$23	$30	$38	$48	$59	$70	$82
66	Commercial	Heating	Heat Pump - 15.0 IEER COP 3.8 (65,000-134,000 Btu/hr)	Biz-Prescriptive	ROB	$128	$184	$245	$321	$413	$521	$641	$767	$894	$1,014	$14	$20	$27	$37	$48	$62	$78	$96	$114	$132
67	Commercial	Heating	Heat Pump - 14.5 IEER COP 3.5 (135,000-239,000 Btu/hr)	Biz-Prescriptive	ROB	$117	$169	$226	$296	$382	$482	$593	$711	$830	$943	$16	$23	$32	$43	$56	$73	$91	$112	$134	$156
68	Commercial	Heating	Heat Pump - 15.5 IEER COP 3.7 (135,000-239,000 Btu/hr)	Biz-Prescriptive	ROB	$156	$225	$301	$395	$509	$643	$791	$948	$1,107	$1,257	$20	$30	$41	$55	$72	$94	$118	$144	$172	$200
69	Commercial	Heating	Geothermal HP - SEER 20.3 (5-20 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
70	Commercial	Heating	Geothermal HP - SEER 21.5 (5-20 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
71	Commercial	Heating	Geothermal HP - SEER 23.1 (5-20 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
72	Commercial	Heating	Geothermal HP - SEER 29.3 (5-20 Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
73	Commercial	Heating	Heat Pump - 12 IEER 3.4 COP (>239,000 Btu/hr)	Biz-Prescriptive	ROB	$197	$282	$377	$494	$636	$802	$986	$1,181	$1,376	$1,562	$18	$27	$37	$49	$65	$83	$105	$128	$153	$178
74	Commercial	Heating	Heat Pump - 13 IEER 3.6 COP (>239,000 Btu/hr)	Biz-Prescriptive	ROB	$313	$449	$598	$784	$1,010	$1,273	$1,566	$1,876	$2,186	$2,481	$27	$39	$54	$72	$95	$122	$154	$189	$225	$261
75	Commercial	Heating	Geothermal HP - SEER 20.3 (20+ Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
76	Commercial	Heating	Geothermal HP - SEER 21.5 (20+ Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
77	Commercial	Heating	Geothermal HP - SEER 23.1 (20+ Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
78	Commercial	Heating	Geothermal HP - SEER 29.3 (20+ Tons)	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
79	Commercial	Heating	Mini Split Ductless Heat Pump Cold Climate (Tiers & sizes TBD)	Biz-Prescriptive	ROB	$915	$1,292	$1,715	$2,242	$2,876	$3,610	$4,420	$5,269	$6,113	$6,908	$61	$89	$121	$161	$212	$272	$340	$415	$492	$569
80	Commercial	Heating	PTHP - >15,000 Btuh - lodging	Biz-Prescriptive	ROB	$19	$47	$78	$111	$148	$194	$250	$315	$383	$452	$3	$7	$12	$18	$24	$32	$42	$55	$68	$82
81	Commercial	Heating	PTHP - 7,000 to 15,000 Btuh - lodging	Biz-Prescriptive	ROB	$3	$7	$12	$18	$24	$31	$40	$50	$61	$72	$0	$1	$1	$2	$2	$3	$4	$5	$6	$7
82	Commercial	HotWater	Heat Pump Water Heater	Biz-Prescriptive	ROB	$290	$726	$1,210	$1,729	$2,300	$3,014	$3,880	$4,887	$6,006	$7,187	$29	$75	$127	$186	$252	$338	$445	$573	$719	$880
83	Commercial	HotWater	Low Flow Pre-Rinse Sprayers	Biz-Prescriptive	ROB	$79	$87	$94	$100	$105	$89	$90	$90	$90	$89	$482	$545	$603	$655	$701	$607	$626	$642	$657	$662
84	Commercial	HotWater	ENERGY STAR Commercial Washing Machines	Biz-Prescriptive	ROB	$877	$1,129	$1,422	$1,747	$2,091	$2,434	$2,760	$2,833	$3,022	$3,157	$88	$116	$149	$188	$230	$273	$316	$332	$362	$386
85	Commercial	Miscellaneous	Vending Machine Controller - Non-Refrigerated	Biz-Prescriptive	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
86	Commercial	Miscellaneous	Kitchen Exhaust Hood Demand Ventilation Control System	Biz-Prescriptive	ROB	$787	$1,968	$3,280	$4,686	$6,234	$8,172	$10,518	$13,248	$16,281	$19,483	$124	$317	$541	$789	$1,073	$1,438	$1,892	$2,435	$3,058	$3,740
87	Commercial	Refrigeration	Electronically Commutated (EC) Walk-In Evaporator Fan Motor	Biz-Prescriptive	Retro	$1,189	$1,783	$1,981	$2,122	$2,337	$2,925	$3,542	$4,121	$4,579	$4,833	$232	$356	$404	$442	$498	$637	$788	$937	$1,064	$1,148
88	Commercial	Refrigeration	Anti-Sweat Heater Controls MT	Biz-Prescriptive	Retro	$747	$1,121	$1,246	$1,335	$1,470	$1,839	$2,227	$2,592	$2,879	$3,039	$56	$86	$97	$106	$120	$153	$189	$225	$256	$276
89	Commercial	Refrigeration	Electronically Commutated (EC) Reach-In Evaporator Fan Motor	Biz-Prescriptive	Retro	$180	$270	$300	$322	$354	$443	$537	$625	$694	$733	$35	$54	$61	$67	$75	$97	$119	$142	$161	$174
90	Commercial	Refrigeration	Energy Star Reach-In Refrigerator, Glass Doors	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
91	Commercial	Refrigeration	Energy Star Reach-In Refrigerator, Solid Doors	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
92	Commercial	Refrigeration	Anti-Sweat Heater Controls LT	Biz-Prescriptive	Retro	$78	$116	$129	$139	$153	$191	$231	$269	$299	$316	$23	$36	$41	$44	$50	$64	$79	$94	$107	$115
93	Commercial	Refrigeration	Energy Star Reach-In Freezer, Glass Doors	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Appendix B-4: 10-YR Program Potential Energy Budgets (Incentives & Admin) - Measure Level

						Incentives										*Admin*									
Measure #	Sector	End-Use	Measure Name	Program	Replacement Type	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
94	Commercial	Refrigeration	Energy Star Reach-In Freezer, Solid Doors	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
95	Commercial	Refrigeration	Energy Star Ice Machine	Biz-Prescriptive	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
96	Commercial	Refrigeration	Vending Machine Controller - Refrigerated	Biz-Prescriptive	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
97	Commercial	Refrigeration	LED Refrigerated Display Case Lighting Average 6W/LF	Biz-Prescriptive	Retro	$1,045	$1,567	$1,742	$1,866	$2,055	$2,572	$3,114	$3,623	$4,026	$5,033	$865	$1,326	$1,506	$1,649	$1,856	$2,374	$2,938	$3,494	$3,967	$5,068
98	Commercial	Refrigeration	LED Refrigerated Display Case Lighting Controls	Biz-Prescriptive	Retro	$989	$1,483	$1,648	$1,766	$1,944	$2,434	$2,947	$3,429	$3,810	$4,021	$387	$594	$674	$738	$831	$1,063	$1,315	$1,564	$1,776	$1,916
99	Commercial	Ventilation	Pump and Fan Variable Frequency Drive Controls (Fans)	Biz-Prescriptive	Retro	$45,304	$50,846	$53,551	$56,458	$60,978	$66,285	$70,741	$73,629	$74,185	$71,912	$6,207	$7,120	$7,664	$8,257	$9,115	$10,126	$11,044	$11,748	$12,097	$11,985
100	Commercial	Behavioral	Strategic Energy Management	Biz-Custom SEM	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
101	Industrial	WholeBuilding	Strategic Energy Management	Biz-Custom SEM	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
102	Commercial	CompressedAir	Retro-commissioning_Compressed Air Optimization	Biz-Custom RCx	Retro	$702	$491	$496	$604	$726	$1,065	$1,097	$1,142	$1,231	$1,306	$207	$148	$153	$190	$233	$350	$368	$392	$432	$468
103	Commercial	Refrigeration	Retro-commissioning_Refrigerator Optimization	Biz-Custom RCx	Retro	$5,323	$5,213	$5,311	$5,536	$6,055	$9,165	$10,958	$12,291	$13,667	$15,019	$1,568	$1,570	$1,634	$1,741	$1,946	$3,011	$3,679	$4,217	$4,793	$5,382
104	Commercial	WholeBldg_HVAC	HVAC - Energy Management System	Biz-Custom RCx	Retro	$4,678	$4,581	$4,667	$4,865	$5,322	$6,173	$6,991	$7,940	$8,912	$9,686	$731	$732	$762	$811	$907	$1,075	$1,245	$1,445	$1,657	$1,841
105	Commercial	WholeBldg_HVAC	Retro-commissioning_Bld Optimization	Biz-Custom RCx	Retro	$11,072	$10,843	$11,046	$11,515	$12,595	$14,610	$16,546	$18,791	$21,093	$22,924	$1,730	$1,731	$1,803	$1,921	$2,147	$2,545	$2,946	$3,419	$3,923	$4,357
106	Industrial	CompressedAir	Efficient Air Compressor Controls	Biz-Custom RCx	Retro	$6,571	$6,445	$6,578	$9,605	$11,660	$12,866	$15,814	$18,290	$20,731	$24,704	$3,422	$3,431	$3,579	$5,340	$6,625	$7,472	$9,385	$11,094	$12,851	$15,650
107	Industrial	HVAC	Efficient HVAC O&M	Biz-Custom RCx	Retro	$2,194	$2,152	$2,197	$3,208	$3,894	$4,297	$5,281	$6,108	$6,923	$8,250	$1,371	$1,375	$1,434	$2,140	$2,655	$2,994	$3,761	$4,446	$5,150	$6,272
108	Industrial	Machine Drive	Efficient MachDr O&M	Biz-Custom RCx	Retro	$6,450	$6,327	$6,457	$9,428	$11,445	$12,629	$15,523	$17,953	$20,349	$24,249	$4,031	$4,041	$4,215	$6,290	$7,804	$8,801	$11,055	$13,067	$15,137	$18,434
109	Industrial	Other Process	Efficient Other Facility Process O&M	Biz-Custom RCx	Retro	$6,719	$6,591	$6,727	$6,917	$7,584	$8,725	$9,871	$11,209	$12,307	$13,292	$1,400	$1,403	$1,464	$1,538	$1,724	$2,027	$2,343	$2,719	$3,052	$3,368
110	Industrial	Process Heat	Efficient ProcHeat O&M	Biz-Custom RCx	Retro	$1,573	$1,543	$1,575	$2,300	$2,792	$3,081	$3,787	$4,380	$4,964	$5,916	$1,229	$1,232	$1,285	$1,918	$2,380	$2,684	$3,371	$3,985	$4,616	$5,622
111	Industrial	Process Refrig	Efficient ProcRefrig O&M	Biz-Custom RCx	Retro	$1,223	$1,199	$1,224	$1,787	$2,170	$2,394	$2,943	$3,404	$3,858	$4,597	$695	$696	$726	$1,084	$1,345	$1,517	$1,905	$2,252	$2,609	$3,177
112	Commercial	ExteriorLighting	Bi-Level Lighting Fixture – Garages	Biz-Custom Light	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
113	Commercial	InteriorLighting	Bi-Level Lighting Fixture – Stairwells, Hallways	Biz-Custom Light	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
114	Commercial	InteriorLighting	Dual Occupancy & Daylighting Controls	Biz-Custom Light	Retro	$1,997	$1,955	$1,992	$2,076	$2,271	$2,635	$2,984	$3,389	$3,804	$4,134	$270	$271	$282	$300	$336	$398	$461	$535	$613	$681
115	Commercial	InteriorLighting	Central Lighting Monitoring & Controls (non-networked)	Biz-Custom Light	Retro	$4,045	$3,962	$4,036	$4,207	$4,602	$5,338	$6,046	$6,866	$7,707	$8,376	$570	$570	$594	$633	$707	$839	$971	$1,127	$1,292	$1,435
116	Commercial	InteriorLighting	Network Lighting Controls - Wireless (WiFi)	Biz-Custom Light	Retro	$9,985	$9,779	$9,962	$10,385	$11,359	$13,176	$14,923	$16,948	$19,024	$20,675	$1,926	$1,927	$2,006	$2,138	$2,390	$2,833	$3,279	$3,806	$4,366	$4,849
117	Commercial	InteriorLighting	Luminaire Level Lighting Controls w/ HVAC Control	Biz-Custom Light	Retro	$13,287	$13,012	$13,256	$13,818	$15,115	$17,532	$19,856	$22,551	$25,313	$27,510	$2,551	$2,553	$2,658	$2,832	$3,166	$3,753	$4,344	$5,041	$5,784	$6,424
118	Commercial	InteriorLighting	Lighting - Custom	Biz-Custom Light	Retro	$14,129	$13,837	$14,096	$14,695	$16,073	$18,644	$21,115	$23,980	$26,918	$29,254	$1,522	$1,523	$1,586	$1,689	$1,888	$2,239	$2,591	$3,008	$3,450	$3,832
119	Industrial	Lighting	Efficient Lighting O&M	Biz-Custom Light	Retro	$925	$908	$926	$1,086	$1,244	$1,405	$1,591	$1,804	$2,011	$2,223	$826	$828	$864	$1,035	$1,211	$1,399	$1,619	$1,876	$2,137	$2,414
120	Commercial	Behavioral	COM Competitions	Biz-Custom	Retro	$75	$73	$119	$143	$201	$231	$286	$337	$424	$506	$113	$113	$188	$231	$330	$388	$491	$593	$762	$929
121	Commercial	Behavioral	Business Energy Reports	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
122	Commercial	Behavioral	Building Benchmarking	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
123	Commercial	Behavioral	BEIMS	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
124	Commercial	Behavioral	Building Operator Certification	Biz-Custom	Retro	$1,411	$1,382	$1,407	$2,289	$2,829	$3,122	$4,079	$4,788	$5,567	$7,063	$500	$501	$521	$866	$1,094	$1,234	$1,648	$1,977	$2,349	$3,046
125	Commercial	CompressedAir	AODD Pump Controls	Biz-Custom	Retro	$39	$28	$28	$30	$37	$42	$46	$49	$53	$54	$78	$58	$58	$63	$80	$92	$103	$114	$124	$130
126	Commercial	CompressedAir	Compressed Air - Custom	Biz-Custom	Retro	$936	$655	$661	$805	$968	$1,044	$1,085	$1,118	$1,129	$1,102	$276	$197	$203	$253	$311	$343	$364	$384	$396	$395
127	Commercial	Cooling	Comprehensive Rooftop Unit Quality Maintenance (AC Tune-up)	Biz-Custom	Retro	$408	$334	$370	$597	$684	$701	$809	$826	$841	$931	$327	$273	$310	$511	$598	$627	$739	$771	$803	$908
128	Commercial	Cooling	Air Side Economizer	Biz-Custom	Retro	$2,114	$2,070	$2,109	$2,199	$2,405	$2,790	$3,159	$3,588	$4,028	$4,377	$369	$369	$384	$409	$458	$543	$628	$729	$836	$929
129	Commercial	Cooling	HVAC Occupancy Controls	Biz-Custom	ROB	$4	$6	$10	$13	$18	$21	$26	$32	$39	$48	$1	$1	$2	$3	$4	$6	$7	$9	$11	$14
130	Commercial	Cooling	HVAC/Chiller Custom	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
131	Commercial	Cooling	Triple Pane Windows	Biz-Custom	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
132	Commercial	Cooling	Energy Recovery Ventilator	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
133	Commercial	Heating	Variable Refrigerant Flow Heat Pump	Biz-Custom	ROB	$6	$9	$14	$19	$26	$31	$37	$46	$57	$70	$1	$1	$1	$2	$3	$3	$4	$5	$6	$8
134	Commercial	Heating	PTHP - <7,000 Btuh - lodging	Biz-Custom	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
135	Commercial	HotWater	Hot Water Pipe Insulation	Biz-Custom	Retro	$216	$157	$152	$147	$139	$116	$93	$75	$61	$49	$23	$17	$17	$17	$16	$14	$11	$9	$8	$6
136	Commercial	HotWater	Faucet Aerator	Biz-Custom	Retro	$122	$84	$77	$71	$63	$51	$39	$30	$24	$19	$109	$77	$72	$68	$62	$51	$40	$32	$26	$20
137	Commercial	Miscellaneous	Miscellaneous Custom	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
138	Commercial	Miscellaneous	High Efficiency Hand Dryers	Biz-Custom	Retro	$2,376	$2,326	$2,370	$2,471	$2,702	$3,135	$3,550	$4,032	$4,526	$4,918	$512	$512	$533	$568	$635	$753	$871	$1,011	$1,160	$1,289
139	Commercial	Miscellaneous	Ozone Commercial Laundry	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
140	Commercial	Miscellaneous	ENERGY STAR Uninterrupted Power Supply	Biz-Custom	ROB	$123	$102	$114	$133	$154	$162	$167	$177	$190	$205	$11	$9	$11	$13	$15	$16	$17	$19	$20	$22
141	Commercial	Motors	Cogged V-Belt	Biz-Custom	Retro	$193	$189	$193	$201	$220	$255	$289	$328	$369	$400	$23	$23	$24	$25	$28	$33	$38	$45	$51	$57
142	Commercial	Motors	Pump and Fan Variable Frequency Drive Controls (Pumps)	Biz-Custom	Retro	$1,850	$1,811	$1,845	$1,924	$2,104	$2,441	$2,764	$3,139	$3,524	$3,830	$422	$423	$440	$469	$524	$621	$719	$835	$958	$1,064
143	Commercial	Motors	Power Drive Systems	Biz-Custom	Retro	$1,107	$1,084	$1,104	$1,151	$1,259	$1,461	$1,654	$1,879	$2,109	$2,292	$253	$253	$263	$281	$314	$372	$430	$500	$573	$637
144	Commercial	Motors	Switch Reluctance Motors	Biz-Custom	Retro	$4,195	$4,108	$4,185	$4,363	$4,772	$5,536	$6,269	$7,120	$7,992	$8,686	$4,363	$4,367	$4,547	$4,844	$5,415	$6,419	$7,430	$8,624	$9,893	$10,989
145	Commercial	Motors	Escalators Motor Efficiency Controllers	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
146	Commercial	Office_NonPC	Energy Star Printer/Copier/Fax	Biz-Custom	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
147	Commercial	Office_NonPC	Smart Power Strip – Commercial Use	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
148	Commercial	Office_NonPC	Plug Load Occupancy Sensor	Biz-Custom	Retro	$5,315	$5,205	$5,302	$5,528	$6,046	$7,013	$7,943	$9,021	$12,097	$14,049	$802	$802	$836	$890	$995	$1,180	$1,365	$1,585	$2,172	$2,578
149	Commercial	Office_PC	Electrically Commutated Plug Fans in data centers	Biz-Custom	Retro	$631	$618	$630	$656	$718	$833	$943	$1,071	$1,202	$1,307	$1,297	$1,298	$1,351	$1,439	$1,609	$1,908	$2,208	$2,563	$2,940	$3,265
150	Commercial	Office_PC	Energy Star Server	Biz-Custom	ROB	$59	$97	$148	$206	$272	$331	$398	$490	$600	$730	$12	$19	$30	$43	$58	$72	$88	$111	$139	$173
151	Commercial	Office_PC	Server Virtualization	Biz-Custom	Retro	$875	$635	$623	$668	$830	$932	$1,014	$1,100	$1,497	$1,579	$137	$101	$102	$111	$142	$162	$181	$200	$278	$300
152	Commercial	Office_PC	High Efficiency CRAC unit	Biz-Custom	ROB	$419	$684	$1,046	$1,454	$1,921	$2,334	$2,810	$3,454	$4,289	$5,284	$68	$114	$177	$252	$340	$422	$520	$653	$829	$1,043
153	Commercial	Office_PC	Computer Room Air Conditioner Economizer	Biz-Custom	Retro	$6,445	$6,311	$6,429	$6,702	$7,331	$8,504	$9,631	$10,938	$12,278	$13,344	$1,759	$1,760	$1,832	$1,952	$2,182	$2,587	$2,995	$3,476	$3,987	$4,429
154	Commercial	Office_PC	Data Center Hot/Cold Aisle Configuration	Biz-Custom	Retro	$483	$473	$482	$502	$549	$637	$721	$819	$920	$999	$75	$75	$79	$84	$94	$111	$128	$149	$171	$190
155	Commercial	Office_PC	Energy Star Laptop	Biz-Custom	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
156	Commercial	Office_PC	Energy Star Monitor	Biz-Custom	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
157	Commercial	Refrigeration	Strip Curtains	Biz-Custom	Retro	$1,005	$984	$1,003	$1,045	$1,580	$1,933	$2,132	$2,365	$2,928	$3,458	$371	$372	$387	$412	$637	$796	$898	$1,018	$1,288	$1,554
158	Commercial	Refrigeration	Bare Suction Line	Biz-Custom	Retro	$115	$112	$115	$119	$131	$152	$172	$195	$219	$238	$38	$38	$39	$42	$47	$55	$64	$75	$85	$95
159	Commercial	Refrigeration	Floating Head Pressure Controls	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
160	Commercial	Refrigeration	Saturated Suction Controls	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
161	Commercial	Refrigeration	Compressor Retrofit	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
162	Commercial	Refrigeration	Evaporator Fan Motor Controls	Biz-Custom	Retro	$1,141	$1,118	$1,139	$1,187	$1,298	$1,506	$1,706	$1,937	$2,174	$2,363	$211	$211	$220	$234	$262	$310	$359	$417	$478	$531
163	Commercial	Refrigeration	Variable Speed Condenser Fan	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
164	Commercial	Refrigeration	Refrigeration Economizer	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
165	Commercial	Refrigeration	Auto Door Closer, Cooler	Biz-Custom	Retro	$5	$5	$5	$5	$6	$7	$8	$9	$12	$14	$2	$2	$2	$2	$2	$3	$3	$4	$5	$6
166	Commercial	Refrigeration	Display Case Door Retrofit, Medium Temp	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
167	Commercial	Refrigeration	Q-Sync Motor for Walk-In and Reach-in Evaporator Fan Motor	Biz-Custom	Retro	$196	$192	$195	$204	$223	$258	$292	$332	$373	$405	$64	$64	$67	$71	$80	$94	$109	$127	$146	$162
1671	Commercial	Refrigeration	Auto Door Closer, Freezer	Biz-Custom	Retro	$2	$2	$2	$2	$3	$3	$3	$4	$5	$6	$2	$2	$2	$2	$3	$3	$3	$4	$6	$7
1672	Commercial	Refrigeration	Display Case Door Retrofit, Low Temp	Biz-Custom	Retro	$342	$335	$341	$355	$389	$451	$511	$580	$651	$708	$45	$45	$47	$50	$56	$67	$77	$89	$103	$114
1673	Commercial	Refrigeration	Refrigeration - Custom	Biz-Custom	ROB	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1674	Commercial	Ventilation	Demand Controlled Ventilation	Biz-Custom	Retro	$14,830	$13,266	$14,016	$15,231	$16,783	$18,028	$18,882	$19,897	$20,877	$21,424	$2,094	$1,909	$2,064	$2,295	$2,585	$2,831	$3,021	$3,243	$3,468	$3,627
1675	Commercial	WholeBldg_HVAC	Guest room energy management system	Biz-Custom	Retro	$476	$466	$475	$495	$541	$628	$711	$808	$907	$985	$158	$158	$165	$176	$196	$233	$269	$312	$358	$398
1676	Commercial	WholeBldg_NC	WholeBlg - Com NC	Biz-Custom	NC	$16,957	$13,813	$16,134	$18,479	$20,139	$20,335	$21,222	$22,590	$24,482	$26,175	$5,299	$4,411	$5,266	$6,164	$6,866	$7,085	$7,557	$8,221	$9,106	$9,949
1677	Commercial	WholeBuilding	WholeBlg - Com RET	Biz-Custom	Retro	$35,223	$34,494	$35,140	$36,632	$40,069	$46,478	$52,639	$59,781	$67,104	$72,929	$5,504	$5,508	$5,735	$6,110	$6,830	$8,097	$9,372	$10,878	$12,479	$13,860
1678	Commercial	WholeBuilding	WholeBlg - Custom (Other)	Biz-Custom	Retro	$25,830	$25,296	$25,769	$26,864	$29,384	$34,084	$38,602	$43,840	$49,210	$53,481	$4,036	$4,039	$4,206	$4,481	$5,009	$5,938	$6,873	$7,977	$9,151	$10,164
1679	Commercial	WholeBuilding	Power Distribution Equipment Upgrades (Transformers)	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1680	Industrial	CompressedAir	Efficient Air Compressor Equipment	Biz-Custom	ROB	$1,489	$2,435	$3,727	$5,110	$6,769	$8,156	$9,808	$12,056	$14,642	$17,929	$227	$379	$593	$832	$1,126	$1,386	$1,704	$2,140	$2,657	$3,324
1681	Industrial	HVAC	Efficient HVAC Equipment	Biz-Custom	ROB	$796	$1,301	$1,991	$2,730	$3,616	$4,357	$5,240	$6,440	$7,822	$9,578	$262	$437	$684	$959	$1,298	$1,598	$1,964	$2,467	$3,062	$3,832
1682	Industrial	Machine Drive	Efficient MachDr Equipment	Biz-Custom	ROB	$5,173	$8,457	$12,947	$17,751	$23,515	$28,332	$34,071	$41,877	$50,864	$62,280	$1,902	$3,178	$4,972	$6,966	$9,431	$11,613	$14,273	$17,929	$22,256	$27,851
1683	Industrial	Other Process	Efficient Other Facility Process Equipment	Biz-Custom	ROB	$2,617	$4,279	$6,551	$8,981	$11,898	$14,335	$17,239	$21,189	$25,735	$31,512	$467	$781	$1,222	$1,712	$2,318	$2,854	$3,508	$4,406	$5,470	$6,845
1684	Industrial	Process Heat	Efficient ProcHeat Equipment	Biz-Custom	ROB	$770	$1,259	$1,927	$2,642	$3,500	$4,216	$5,071	$6,232	$7,570	$9,269	$283	$473	$740	$1,037	$1,404	$1,728	$2,124	$2,668	$3,312	$4,145
1685	Industrial	Process Refrig	Efficient ProcRefrig Equipment	Biz-Custom	ROB	$822	$1,344	$2,057	$2,821	$3,737	$4,502	$5,414	$6,654	$8,082	$9,896	$285	$477	$746	$1,045	$1,415	$1,743	$2,142	$2,691	$3,340	$4,180
1686	Industrial	WaterWasteWater	Water Supply & Wastewater treatment pumps and process efficiency	Biz-Custom	Retro	$27,681	$27,152	$27,713	$28,495	$31,244	$35,945	$40,667	$46,177	$50,703	$54,762	$3,845	$3,854	$4,020	$4,225	$4,734	$5,566	$6,436	$7,469	$8,381	$9,251
1687	Industrial	WholeBuilding	Power Distribution (Transformers)	Biz-Custom	Retro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

APPENDIX C. Demand Response Data Sources

Data Needed	Value	Source
General		
Years in study	20	Hoosier
Discount rate	6.0%	Hoosier
Peak demand line loss factor	8.27%	Hoosier
Reserve margin	7.4%	Hoosier
Rate of inflation	2.2%	Hoosier
CP load per eligible customer (kW) - Residential	3.49	CenterPoint with GDS Calculations
CP load per eligible customer (kW) - C&I	15.74	CenterPoint with GDS Calculations
Number of existing participants in Smart Thermostat Pilot	161	Hoosier
Number of existing participants in Energy Management Savings Switch (DLC Water Heating) program	85	Hoosier
Per Participant CP Load Reduction (kW or %)		
Residential Central AC Thermostat	0.94 kW	Hoosier - Thermostat Pilot - 2021 Annual Report
Residential Central AC Switch	0.268 kW	CenterPoint DR Evaluation 2021
Residential Electric Water Heating	0.45 kW	Hoosier - Energy Management Savings Switch Program - 2021 Annual Report
Residential Pool Pumps	1.36 kW	Southern California Edison Pool Pump Demand Response Potential Report 2008
Residential CPP without Enabling Technology	11.70%	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Residential CPP with Enabling Technology	31.00%	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Residential - Time of Use Rate	5.20%	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Residential Peak Time Rebate	12.90%	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Non Residential Central AC Thermostat	1.392 kW	CenterPoint DR Evaluation 2021
Non Residential Central AC Switch	0.405 kW	CenterPoint DR Evaluation 2021
Non Residential Electric Water Heating	1.35 kW	CenterPoint DR Evaluation 2021
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	4.2%	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Non Residential Time of Use	2%	The Potential Impact of Demand-Side Rates for Ameren Missouri, The Brattle Group, Stakeholder Webinar, May 24, 2013

Data Needed	Value	Source
Non Residential Peak Time Rebate	0.7%	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Non Residential Real Time Pricing	8.40%	PacifiCorp Demand-Side Resource Potential Assessment for 2015-2034
Control equipment useful life		
AMI meters	20 Years	Ameren Illinois AMI Cost / Benefit Analysis, 2012
Controllable smart thermostat	13 Years	Hoosier
Load switches	13 Years	Hoosier
Costs		
Equipment cost for smart thermostat	$150	Nest & Ecobee
Equipment and installation cost for DLC switches	$295	Comverge estimate for swtiches
Incentive costs for residential DLC AC programs	MAP: $35/participant-yr , RAP: $25/participant-yr	RAP: Hoosier; MAP: GDS estimate
Incentive costs for residential DLC WH programs	MAP: $16/participant-yr , RAP: $8/participant-yr	2016 Vectren DLC Annual Report Final
BYOT program one-time rebate incentive	$75/thermostat	Hoosier - Thermostat Pilot
Incentive costs for non-residential DLC programs	MAP: $35/participant-yr , RAP: $25/participant-yr	RAP: Hoosier; MAP: GDS estimate
Annual admin costs residential DLC programs	$30,000 per program	2016 Vectren DLC Annual Report Final
Evaluation Cost	$25,000/year/program	GDS Estimate
Marketing Cost	MAP: $67/new participant/program RAP:$50/new participant/program	Tennesee Valley Authority Potential Study Volume 3: Demand Response Potential Study, Global Energy Partners, December 21, 2011
Program implementation cost	$100,000 for brand new DLC programs; $44,000 for rate programs	Tennesee Valley Authority Potential Study Volume 3: Demand Response Potential Study, Global Energy Partners, December 21, 2011
Amortize program costs?	Yes	Hoosier
Saturations		
Residential Central AC	69.2%	Vectren 2019
Residential Electric Water Heating	71.1%	Vectren 2019
Residential Pool Pumps	12.3%	Vectren 2019
Residential Number of thermostats	1.72	RECS EIA 2020 data
Residential TOU & CPP without Enabling Technology	100% (all customers eligible)	GDS Assumption
Residential CPP with Enabling Technology	69.2% (only customers with central AC)	Vectren 2019
Non-Residential Central AC	81.50%	2018 Survey Completed by GDS
Non-Residential Electric Water Heating	40.1%	Vectren 2019
Non-Residential TOU & CPP without Enabling Technology	100% (all customers eligible)	GDS Assumption
Non-Residential TOU & CPP with Enabling Technology	81.5% (only customers with central AC)	2018 Survey Completed by GDS
Adoption Rates		
Residential Central AC Thermostat	36% MAP, 26% RAP (split between BYOT & Utility Incentivized options)	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Residential Electric Water Heating	28.4% MAP, 14.1% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.

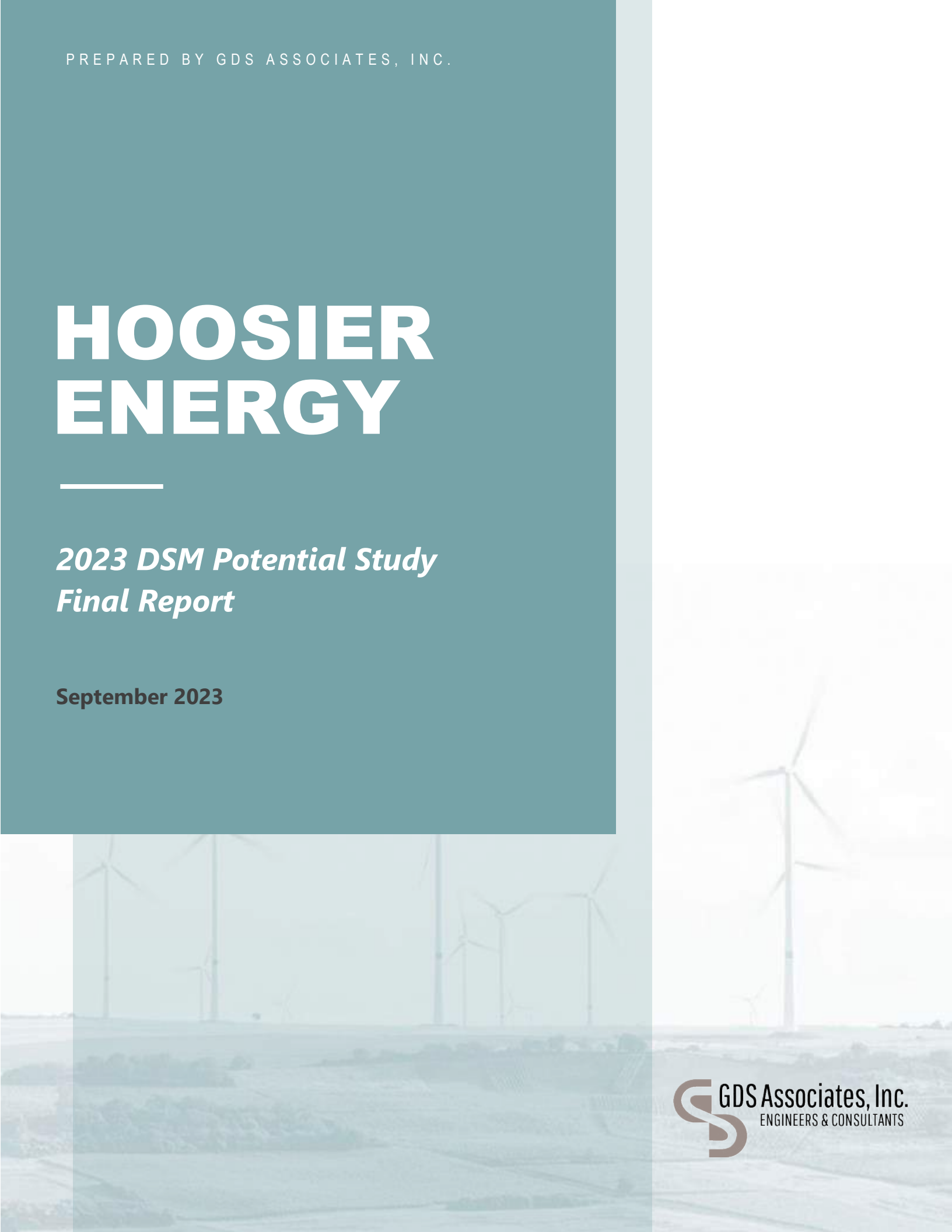
Data Needed	Value	Source
Residential Pool Pumps	38% MAP, 19% RAP	Pool Pump Demand Response Potential, Design & Engineering Services Customer Service Business Unit Southern California Edison, June 2008 (76% of survey respondents expressed and interest in an incentive-based pool pump demand response program). For RAP it is assumed that 25% of interested customers will participate.
Residential CPP without Enabling Technology	82% MAP, 17% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Residential CPP with Enabling Technology	91% MAP, 22% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Residential TOU Rate	85% MAP, 28% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Residential Peak Time Rebate	93% MAP, 21% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Non Residential Central AC Thermostat	20% MAP, 8% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Non Residential Water Heating	16% MAP, 7% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Non Residential CPP with Enabling Technology	69% MAP, 20% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Non Residential CPP without Enabling Technology	63% MAP, 18% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Non Residential TOU	74% MAP, 13% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.
Non Residential Peak Time Rebate	71% MAP, 22% RAP	Demand Response Market Research:Portland General Electric, 2016 to 2035, The Brattle Group, January 2016.

PREPARED BY GDS ASSOCIATES, INC.

HOOSIER ENERGY

2023 DSM Potential Study Final Report

September 2023



GDS Associates, Inc.
ENGINEERS & CONSULTANTS

Appendix D

Hoosier Energy 2022 Demand Side Management Report

Demand Side Management

Alternative Energy Solutions

2022 ANNUAL REPORT

HOOSIERENERGY

Overview

Member-consumers across southern Indiana and southeastern Illinois are experiencing a fast-evolving energy transition. From how they fuel their cars to their means of heating and cooling their homes, the electrification and energy efficiency focus of our society has never been more prominent. All along, Hoosier Energy and its 18 member cooperatives continue to focus on education, outreach and solutions that fit member-consumers' household, financial and behavioral needs.

In 2022, Hoosier Energy continued to be a trusted energy partner for co-ops, engaging our membership in new, exciting ways and innovative initiatives. Throughout the year, Hoosier Energy saw continued success in heat pump technology incentives, electric outdoor power equipment and the expansion of the Jackson County REMC ecobee Thermostat Pilot into program design.

The energy transition is not only impacting member-consumers, but the distribution member cooperatives and Hoosier Energy alike. As part of future preparation, Hoosier completed a full Market Potential Study with GDS Associates in 2022. This study explored program potential and adoption rates of nearly 492 measures and dove deeper into the potential of energy efficiency, demand response, transportation electrification, building electrification and distributed generation. A full program analysis will occur in 2023 with a program overhaul and launch in 2024.

Hoosier Energy and its member systems are preparing for a sustainable and beneficial program infrastructure that best fits our co-op and the needs of our members.

2022 DSM Program Summary

Program	Total Units	Annual MWh Savings	Winter Demand Savings	Summer Demand Savings
Commercial & Industrial	25	3,993	0.76	0.76
Residential HVAC	1,478	2,939	2.38	0.59
Energy Management Switch	112	0	0.00	0.10
Smart Thermostat	299	6	3.98	1.69
Total	**1,914**	**6,937**	**7.12**	**3.14**

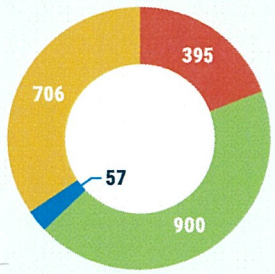
2022 Pilot Program Summaries

Program	Total Units	Hoosier Energy Cost	Participant's Cost
Electric Lawn Equipment	736	36,181	222,209
HVAC Tune-up	321	15,137	56,879
Total	**1,057**	**51,317**	**279,089**

Commercial and Industrial Programs

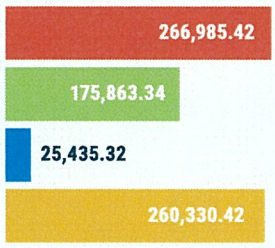
Cooperative	Total Applications Paid	Annual MWh Savings	Winter Demand MW	Summer Demand MW
Bartholomew County REMC	1	169	0.07	0.07
Clark County REMC	5	92	0.03	0.03
Daviess-Martin County REMC	1	2,328	0.48	0.48
Decatur County REMC	1	14	0.01	0.01
Dubois REC	2	367	0.09	0.09
Harrison REMC	1	10	0.00	0.00
Henry County REMC	0	0	0.00	0.00
Jackson County REMC	4	796	0.01	0.01
Johnson County REMC	3	86	0.01	0.01
Orange County REMC	0	0	0.00	0.00
RushShelby Energy REMC	4	68	0.03	0.03
South Central Indiana REMC	1	3	0.00	0.00
Southeastern Indiana REMC	1	15	0.00	0.00
Southern Indiana Power	1	47	0.01	0.01
Utilities District of Western Indiana REMC	0	0	0.00	0.00
Wayne-White Counties Electric Cooperative	0	0	0.00	0.00
Whitewater Valley REMC	0	0	0.00	0.00
WIN Energy REMC	0	0	0.00	0.00
Total	25	5,448	0.76	0.76

Types of fixtures being replaced



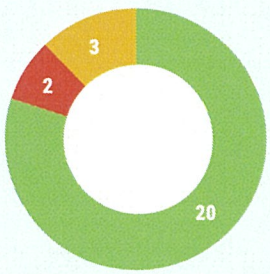
- HIDs
- Linear fluorescent
- Incandescent/CFLs
- T5HOs

Estimated annual kWh saved



- HIDs
- Linear fluorescent
- Incandescent/CFLs
- T5HOs

Types of C&I applications received

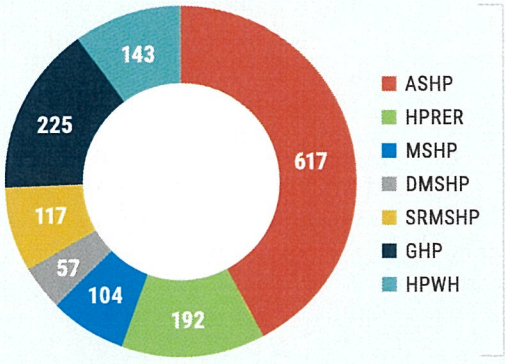


- Lighting
- Motors/VFDs
- Custom

Residential HVAC Program

Cooperative	Total Applications Paid	Annual MWh Savings	Winter Demand MW	Summer Demand MW
Bartholomew County REMC	63	133	0.13	0.03
Clark County REMC	156	189	0.10	0.06
Daviess-Martin County REMC	26	67	0.05	0.01
Decatur County REMC	45	130	0.13	0.02
Dubois REC	75	181	0.17	0.03
Harrison REMC	172	168	0.13	0.06
Henry County REMC	27	58	0.07	0.01
Jackson County REMC	191	402	0.28	0.07
Johnson County REMC	37	60	0.05	0.01
Orange County REMC	89	293	0.20	0.04
RushShelby Energy REMC	46	142	0.11	0.02
South Central Indiana REMC	142	271	0.27	0.06
Southeastern Indiana REMC	138	343	0.30	0.06
Southern Indiana Power	55	125	0.08	0.02
Utilities District of Western Indiana REMC	63	108	0.09	0.03
Wayne-White Counties Electric Cooperative	83	111	0.10	0.03
Whitewater Valley REMC	36	63	0.06	0.02
WIN Energy REMC	44	103	0.09	0.02
Total	**1,488**	**2,948**	**2.39**	**0.60**

Types of HVAC units being installed



HVAC units installed that rate above current SEER required ratings

HVAC units	SEER	Percentage
ASHP	Equal or > than 17	54%
HPRER	Equal or > than 17	31%
MSHP	Equal or > than 20	62%
DMSHP	Equal or > than 20	67%
SRMSHP	Equal or > than 20	55%

Energy Management Savings Switch Program

Cooperative	Total Devices Controlled	Annual MWh Savings	Winter Demand Savings	Summer Demand Savings
Southeastern Indiana REMC	112	–	0.00	0.00
Total	**112**	**0.00**	**102**	**0.10**

ecobee Smart Thermostat Program

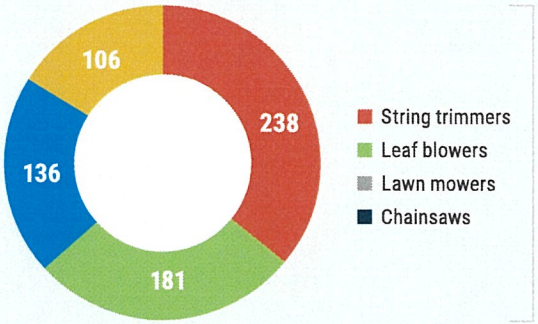
Cooperative	Total Units	Annual MWh Savings	Winter Demand Savings	Summer Demand Savings (MW)	Hoosier Energy Cost
Jackson County REMC	299	5.66	0.76	1.69	$ 14,650.00
Total	**299**	**5.66**	**0.76**	**1.69**	**$ 14,650.00**

Electric Outdoor Equipment

Cooperative	Total Measures Purchased	Hoosier Energy Costs	Participant Costs
Bartholomew County REMC	19	$ 950	$ 5,232
Clark County REMC	77	3,805	24,923
Daviess-Martin County REMC	14	700	7,121
Decatur County REMC	8	400	2,387
Dubois REC	24	1,161	5,276
Harrison REMC	71	3,465	18,637
Henry County REMC	11	633	2,362
Jackson County REMC	48	2,327	11,465
Johnson County REMC	31	1,540	9,188
Orange County REMC	20	971	4,703
RushShelby Energy REMC	38	1,858	8,382
South Central Indiana REMC	7	350	1,504
Southeastern Indiana REMC	54	2,691	15,594
Southern Indiana Power	16	783	4,639
Utilities District of Western Indiana REMC	10	465	2,002
Wayne-White Counties Electric Cooperative	0	0	0
Whitewater Valley REMC	35	1,710	8,314
WIN Energy REMC	3	150	908
Total	**486**	**$ 23,960**	**$ 132,636**

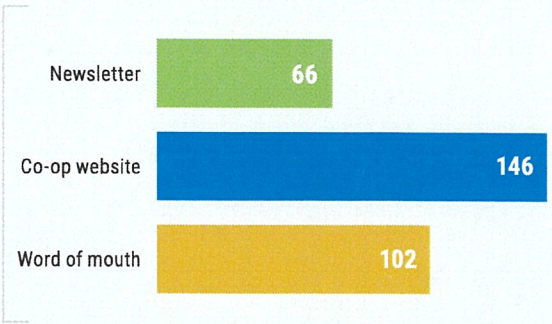
Most popular electric outdoor equipment being purchased

Quantity rebated



Most popular ways members found out about rebate

Number of members



Residential HVAC Tune-up Program

Cooperative	Total Measures Installed	Hoosier Energy Cost	Participant Costs
Bartholomew County REMC	50	$ 2,273	$ 8,373
Clark County REMC	43	1,961	7,642
Daviess-Martin County REMC	7	350	1,174
Decatur County REMC	2	100	218
Dubois REC	2	99	9,476
Harrison REMC	56	2,721	830
Henry County REMC	1	50	2,438
Jackson County REMC	14	691	1,453
Johnson County REMC	12	546	2,798
Orange County REMC	7	340	3,048
RushShelby Energy REMC	22	986	2,013
South Central Indiana REMC	9	450	1,655
Southeastern Indiana REMC	69	3,321	11,645
Southern Indiana Power	3	135	451
Utilities District of Western Indiana REMC	3	148	451
Wayne-White Counties Electric Cooperative	0	0	–
Whitewater Valley REMC	17	780	2,979
WIN Energy REMC	4	188	497
Total	**321**	**$ 15,137**	**$ 56,879**

Types of Equipment Being Serviced

Quantity serviced

Appendix A

Analysis of Measures Installed: 2009-2022

The average lifetime cost of energy conserved to date through DSM measures is $0.21 per kWh, well below the cost to provide power from traditional resources.*

DSM programs are evaluated using a Total Resource Cost (TRC) test that compares avoided energy and capacity savings to the costs of the efficiency measure or program, including cost borne by consumers.

Benefits detailed in the TRC test include avoided supply costs, such as reductions in capital and O&M costs for generation, transmission, and distribution facilities and operations.

A TRC ratio higher than 1.0 indicates program benefits exceed program costs. For all programs to date, lifetime economic benefits outweighed costs by a ratio of 1.44 to 1.**

This ratio suggests that $1.44 in long-term benefits were obtained for each $1 invested in efficiency programs.

* Formula for cost per kWh is (Hoosier Energy Cost + Participant Cost) / (Estimated Lifetime MWh Savings * 1000)
Example: ($40,601,319 + $49,936,909) / (4,238,895 x 1000) = $0.0214

** Formula for TRC is Lifetime Economic Benefit / Hoosier Energy Cost + Participant Cost
Example: $190,763,021 / ($40,601,319 + $49,936,909) = $2.11 or TRC ratio 2.11 to 1

Estimated Benefits and Costs for all Measures Installed: 2009–2022[1]

Program	Total Measures Installed to Date	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Winter Peak MW Savings	Cumulative Summer Peak MW Savings
Commercial & Industrial	1,298	149,320	2,129,219	26.11	25.31
Residential HVAC	41,233	67,745	1,028,864	53.27	15.34
Residential Lighting[6]	1,943,098	58,592	609,555	15.98	7.74
Energy Management Switch	17,157	0	0	7.65	12.37
Other Savings[2]	83,530	19,392	185,305	4.37	2.34
Appliance Recycling[4]	12,137	12,166	93,492	4.11	4.85
LED Security Lighting[5]	32,748	20,520	370,477	1.76	0.53
Weatherization[3]	4,061	19,285	479,329	3.28	4.81
Touchstone Energy Home	576	2,824	65,472	0.57	0.55
Total	**2,135,838**	**349,843**	**4,961,713.14**	**117.10**	**73.85**

Program	Hoosier Energy Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Commercial & Industrial	$6,229,174.26	$38,688,393.00	$112,124,020.00	0.02	2.50
Residential HVAC	$16,204,777.86	$74,056,015.00	$39,384,880.00	0.09	0.44
Residential Lighting	$6,903,436.13	$7,335,522.50	$30,058,180.00	0.02	2.11
Energy Management Switch	$2,975,740.00	$0.00	$5,982,453.00	0.00	2.01
Other Savings (Energy Efficiency Kits)	$3,281,859.91	$315,183.00	$4,523,029.00	0.02	1.26
Appliance Recycling	$1,327,926.00	$0.00	$2,733,322.00	0.01	2.06
LED Security Lighting	$2,463,203.00	$3,759,349.00	$16,069,661.00	0.02	2.58
Weatherization	$9,078,275.00	$0.00	$15,084,780.00	0.02	1.66
Touchstone Energy Home	$599,356.00	$940,782.00	$1,972,585.00	0.02	1.28
Total	**$49,063,748.16**	**$125,095,244.50**	**$227,932,910.00**	**0.21**	**1.44**

[1] Appendix B measures are shown at generation levels. A 9% transmission and distribution loss is factored into estimates.
[2] Other Savings include Deferred Weatherization Program benefits and Energy Efficiency Kits.
[3] Weatherization program includes 1,393 homes on member systems weatherized through the American Recovery and Reinvestment Act Program 2009-2011.
[4] Appliance Recycling program retired April 2020
[5] LED Security Lighting program retired in 2020
[6] Residential Lighting program rebates ended in 2020, sale of LED's ended in 2021.

Appendix A CONTINUED

Commercial and Industrial Programs: 2009–2022

Cooperative	Total Applications Paid	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Winter Peak MW Savings	Cumulative Summer Peak MW Savings
Bartholomew County REMC	89	20,200	351,286	3.65	3.57
Clark County REMC	86	5,728	83,893	1.28	1.20
Daviess-Martin County REMC	48	7,308	95,954	1.49	1.49
Decatur County REMC	53	5,167	71,759	0.86	0.84
Dubois REC	116	8,377	94,260	1.40	1.31
Harrison REMC	80	6,554	95,519	1.16	1.12
Henry County REMC	35	1,776	24,446	0.48	0.43
Jackson County REMC	143	5,644	81,976	2.13	2.19
Johnson County REMC	99	10,149	142,011	2.05	1.94
Orange County REMC	21	1,327	18,961	0.32	0.33
RushShelby Energy REMC	51	10,221	144,100	1.26	1.22
South Central Indiana REMC	98	5,585	80,120	0.85	0.80
Southeastern Indiana REMC	53	5,924	57,192	0.91	0.87
Southern Indiana Power	80	13,236	190,754	3.51	3.47
Utilities District of Western Indiana REMC	78	23,442	346,342	3.27	3.05
Wayne-White Counties Electric Cooperative	30	2,631	25,829	0.60	0.58
Whitewater Valley REMC	38	2,430	36,801	0.35	0.36
WIN Energy REMC	101	13,623	188,016	1.98	1.97
Total	**1,299**	**149,320**	**2,129,219**	**27.54**	**25.99**

Residential HVAC Program: 2009-2022

Cooperative	Total Measures Installed	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Winter Peak MW Savings	Cumulative Summer Peak MW Savings
Bartholomew County REMC	1,890	2,869	48,508	1.84	0.69
Clark County REMC	5,037	6,429	93,044	3.83	2.56
Daviess-Martin County REMC	1,096	1,823	30,315	1.89	0.40
Decatur County REMC	780	2,162	38,934	2.63	0.35
Dubois REC	2,312	3,403	53,973	4.21	0.87
Harrison REMC	4,700	7,169	98,268	4.10	2.58
Henry County REMC	728	1,474	24,175	1.67	0.31
Jackson County REMC	3,402	7,154	120,728	4.18	1.41
Johnson County REMC	1,841	2,946	42,593	1.94	0.68
Orange County REMC	1,230	2,285	38,895	1.16	0.40
RushShelby Energy REMC	1,119	2,069	36,966	2.30	0.40
South Central Indiana REMC	5,137	8,177	145,074	6.02	1.33
Southeastern Indiana REMC	3,568	6,007	106,050	6.31	1.05
Southern Indiana Power	1,526	3,269	42,957	2.53	0.79
Utilities District of Western Indiana REMC	2,309	4,086	68,556	3.50	0.82
Wayne-White Counties Electric Cooperative	1,383	1,565	25,874	2.64	0.48
Whitewater Valley REMC	998	1,563	26,850	2.41	0.32
WIN Energy REMC	2,180	3,306	57,086	2.80	0.57
Total	**41,236**	**67,755**	**1,098,846**	**55.96**	**16.01**

Appendix A CONTINUED

Energy Management Savings Switch Program: 2009-2022

Cooperative	Total Devices Controlled	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Winter Peak MW Savings	Cumulative Summer Peak MW Savings
Bartholomew County REMC	195	0.00	0.00	0.10	0.15
Clark County REMC	0	0.00	0.00	0.00	0.00
Daviess-Martin County REMC	1,191	0.00	0.00	0.44	0.99
Decatur County REMC	200	0.00	0.00	0.18	0.09
Dubois REC	882	0.00	0.00	0.17	0.38
Harrison REMC	1,885	0.00	0.00	0.80	1.50
Henry County REMC	958	0.00	0.00	0.38	0.78
Jackson County REMC	1,205	0.00	0.00	0.39	0.89
Johnson County REMC	0	0.00	0.00	0.00	0.00
Orange County REMC	1,870	0.00	0.00	0.98	1.14
RushShelby Energy REMC	1,182	0.00	0.00	0.47	0.95
South Central Indiana REMC	2,018	0.00	0.00	1.43	1.17
Southeastern Indiana REMC	2,632	0.00	0.00	1.05	1.92
Southern Indiana Power	1,913	0.00	0.00	0.74	1.47
Utilities District of Western Indiana REMC	1,321	0.00	0.00	0.66	0.94
Wayne-White Counties Electric Cooperative	0	0.00	0.00	0.00	0.00
Whitewater Valley REMC	8	0.00	0.00	0.01	0.00
WIN Energy REMC	1	0.00	0.00	0.00	0.00
Total	**17,461**	**0.00**	**0.00**	**7.80**	**12.37**

Appendix B

Basic Program Assumptions

Measure Name	Annual kWh Savings	Winter kW Demand Savings	Summer kW Demand Savings	Installation Rate	Effective Useful Life (Years)
Residential HVAC Program					
Heat Pump Water Heaters	1,702.5	0.672	0.672	100%	13
Heat Pump (14 SEER) [Manufactured Home = MH]	436.0	0.170	0.160	100%	18
Heat Pump (15 SEER) [MH]	533.0	0.070	-0.020	100%	18
Heat Pump (16 SEER)	1,103.0	0.350	0.100	100%	18
Heat Pump (17 SEER)	1,281.0	0.820	0.170	100%	18
Heat Pump (18 SEER)	1,286.0	0.830	0.310	100%	18
Heat Pump (14 SEER) Dual Fuel [MH]	-2,769.0	0.000	0.160	100%	18
Heat Pump (15 SEER) Dual Fuel [MH]	-4,150.0	0.000	0.260	100%	18
Heat Pump (16 SEER) Dual Fuel	-6,263.0	0.000	0.300	100%	18
Heat Pump (17 SEER) Dual Fuel	-7,163.0	0.000	0.360	100%	18
Heat Pump (18 SEER) Dual Fuel	-6,768.0	0.000	0.380	100%	18
Heat Pump (14 SEER) Electric Resistance Replacement [MH]	4,765.0	3.700	0.160	100%	18
Heat Pump (15 SEER) Electric Resistance Replacement [MH]	23,692.0	4.120	0.200	100%	18
Heat Pump (16 SEER) Electric Resistance Replacement	23,964.0	4.400	0.320	100%	18
Heat Pump (17 SEER) Electric Resistance Replacement	23,551.0	4.870	0.390	100%	18
Heat Pump (18 SEER) Electric Resistance Replacement	23,839.0	4.880	0.530	100%	18
Geothermal Heat Pumps	4,480.0	3.240	0.680	100%	18
Mini Split Heat Pump (16 SEER)	825.3	3.110	0.830	100%	18
Mini Split Heat Pump (17 SEER)	1,408.0	3.240	0.880	100%	18
Mini Split Heat Pump (18 SEER)	2,015.6	3.390	0.920	100%	18
Mini Split Heat Pump (19 SEER)	2,397.7	3.470	0.950	100%	18
Mini Split Heat Pump (20 SEER)	2,749.2	3.550	0.970	100%	18
C&I Energy Efficiency Program All commercial & industrial savings are calculated for each individual rebate claim based on the estimated existing and replacement wattages and time used.					
Agricultural Lighting	179.9	0.000	0.019	100%	2
Occupancy Sensors	393.1	0.122	0.087	100%	8
NEMA Premium Eff. Motor >10 HP	35.0	0.010	0.010	100%	15
NEMA Premium Eff. Motor < 10 HP	75.0	0.020	0.020	100%	15
VSD on Motors	679.7	0.000	0.105	100%	15

continued on next page

Appendix B CONTINUED

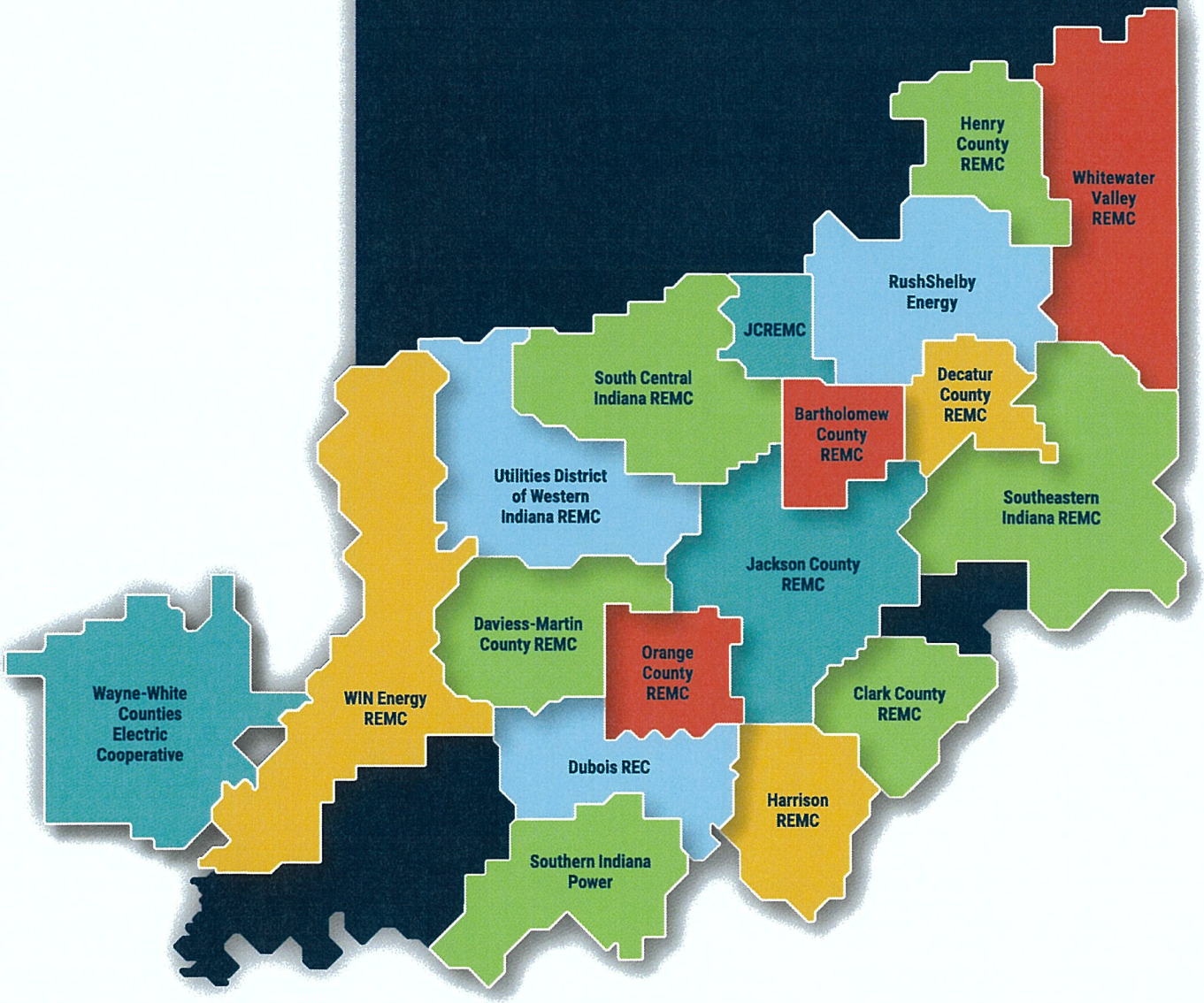
Measure Name	Annual kWh Savings	Winter kW Demand Savings	Summer kW Demand Savings	Installation Rate	Effective Useful Life (Years)
Demand Response					
<80 gallon water heater control	0.0	0.800	0.450	100%	13
>80 gallon water heater control	0.0	0.800	0.450	100%	13
AC control	0.0	0.000	0.990	100%	13
ASHP control	0.0	0.000	0.880	100%	13
Geothermal HP control	0.0	0.000	0.930	100%	13
Retired Measures Measures that were incentivized in previous program years continue to contribute to overall program savings for the duration of the measure life., on a per unit basis. The measures below are for historical reference when reviewing cumulative savings totals.					
Refrigerator Recycling	1,002.0	0.140	0.140	100%	8
Freezer Recycling	932.5	0.134	0.134	100%	8
Programmable Thermostat	61.0	0.000	0.000	100%	9
Heat Pump (11.3 EER, COP 3.4)	54.1	0.020	0.015	100%	15
Air Conditioner (12 EER)	67.3	0.094	0.073	100%	15
Touchstone Energy Homes	5,397.0	4.520	0.740	100%	25
Weatherized Homes (HE & ARRA)[1]	4,274.0	0.720	1.060	100%	13
Deferred Homes	795.0	0.720	0.720	100%	13
LED Holiday Lights 2009-13	17.1	0.048	0.048	90%	20
80 Gal Water Heater	115.0	0.050	0.050	100%	13
50 Gal Water Heater	162.0	0.060	0.060	100%	13
Compact Fluorescent Lighting (CFL)	28.6	0.031	0.031	70%	5
Attic Insulation	1,049.0	0.152	0.727	100%	20
Duct Sealing	718.0	0.491	0.357	100%	20
Central AC (14 SEER)	142.0	0.220	0.000	100%	18
Central AC (15 SEER)	147.0	0.200	0.000	100%	18
Central AC (16 SEER)	221.0	0.320	0.000	100%	18
Central AC (17 SEER)	257.0	0.390	0.000	100%	18
Central AC (18 SEER)	325.0	0.530	0.000	100%	18
Energy Efficiency Kit A	118.5	0.028	0.012	50%	14
Energy Efficiency Kit B	164.0	0.019	0.018	50%	8

Basic program assumptions were updated in 2016.
[1]Hoosier Energy and American Recovery and Reinvestment Act

Hoosier Energy Power Network

Hoosier Energy is a generation and transmission cooperative (G&T) with headquarters in Bloomington, Indiana. The G&T provides electric power and services to 18 electric distribution cooperatives in central and southern Indiana and southeastern Illinois. Collectively serving more than 760,000 people.

For more information, visit **www.hoosierenergy.com**.



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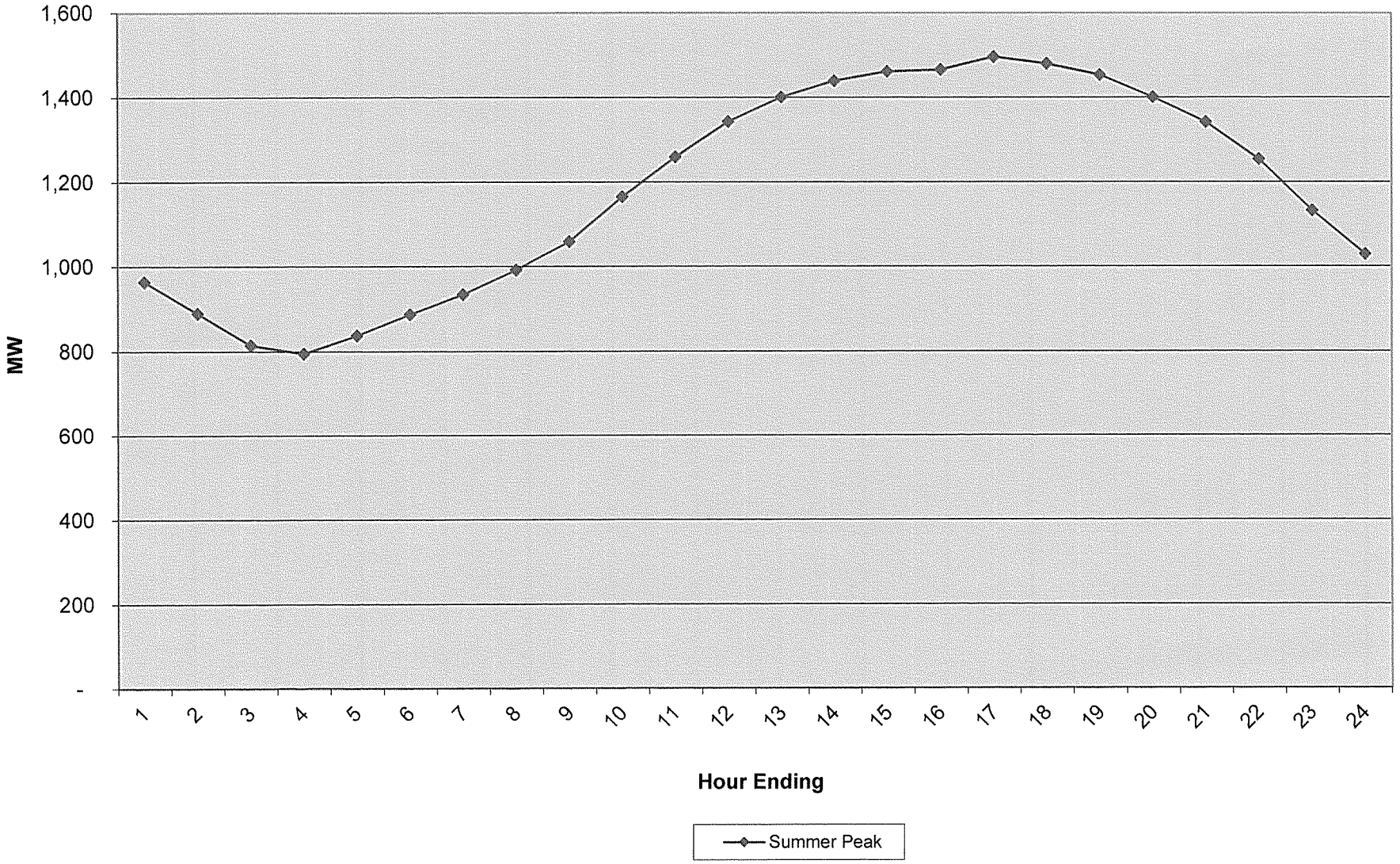
Why Electrify

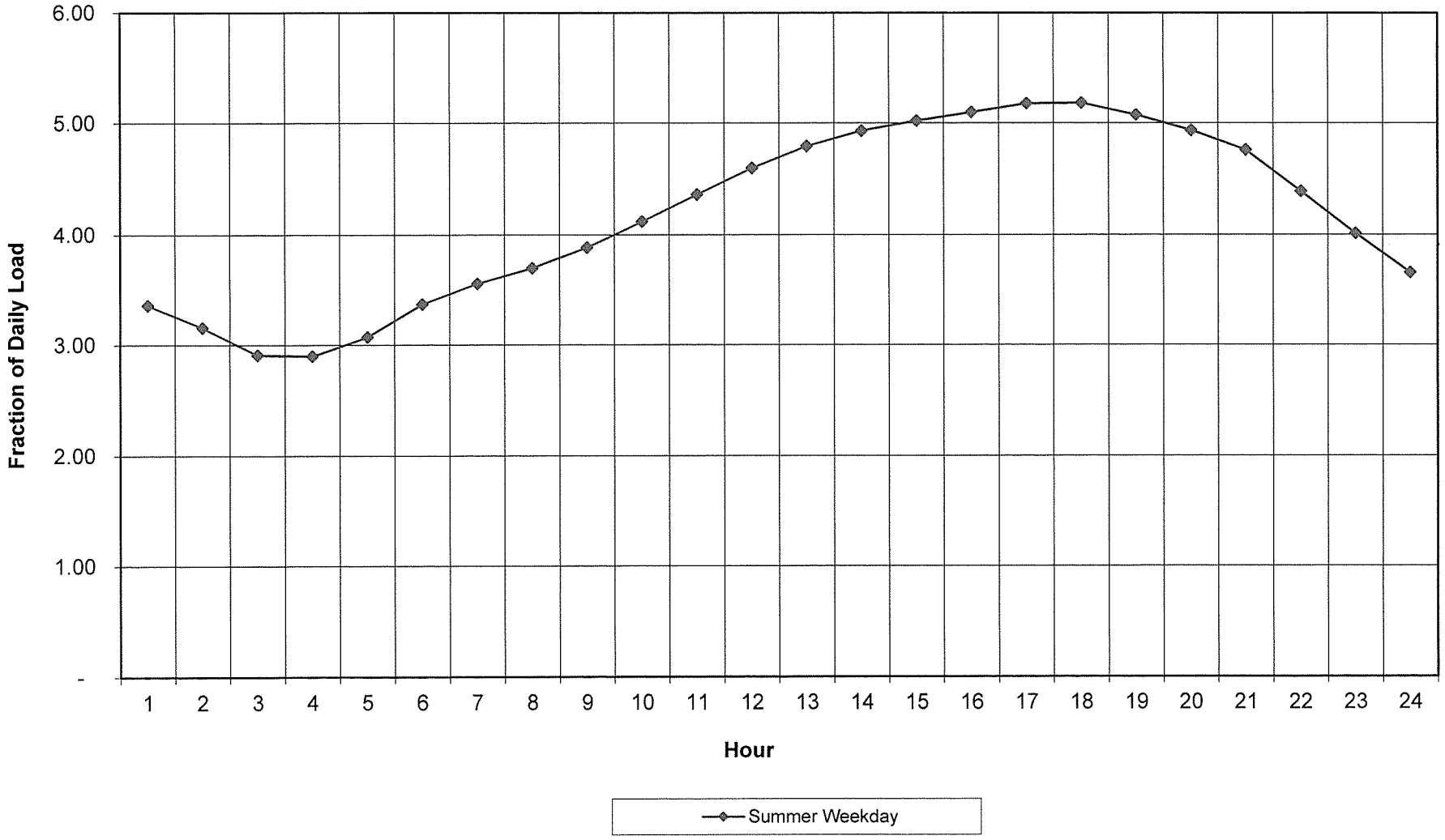
Appendix E

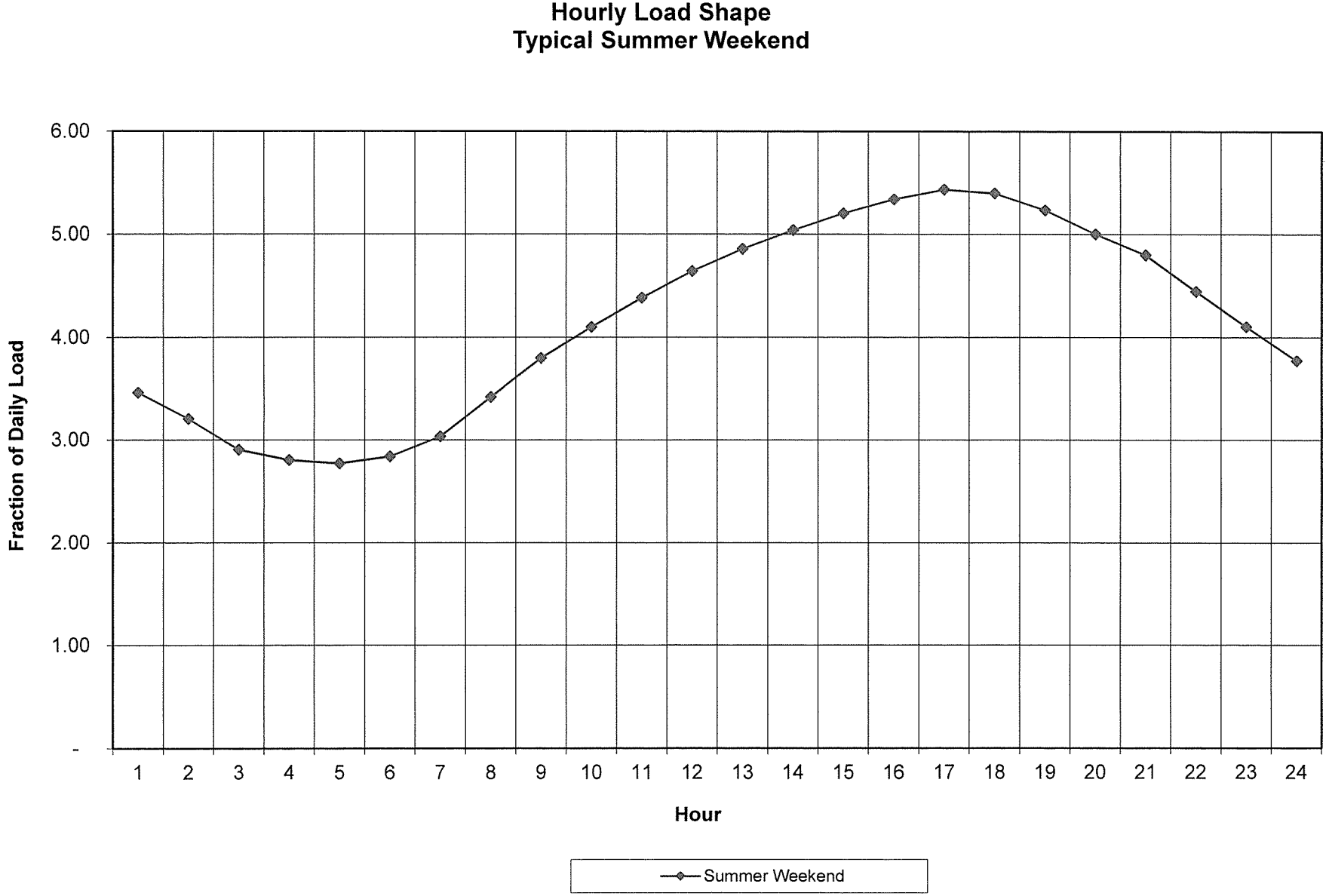
Hoosier Energy – Historic System Load Shapes

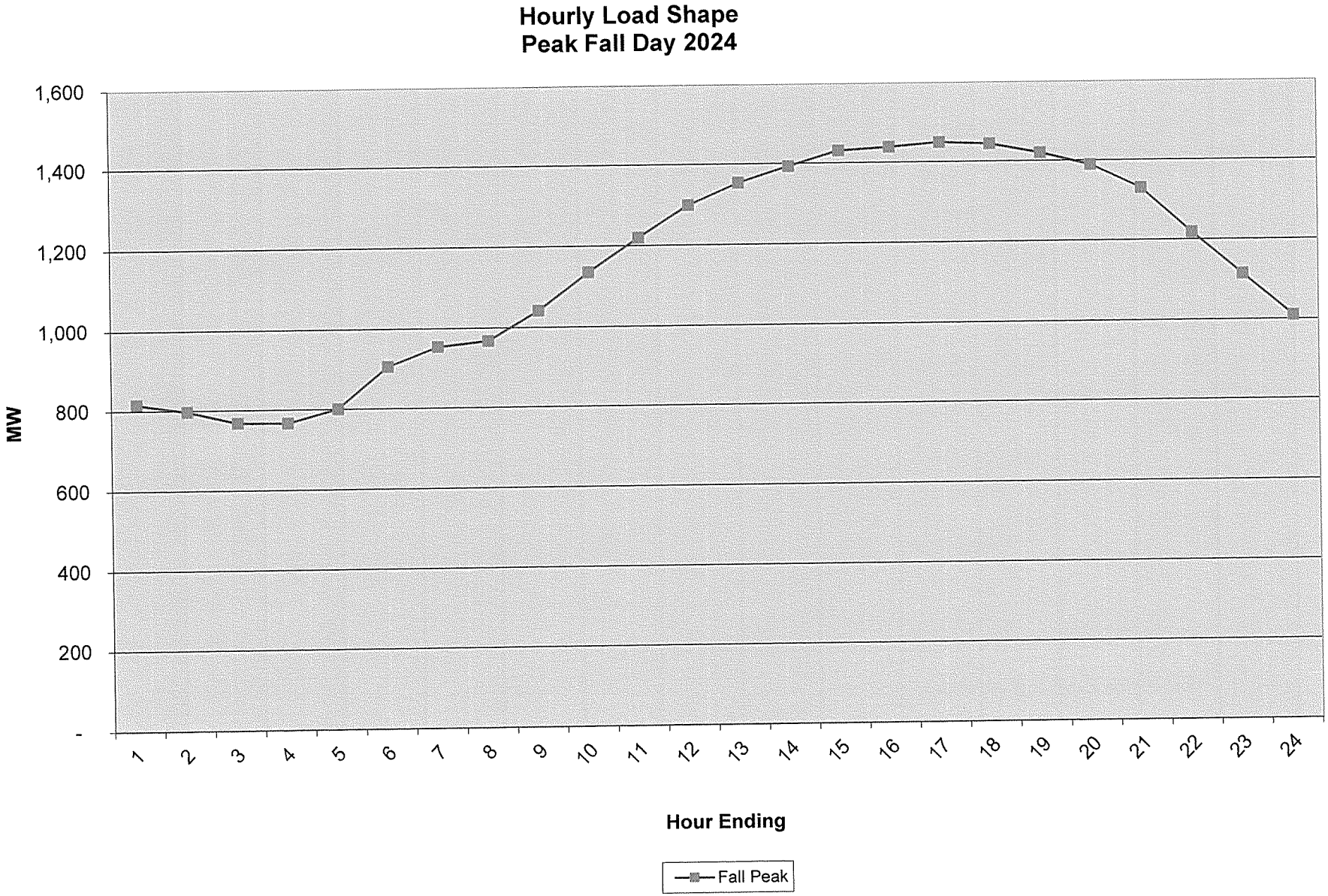
Hourly Load Shape
Peak Summer Day 2024



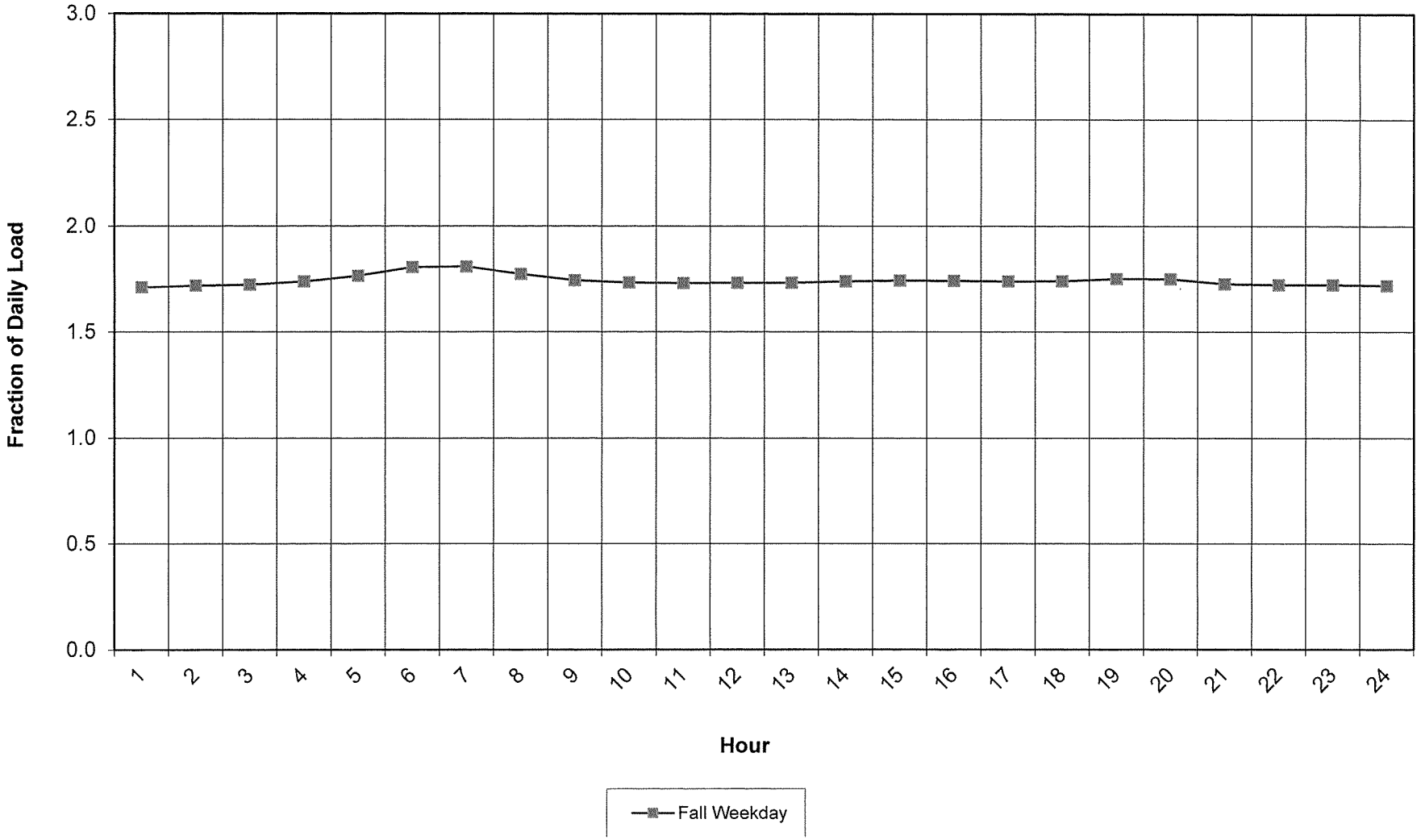
Hourly Load Shape
Typical Summer Weekday



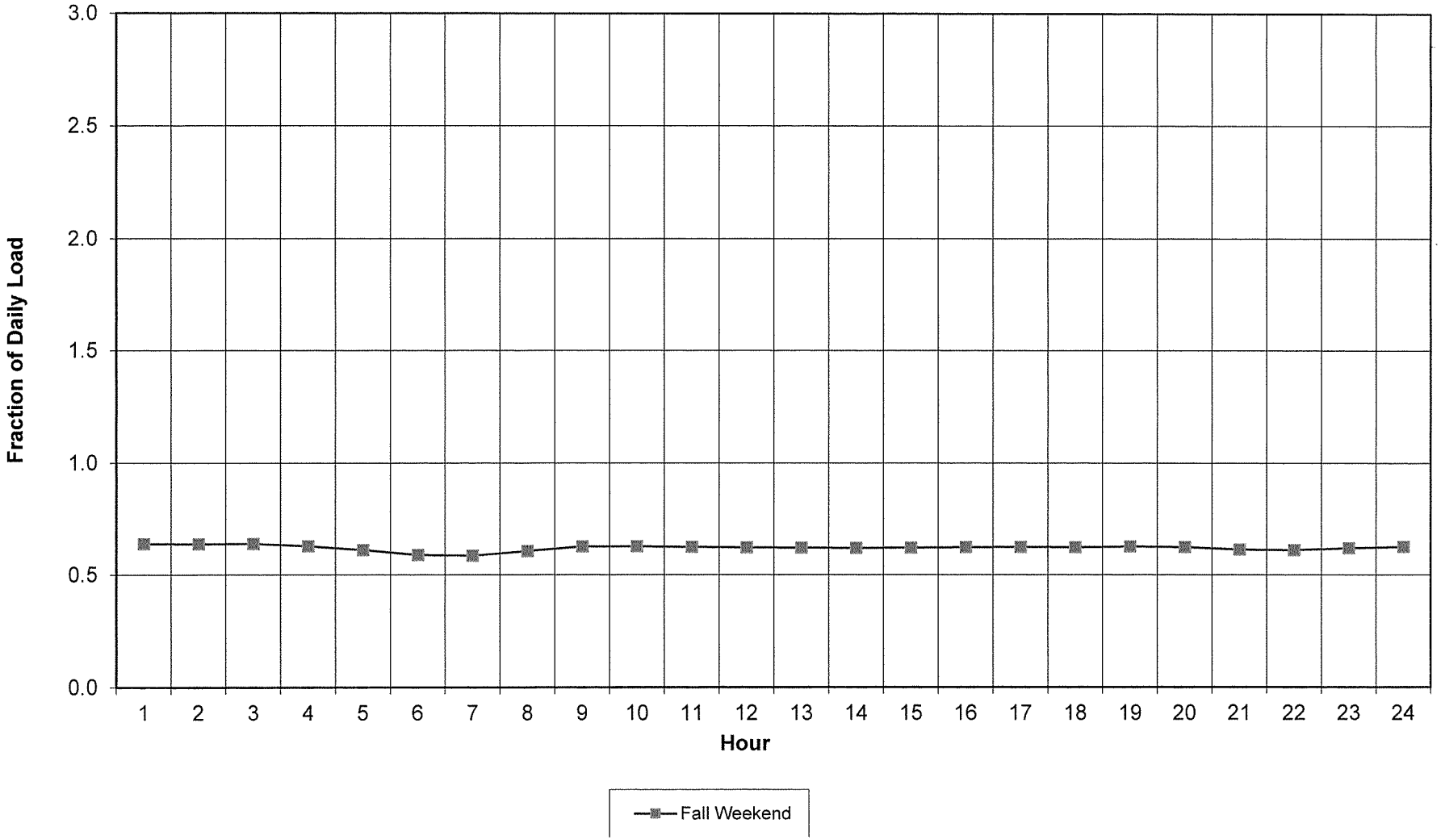

Hourly Load Shape
Typical Summer Weekend
Fraction of Daily Load
6.00
5.00
4.00
3.00
2.00
1.00
-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Hour
Summer Weekend


Hourly Load Shape
Peak Fall Day 2024
MW
1,600
1,400
1,200
1,000
800
600
400
200
-
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
Hour Ending
Fall Peak

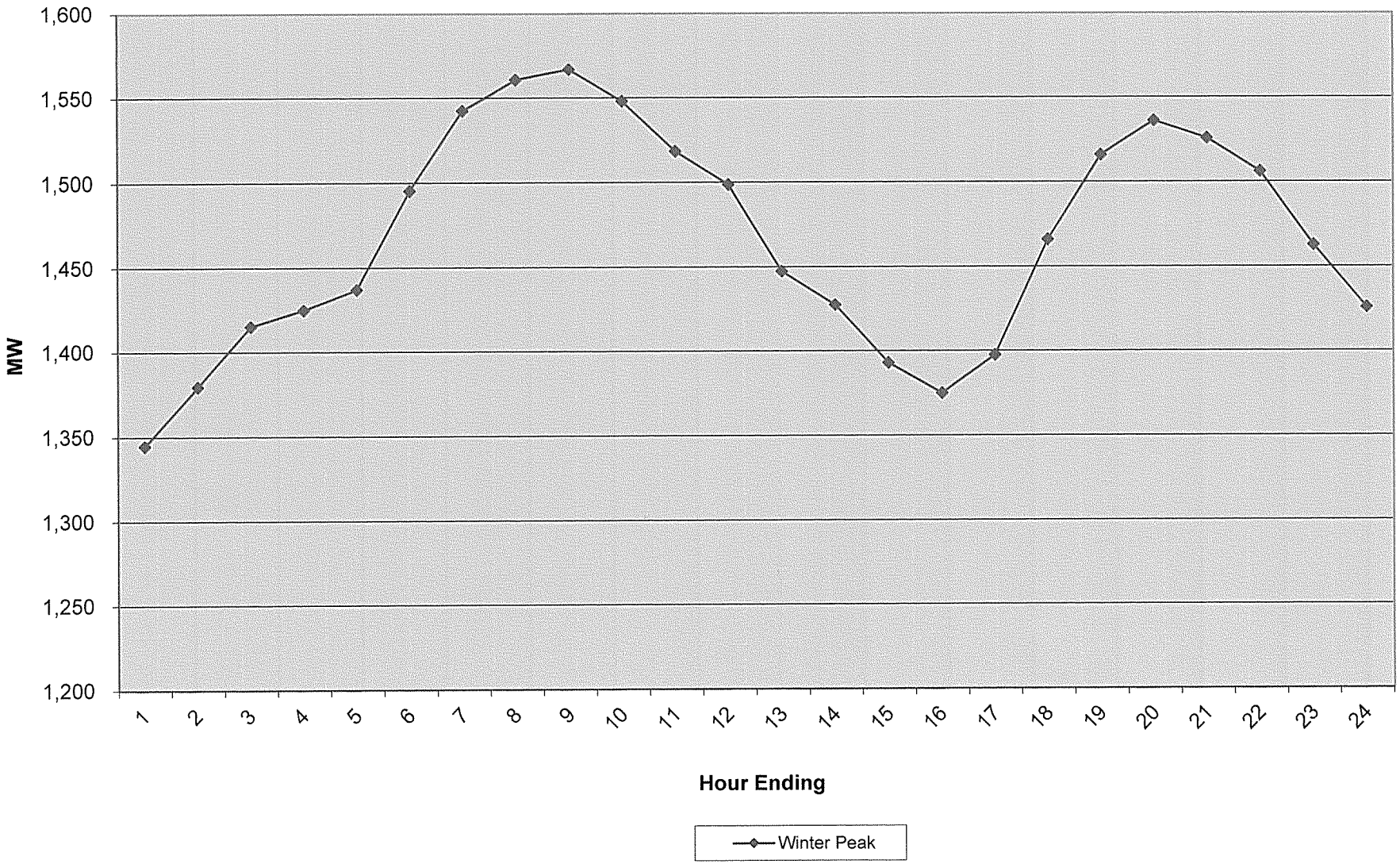
Hourly Load Shape
Typical Fall Weekday



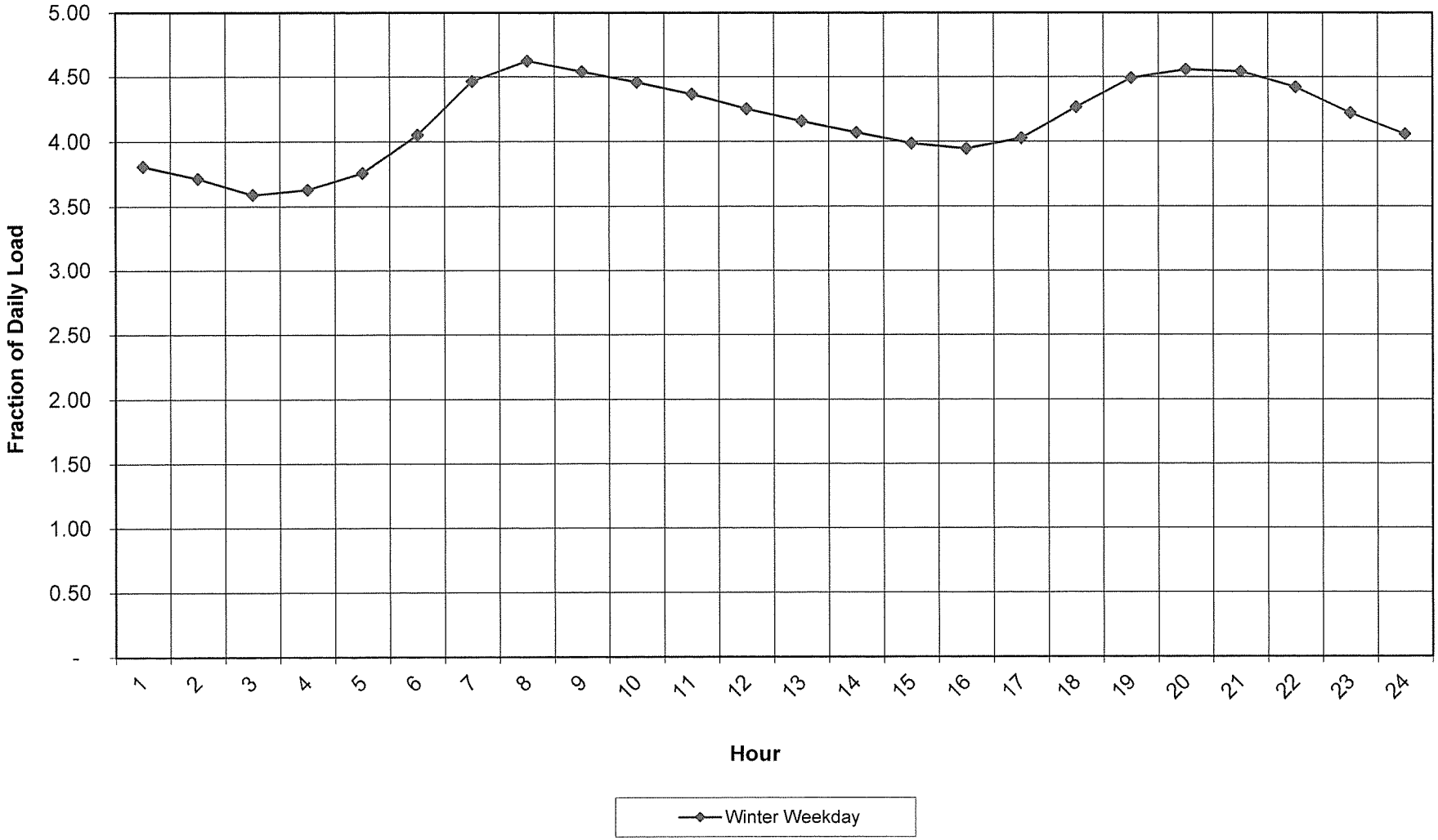
Hourly Load Shape
Typical Fall Weekend



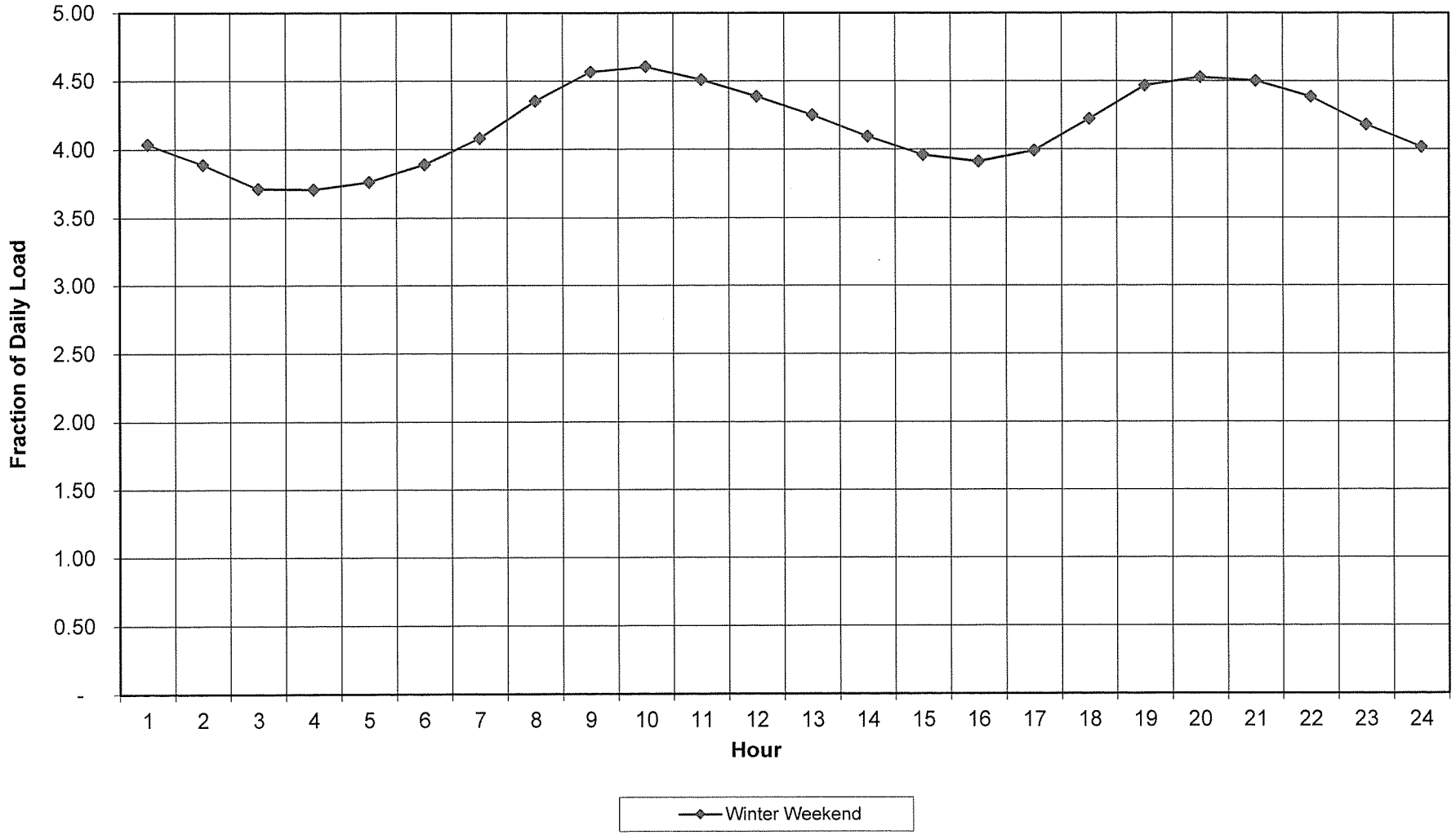
Hourly Load Shape
Peak Winter Day 2024



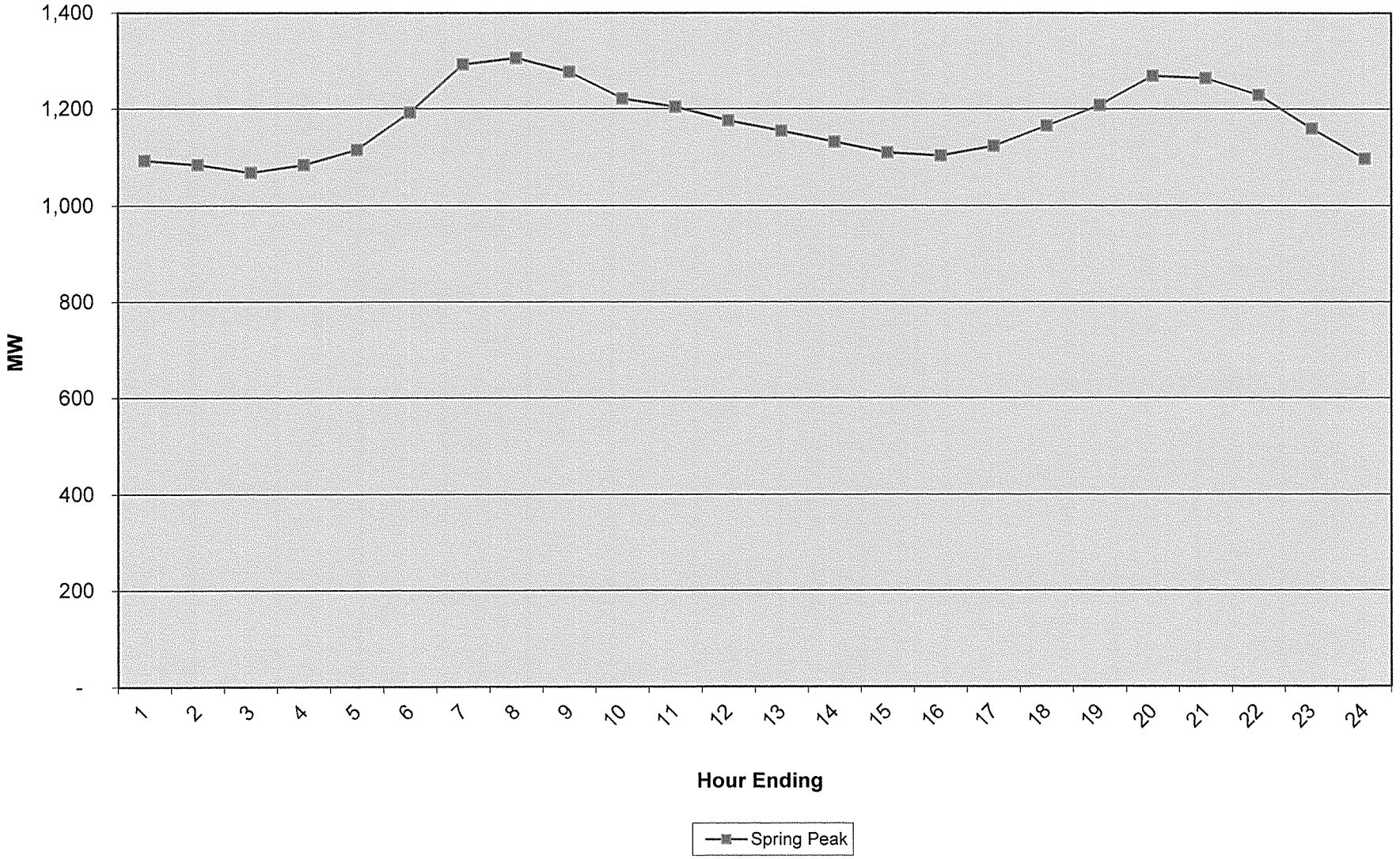
Hourly Load Shape
Typical Winter Weekday



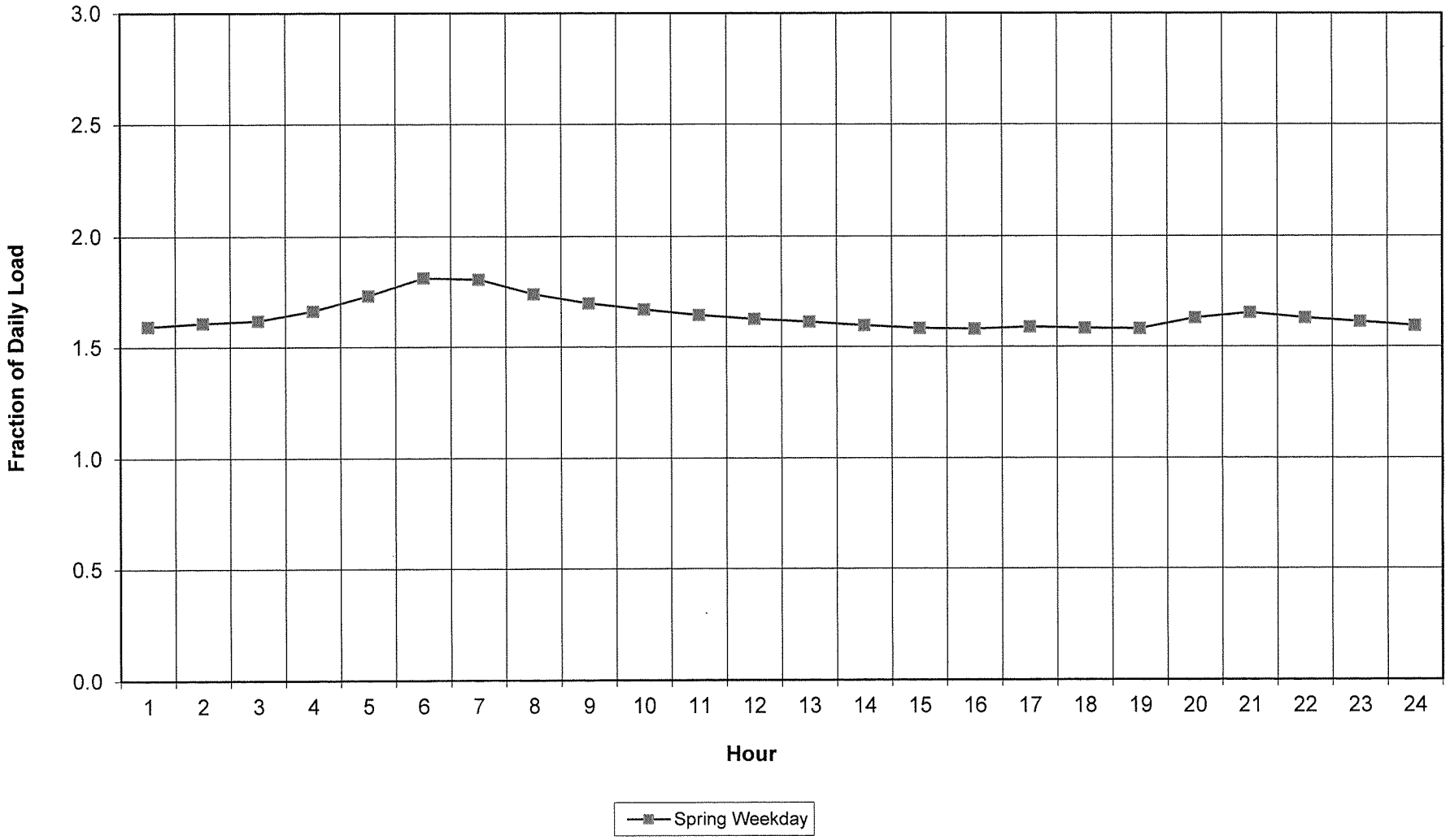
Hourly Load Shape
Typical Winter Weekend



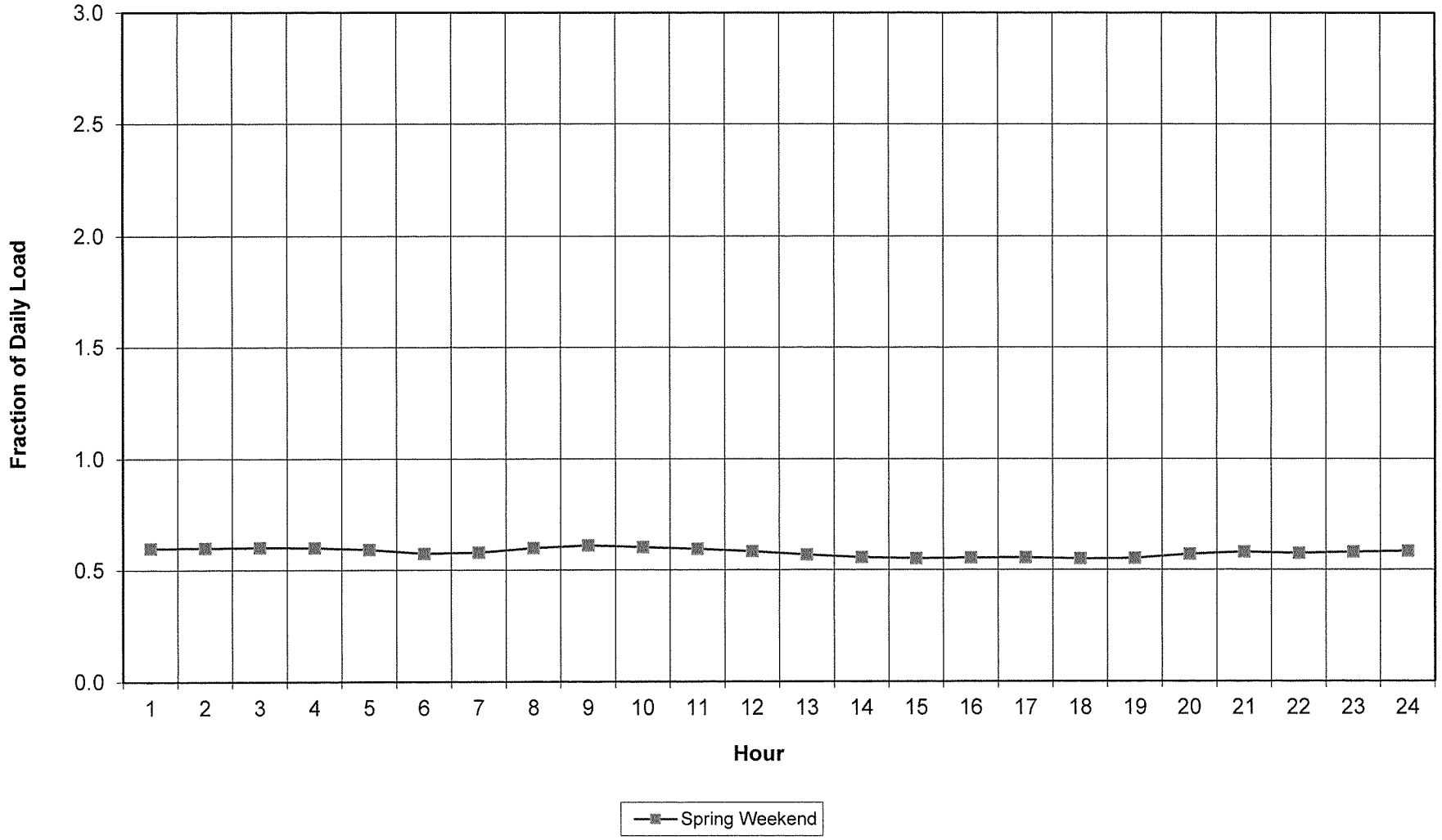
Hourly Load Shape
Peak Spring Day 2024



Hourly Load Shape
Typical Spring Weekday



Hourly Load Shape
Typical Spring Weekend



Hoosier Energy Rural Electric Cooperative, Inc.
Comparison of Forecasted Summer Peak Demand to Actual (MW)
Calendar Years 2013 - 2022

		Forecasted									
Year	Actual	2011 PRS Forecast	2011 PRS Percentage Variance	2013 PRS Forecast	2013 PRS Percentage Variance	2015 PRS Forecast	2015 PRS Percentage Variance	2017 PRS Forecast	2017 PRS Percentage Variance	2020 PRS Forecast	2020 PRS Percentage Variance
2013	1,392	1,401	0.6%	1,424	2.3%						
2014	1,388	1,400	0.9%	1,463	5.4%						
2015	1,420	1,426	0.4%	1,488	4.8%	1,494	5.2%				
2016	1,412	1,428	1.1%	1,519	7.6%	1,523	7.9%				
2017	1,416	1,434	1.3%	1,537	8.5%	1,547	9.3%	1,476	-4.1%		
2018	1,409	1,439	2.1%	1,546	9.7%	1,558	10.6%	1,485	5.4%		
2019	1,391	1,444	3.8%	1,557	11.9%	1,571	12.9%	1,502	8.0%		
2020	1,376	1,454	5.7%	1,571	14.2%	1,584	15.1%	1,519	10.4%	1,408	2.3%
2021	1,354	1,463	8.1%	1,584	17.0%	1,602	18.3%	1,536	13.4%	1,421	4.9%
2022	1,345	1,474	9.6%	1,597	18.7%	1,617	20.2%	1,560	16.0%	1,444	7.4%

Hoosier Energy Rural Electric Cooperative, Inc.
Comparison of Forecasted Winter Peak Demand to Actual (MW)
Calendar Years 2013 - 2022

		Forecasted									
Year	Actual	2011 PRS Forecast	2011 PRS Percentage Variance	2013 PRS Forecast	2013 PRS Percentage Variance	2015 PRS Forecast	2015 PRS Percentage Variance	2017 PRS Forecast	2017 PRS Percentage Variance	2020 PRS Forecast	2020 PRS Percentage Variance
2013	1,404	1,431	-1.9%	1,435	-2.1%						
2014	1,719	1,434	19.9%	1,461	17.7%						
2015	1,677	1,453	15.4%	1,491	12.5%	1,497	12.0%				
2016	1,498	1,463	2.4%	1,510	-0.8%	1,527	-1.9%				
2017	1,444	1,470	-1.8%	1,540	-6.2%	1,550	-6.8%	1,523	5.5%		
2018	1,437	1,475	2.6%	1,547	7.7%	1,560	8.6%	1,534	6.8%		
2019	1,263	1,481	17.3%	1,557	23.3%	1,571	24.4%	1,549	22.6%		
2020	1,163	1,491	28.2%	1,568	34.8%	1,581	35.9%	1,563	34.4%	1,548	33.1%
2021	1,148	1,498	30.5%	1,579	37.5%	1,596	39.0%	1,576	37.3%	1,542	34.3%
2022	1,025	1,507	47.0%	1,589	55.0%	1,609	57.0%	1,582	54.3%	1,561	52.3%

Hoosier Energy Rural Electric Cooperative, Inc.
Comparison of Forecasted Annual Energy Requirements to Actual (MWh)
Calendar Years 2013 - 2022

		Forecasted									
Year	Actual	2011 PRS Forecast	2011 PRS Percentage Variance	2013 PRS Forecast	2013 PRS Percentage Variance	2015 PRS Forecast	2015 PRS Percentage Variance	2017 PRS Forecast	2017 PRS Percentage Variance	2020 PRS Forecast	2020 PRS Percentage Variance
2013	7,335,037	7,610,347	-3.6%	7,279,170	0.8%						
2014	7,639,069	7,774,357	-1.7%	7,446,491	2.6%						
2015	7,481,099	7,981,407	-6.3%	7,627,087	-1.9%	7,717,083	-3.1%				
2016	7,564,387	8,142,156	-7.1%	7,779,249	-2.8%	7,877,956	-4.0%				
2017	7,476,942	8,241,236	-9.3%	7,938,784	-5.8%	8,011,749	-6.7%	7,380,097	1.3%		
2018	8,063,654	8,330,342	3.3%	8,004,583	-0.7%	8,075,944	0.2%	7,450,282	-7.6%		
2019	7,859,968	8,418,830	7.1%	8,086,585	2.9%	8,142,555	3.6%	7,529,043	-4.2%		
2020	5,106,444	8,508,189	66.6%	8,160,125	59.8%	8,217,253	60.9%	7,596,043	48.8%	7,574,958	48.3%
2021	8,140,975	8,584,156	5.4%	8,233,293	1.1%	8,304,766	2.0%	7,661,292	-5.9%	7,813,967	-4.0%
2022	7,199,347	8,675,668	20.5%	8,310,212	15.4%	8,372,562	16.3%	7,712,332	7.1%	7,997,269	11.1%

Consumer and Load Comparison
PRS 2022 vs PRS 2010

	Number of Consumers						MWH Sales						Average (kWh per customer per year)		
	Residential	Commercial	Other	Subtotal	Industrial	Total	Residential	Commercial	Other	Subtotal	Industrial	Total	Residential	Commercial	Industrial
2010	277,913	13,683	2,200	15,883	197	293,993	4,313,612	889,903	40,029	929,933	1,611,671	6,855,216			
	94.53%	4.65%	0.75%	5.40%	0.07%	100.00%	62.92%	12.98%	0.58%	13.6%	23.51%	100.00%			
2019	286,480	14,868	5,083	19,931	232	306,643	4,151,682	951,542	53,754	1,005,296	2,068,766	7,225,644	14,492	50,439	8,917,094
	93.42%	4.85%	1.65%	6.50%	0.08%	100.00%	57.46%	13.17%	0.74%	13.9%	28.63%	100.00%			
Difference	8,567	1,185	2,863	4,048	35	12,650	-162,030	61,638	13,725	75,363	457,095	370,428			
Increase	3.1%	8.7%	130.1%	25.5%	17.8%	4.3%	-3.8%	6.9%	34.3%	8.1%	28.4%	5.4%			
2040	314,217	17,542	5,729	23,271	226	337,714	4,685,825	1,125,481	55,840	1,181,321	2,672,371	8,539,517	14,913	50,764	11,824,651
	93.04%	5.19%	1.70%	6.89%	0.07%	100.00%	54.87%	13.18%	0.65%	13.8%	31.3%	100.00%			
Difference	27,737	2,674	666	3,340	-6	31,071	534,243	173,939	2,086	176,025	603,605	1,313,873			
Increase	9.7%	18.0%	13.2%	16.8%	-2.6%	10.1%	12.9%	18.3%	3.9%	22.16%	29.2%	18.2%			

These values represent the Base Economic -- Normal Scenario in the 2022 PRS.
The energy values represents energy sales to the end-consumers on the member systems.
All "Pass-through" contracts have been removed from these values.
Source: RUS Form 341 (N:\Forecast\PRS22\Reports\HEREC\Full Report Files\Hoosier Energy Rural Electric Cooperative.xlsx)

Appendix I

Cross-Reference to Integrated Resource Plan Rule

Appendix I - Cross-Reference to Integrated Resource Plan Rule

170 IAC 4-7 Section	Requirement	Location
4	**Integrated Resource Plan contents**	
	An IRP must include the following:	
(1)	At least a twenty (20) year future period for predicted or forecasted analyses.	Section 2, P. 40; Appendix H
(2)	An analysis of historical and forecasted levels of peak demand and energy usage in compliance with section 5(a) of this rule.	Appendix E
(3)	At least three (3) alternative forecasts of peak demand and energy usage in compliance with section 5(b) of this rule.	Section 2, P. 40
(4)	A description of the utility's existing resources in compliance with section 6(a) of this rule.	Sections 3.1.2, 3.1.3
(5)	A description of the utility's process for selecting possible alternative future resources for meeting future demand for electric service, including a cost-benefit analysis, if performed.	Section 4
(6)	A description of the possible alternative future resources for meeting future demand for electric service in compliance with section 6(b) of this rule.	Section 4
(7)	The resource screening analysis and resource summary table required by section 7 of this rule.	Section 4.5
(8)	A description of the candidate resource portfolios and the process for developing candidate resource portfolios in compliance with section 8(a) and 8(b) of this rule.	Section 4.7
(9)	A description of the utility's preferred resource portfolio and the information required by section 8(c) of this rule.	Section 5.3
(10)	A short term action plan for the next three (3) year period to implement the utility's preferred resource portfolio and its workable strategy, pursuant to section 9 of this rule.	Section 1.4
(11)	A discussion of the: (A) inputs; (B) methods; and (C) definitions; used by the utility in the IRP	Section 4
	Appendices of the data sets and data sources used to establish alternative forecasts in section 5(b) of this rule. If the IRP references a third-party data source, the IRP must include for the relevant data: (A) source title; (B) author; (C) publishing address; (D) date;	

(12)	(E) page number; and (F) an explanation of adjustments made to the data. The data must be submitted within two (2) weeks of submitting the IRP in an editable format, such as a comma separated value or excel spreadsheet file.	Appendix F, Appendix G
(13)	A description of the utility's effort to develop and maintain a database of electricity consumption patterns, disaggregated by: (A) customer class; (B) rate class; (C) NAICS code; (D) DSM program; and (E) end-use.	Section 2, P. 25 - 32
(14)	The database in subdivision (13) may be developed using, but not limited to, the following methods: (A) Load research developed by the individual utility. (B) Load research developed in conjunction with another utility. (C) Load research developed by another utility and modified to meet the characteristics of that utility. (D) Engineering estimates. (E) Load data developed by a non-utility source.	Section 2, P. 25 - 32
(15)	A proposed schedule for industrial, commercial, and residential customer surveys to obtain data on: (A) end-use penetration; (B) end-use saturation rates; and (C) end-use electricity consumption patterns.	Section 2, P. 25 - 32
(16)	A discussion detailing how information from advanced metering infrastructure and smart grid, where available, will be used to enhance usage data and improve load forecasts, DSM programs, and other aspects of customer self-planning.	Sections 3.2.1.4, 3.2.1.5
(17)	A discussion of the designated contemporary issues designated, if required by section 2.7(e).	
(18)	A discussion of distributed generation within the service territory and its potential effects on: (A) generation planning; (B) transmission and planning; (C) distribution planning; and (D) load forecasting.	Section 4.2.10
(19)	For models used in the IRP, including optimization and dispatch models, a description of the model's structure and applicability.	Section 4.6
(20)	A discussion of how the utility's fuel inventory and procurement planning practices have been taken into account and influenced the IRP development.	Section 3.3.2
(21)	A discussion of how the utility's emission allowance inventory and procurement practices have been considered and influenced the IRP development.	Section 3.3.1

(22)	A description of the generation expansion planning criteria. The description must fully explain the basis for the criteria selected.	Section 4
(23)	A discussion of how compliance costs for existing or reasonably anticipated air, land, or water environmental regulations impacting generation assets have been taken into account and influenced the IRP development.	Section 3.3.1
(24)	A discussion of how the utilities' resource planning objectives, such as: (A) cost effectiveness; (B) rate impacts; (C) risks; and (D) uncertainty;	Sections 1.2, 1.3
(25)	A description and analysis of the utility's base case scenario, sometimes referred to a business as usual case or reference case. The base case scenario is the most likely future scenario and must meet the following criteria: (A) Be an extension of the status quo, using the best estimate of forecasted electrical requirements, fuel price projections, and an objective analysis of the resources required over the planning horizon to reliably and economically satisfy electrical needs. (B) Include: (i) existing federal environmental laws; (ii) existing state laws, such as renewable energy requirements and energy efficiency laws; and (iii) existing policies, such as tax incentives for renewable resources. (C) Existing laws or policies continuing throughout at least some portion of the planning horizon with a high probability of expiration or repeal must be eliminated or altered when applicable. (D) Not include future resources, laws, or policies unless: (i) a utility subject to section 2.6 of this rule solicits stakeholder input regarding the inclusion and describes the input received; (ii) future resources have obtained the necessary regulatory approvals; and (iii) future laws and policies have a high probability of being enacted. A base case scenario need not align with the utility's preferred resource portfolio.	Sections 4.7 - 4.10
(26)	A description and analysis of alternative scenarios to the base case scenario, including comparison of the alternative scenarios to the base case scenario.	Sections 4.7 - 4.10
	A brief description of the models(s), focusing on the utility's Indiana jurisdictional facilities, of the following components of FERC Form 715:	

(27)	(A) The most current power flow data models, studies, and sensitivity analysis. (B) Dynamic simulation on its transmission system, including interconnections, focused on the determination of the performance and stability of its transmission system on various fault conditions. The description must state whether the simulation meets the standards of the North American Electric Reliability Corporation (NERC). (C) Reliability criteria for transmission planning as well as the assessment practice used. This description must include the following: (i) The limits of the utility's transmission use. (ii) The utility's assessment practices developed through experience and study. (iii) Operating restrictions and limitations particular to the utility.	Section 3.3.3
	A list and description of the methods used by the utility in developing the IRP, including the following: (A) For models used in the IRP, the model's structure and reasoning for its use.	Section 4.6
(28)	B) The utility's effort to develop and improve the methodology and inputs, including for its: (i) load forecast; (ii) forecasted impact from programs; (iii) cost estimates; and (iv) analysis of risk and uncertainty.	 Section 2, P. 34 - 35 Section 2, P. 34 - 35 Section 4.8 Section 4.8
(29)	An explanation, with supporting documentation, of the avoided cost calculation for each year in the forecast period, if the avoided cost calculation is used to screen demand-side resources. The avoided cost calculation must reflect timing factors specific to the resource under consideration such as project life and seasonal operation. The avoided cost calculation must include the following: (A) The avoided generating capacity cost adjusted for transmission and distribution losses and the reserve margin requirement. (B) The avoided transmission capacity cost. (C) The avoided distribution capacity cost. (D) The avoided operating cost, including: (i) fuel cost; (ii) plant operation and maintenance costs; (iii) spinning reserve; (iv) emission allowances; (v) environmental compliance costs; and (vi) transmission and distribution operation and maintenance costs.	Section 3.3.2
	A summary of the utility's most recent public advisory process, including the following: (A) Key issues discussed.	

(30)	(B) How the utility responded to the issues. (C) A description of how stakeholder input was used in developing the IRP.	N/A
(31)	A detailed explanation of the assessment of demand-side and supply-side resources considered to meet future customer electricity service needs.	Sections 4.1 - 4.2
5	**Energy and Demand Forecasts**	
(1)	(a) The analysis of historical and forecasted levels of peak demand and energy usage must include the following: Historical load shapes, including the following: (A) Annual load shapes. (B) Seasonal load shapes. (C) Monthly load shapes. (D) Selected weekly load shapes. (E) Selected daily load shapes, which shall include summer and winter peak days, and a typical weekday and weekend day.	Appendix E
(2)	Disaggregation of historical data and forecasts by: (A) customer class,; (B) interruptible load,; and (C) end-use; where information permits.	Section 2, P. 35 - 37
(3)	Actual and weather normalized energy and demand levels.	Section 2, P. 38
(4)	A discussion of methods and processes used to weather normalize.	Section 2, Itron Section
(5)	A minimum twenty (20) year period for peak demand and energy usage forecasts.	Section 2, P. 40
(6)	An evaluation of the performance of peak demand and energy usage for the previous ten (10) years, including the following: (A) Total system. (B) Customer classes or, rate classes, or both. (C) Firm wholesale power sales.	Appendix E
(7)	A discussion of how the impact of historical DSM programs is reflected in or otherwise treated in the load forecast.	Section 4.8.4
(8)	Justification for the selected forecasting methodology	Section 2, P. 25 - 28
(9)	A discussion of the potential changes under consideration to improve the credibility of the forecasted demand by improving the data quality, tools, and analysis.	Section 2, P. 34 - 35
	For purposes of subdivisions (1) and (2), a utility may use utility specific data or data such as described in section 4(14) of this rule. (b) To establish plausible risk boundaries, the utility shall provide at least three (3) alternative forecasts of peak demand and energy usage including: (1) high; (2) low; and	

	(3) most probable: peak demand and energy use forecasts. (c) In determining the peak demand and energy usage forecast that is deemed by the utility, with stakeholder input, to be most probable, the utility shall consider alternative assumptions such as: (1) Rate of change in population. (2) Economic activity. (3) Fuel prices. (4) Price elasticity. (5) Penetration of new technology. (6) Demographic changes in population. (7) Customer usage. (8) Changes in technology. (9) Behavioral factors affecting customer consumption. (10) State and federal energy policies.	
(10)	(11) State and federal environmental policies.	Section 2, P. 40
6	**Description of Available Resources**	
	(a) In describing its existing electric power resources, the utility must include in its IRP the following information relevant to the twenty (20) year planning period being evaluated:	
(1)	The net and gross dependable generating capacity of the system and each generating unit.	Section 3.1.2
	The expected changes to existing generating capacity, including but not limited to, the following: (A) Retirements. (B) Deratings. (C) Plant life extensions. (D) Repowering.	
(2)	(E) Refurbishment.	Section 5.3
(3)	A fuel price forecast by generating unit.	Appendix G
	The significant environmental effects, including: A) air emissions; (B) solid waste disposal; (C) hazardous waste; and (D) subsequent disposal; and (E) water consumption and discharge;	
(4)	at existing fossil fueled generating units	Section 3.3.1
	An analysis of the existing utility transmission system that includes the following: (A) An evaluation of the adequacy to support load growth and expected power transfers. (B) An evaluation of the supply-side resource potential of actions to reduce: (i) transmission losses; (ii) congestion; and (iii) energy costs.	

(5)	(C) An evaluation of the potential impact of demand-side resources on the transmission network.	Section 3.3.3
	A discussion of demand-side resources and their estimated impact on the utility's historical and forecasted peak demand and energy. The information listed in subdivision (a)(1) through (a)(4) and in subdivision (a)(6) shall be provided for each year of the future planning period. (b) In describing possible alternative methods of meeting future demand for electric service, a utility must analyze the following resources as alternatives in meeting future electric service requirements: (1) Rate design as a resource in meeting future electric service requirements.	Scetion 3.2
	(2) Demand-side resources. For potential demand-side resources, the utility shall include the following: (A) A description of the potential demand-side resource, including its costs, characteristics, and parameters.	Section 3.2, Appendix C, Appendix D
	(B) The method by which the costs, characteristics, and other parameters of the demand-side resource are determined.	Section 3.2, Appendix C, Appendix D
	(C) The customer class or end-use, or both, affected by the demand-side resource.	Appendix C, Appendix D
	(D) Estimated annual and lifetime energy (kWh) and demand (kW) savings.	Appendix D
	(E) The estimated impact of a demand-side resource on the utility's load, generating capacity, and transmission and distribution requirements.	Appendix D
	(F) Whether the program provides an opportunity for all ratepayers to participate including low-income residential ratepayers.	Section 4.1
	(3) Supply-side resources. For potential supply-side resources, the utility shall include the following: (A) Identification and description of the supply-side resource considered, including the following: (i) Size in megawatts.	Appendix F
	(ii) Utilized technology and fuel type.	Appendix F
	(iii) Energy profile of nondispatchable resources.	Appendix F
	(iv) Additional transmission facilities necessitated by the resource.	Section 3.3.3
	(B) A discussion of the utility's effort to coordinate planning, construction, and operation of the supply-side resource with other utilities to reduce cost.	Sections 3.1.3, 4.4.3
	(C) A description of significant environmental effects, including the following: (i) Air emissions.	Section 3.3.1
	(ii) Solid waste disposal.	Section 3.3.1
	(iii) Hazardous waste and subsequent disposal.	Section 3.3.1
	(iv) Water consumption and discharge.	Section 3.3.1

	(4) Transmission facilities as resources. In analyzing transmission resources, the utility shall include the following:	
	(A) The type of the transmission resource, including whether the resource consists of one (1) of the following:	
	(i) New projects.	Section 3.3.3
	(ii) Upgrades to transmission facilities.	Section 3.3.3
	(iii) Efficiency improvements.	Section 3.3.3
	(iv) Smart grid technology.	Section 3.3.3
	(B) A description of the timing, types of expansion, and alternative options considered.	Section 3.3.3
	(C) The approximate cost of expected expansion and alteration of the transmission network.	Section 3.3.3
	(D) A description of how the IRP accounts for the value of new or upgraded transmission facilities increasing power transfer capability, thereby increasing the utilization of geographically constrained cost effective resources.	Section 3.3.3
	(E) A description of how:	
	(i) IRP data and information affect the planning and implementation processes of the RTO of which the utility is a member; and	Section 3.3.3
(6)	(ii) RTO planning and implementation processes affect the IRP.	Section 3.3.3
7	**Selection of Resources**	
	(a) To eliminate nonviable alternatives, a utility shall perform an initial screening of the future resource alternatives listed in section 6(b) of this rule. The utility's screening process and the decision to reject or accept a resource alternative for further analysis must be fully explained and supported in the IRP. The screening analysis must be additionally summarized in a resource summary table.	Section 4.5
8	**Resource Portfolios**	
	(a) The utility shall develop candidate resource portfolios from existing and future resources identified in sections 6 and 7 of this rule. The utility shall provide a description of its process for developing its candidate resource portfolios, including a description of its optimization modeling, if used. In selecting the candidate resource portfolios, the utility shall at a minimum consider: (1) risk; (2) uncertainty; (3) regional resources; (4) environmental regulations; (5) projections for fuel costs; (6) load growth uncertainty;	

	(7) economic factors; and (8) technological change.	Sections 4.7 - 4.10
	(b) With regard to candidate resource portfolios, the IRP must include the following: (1) An analysis of how candidate resource portfolios performed across a wide range of potential future scenarios, including the alternative scenarios required under section 4(25) of this rule.	Sections 4.7 - 4.10
	(2) The results of testing and rank ordering of the candidate resource portfolios by key resource planning objectives, including cost effectiveness and risk metrics.	Appendix H
	(3) The present value of revenue requirement for each candidate resource portfolio in dollars per kilowatt-hour delivered, with the interest rate specified.	Section 5.1
(1)	(c) From its candidate resource portfolios, a utility shall select a preferred resource portfolio and include in the IRP the following: A description of the utility's preferred resource portfolio.	Section 5.3
(2)	Identification of the standards of reliability.	Section 5.3.2
(3)	A description of the assumptions expected to have the greatest effect on the preferred resource portfolio.	Section 5.3.5
(4)	An analysis showing that supply-side resources and demand-side resources have been evaluated on a consistent and comparable basis, including consideration of: (A) safety; (B) reliability; (C) risk and uncertainty; (D) cost effectiveness; and (E) customer rate impacts.	Section 4.8.4, Appendix C
(5)	An analysis showing the preferred resource portfolio utilizes supply-side resources and demand-side resources that safely, reliably, efficiently, and cost-effectively meets the electric system demand taking cost, risk, and uncertainty into consideration.	Sections 4.7 - 4.10
(6)	An evaluation of the utility's DSM programs designed to defer or eliminate investment in a transmission or distribution facility, including their impacts on the utility's transmission and distribution system.	Section 3.2, Appendix C, Appendix D
	A discussion of the financial impact on the utility of acquiring future resources identified in the utility's preferred resource portfolio including, where appropriate, the following: (A) Operating and capital costs of the preferred resource portfolio.	Appendix F
	(B) The average cost per kilowatt-hour of the future resources, which must be consistent with the electricity price assumption used to forecast the utility's expected load by customer class in section 5 of this rule.	Appendix H

	(C) An estimate of the utility's avoided cost for each year of the preferred resource portfolio.	Section 3.3.2
(7)	(D) The utility's ability to finance the preferred resource portfolio.	Section 5.4.2
(8)	A description of how the preferred resource portfolio balances cost effectiveness, reliability, and portfolio risk and uncertainty, including the following: (A) Quantification, where possible, of assumed risks and uncertainties, including, but not limited to: (i) environmental and other regulatory compliance; (ii) reasonably anticipated future regulations; (iii) public policy; (iv) fuel prices; (v) operating costs; (vi) construction costs; (vii) resource performance; (viii) load requirements; (ix) wholesale electricity and transmission prices; (x) RTO requirements; and (xi) technological progress. (B) An assessment of how robustness of risk considerations factored into the selection of the preferred resource portfolio.	Section 5.2.4
(9)	Utilities shall include a discussion of potential methods under consideration to improve the data quality, tools, and analysis as part of the ongoing efforts to improve the credibility and efficiencies of their resource planning process.	Section 2, P. 34 - 35
(10)	A workable strategy to quickly and appropriately adapt its preferred resource portfolio to unexpected circumstances including changes in the following: (A) Demand for electric service. (B) Cost of a new supply-side resources or demand-side resources. (C) Regulatory compliance requirements and costs. (D) Wholesale market conditions. (E) Fuel costs. (F) Environmental compliance costs. (G) Technology and associated costs and penetration. (H) Other factors which would cause the forecasted relationship between supply and demand for electric service to be in error.	Sections 5.3.3, 5.3.4
9	**Short Term Action Plan**	
	(a) A utility shall prepare a short term action plan as part of its IRP, and shall cover a three (3) year period beginning with the first year of the IRP submitted pursuant to this rule.	Section 1.4

	(b) The short term action plan shall summarize the utility's preferred resource portfolio and its workable strategy, as described in section 8(c)(9) of this rule, where the utility must take action or incur expenses during the three (3) year period.	Section 1.4
(1)	(c) The short term action plan must include, but is not limited to, the following: A description of resources in the preferred resource portfolio included in the short term action plan. The description may include references to other sections of the IRP to avoid duplicate descriptions. The description must include, but is not limited to, the following: (A) The objective of the preferred resource option or program portfolio.	Section 1.4
(2)	(B) The criteria for measuring progress toward the objective. Identification of goals for implementation of DSM programs that can be developed in accordance with IC 8-1-8.5-10, 170 IAC 4-8-1 et seq. and consistent with the utility's longer resource planning objectives.	Section 1.4
(3)	The implementation schedule for the preferred resource portfolio.	Section 5.3
(4)	A budget with an estimated range for the cost to be incurred for each resource or program and expected system impacts.	Section 4, Appendix F
(5)	A description and explanation of differences between what was stated in the utility's last filed short-term action plan and what actually occurred.	Section 1.5