Dominion Energy South Carolina:

2020–2029 Achievable DSM Potential and PY10–PY14 Program Plan

Final Report

June 2019

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1. POTENTIAL STUDY AND PROGRAM PLAN OVERVIEW

ICF was retained by Dominion Energy South Carolina, Inc. (DESC) to produce a 10-year potential study focused on both Energy Efficiency (EE) and Demand Response (DR) measures. In addition, based on the outputs of the potential study, a five-year program plan was developed for the purposes of guiding the implementation of cost-effective energy efficiency programs. This report contains three sections:

1. A ten-year vision of the potential of EE within DESC service territory
2. A ten-year vision of the potential of DR within the DESC service territory
3. A five-year program plan for the implementation of EE programs within DESC service territory

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2. ENERGY EFFICIENCY POTENTIAL STUDY EXECUTIVE SUMMARY

ICF was retained by Dominion Energy South Carolina, Inc. (DESC) to conduct an energy efficiency potential study over a 10-year horizon which is used to inform cost-effective, energy efficiency program plans for PY10–PY14 (December 1, 2019 – November 30, 2024). This report complements an additional section on the demand response potential analysis that was conducted by ICF for the same purpose.

A bottom-up process was used to determine the 10-year achievable energy efficiency potential forecasts for the 2020–2029 period. Included in these forecasts are ten energy efficiency programs covering the residential, commercial, and industrial sectors under **current programs** and **expanded programs** scenarios. The key results are:

- **Total incremental (annual) savings increase by 1.6 times in the mid-term.** In the expanded programs scenario, annual savings achieved by DESC programs grow by a factor of 1.6 above the savings achieved by DESC programs in Program Year 7 (December 1, 2016 – November 30, 2017). The growth in annual savings is attributed to increased budgets for existing DESC programs, and to savings achieved by new (expanded) programs, which contribute an additional 80% to savings above the current programs scenario level in 2022.
- **In the expanded programs scenario, the Home Energy Report behavioral program represents the largest residential savings opportunity, replacing lighting as the most important savings type.** New programs/measures could increase residential sector savings by a factor of 2.1 by 2024, driven largely by the expansion of the Home Energy Check-up program and the new Multifamily and Water Heating programs.
- **For the commercial sector, the Small Business Energy Solutions program shows the largest expansion in program savings.** Expanded programs could increase commercial savings by roughly 103% above the current programs scenario by 2029.
- **A new Strategic Energy Management (SEM) focus can drive significantly increased savings for the industrial sector.** Expanding the industrial measures to include education and incentives for SEM can specifically target the customers that have not opted-out and can double industrial sector savings from 2020–2022.
- **The full portfolio has a Total Resource Cost test ratio of 1.8 in the expanded programs scenario** and 1.9 in the current programs scenario.

This study represents a significant update from the previous potential study completed in 2009. Improvements are based on significantly increased experience with the programs being run, as well as updates to technology standards and changes in the characteristics of the DESC service territory. In the intervening years, there also has been many industrial and some commercial customers that have opted-out of participating in the efficiency programs.

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3. STUDY APPROACH

Overview

This bottom-up analysis began with collecting data on all relevant inputs, including baseline data, measure data, and program data. This was followed by estimating the eligible stock of energy efficiency measures. The eligible stock is the size of the market for efficiency measures, in measure units, such as bulbs, tons of cooling, or number of homes. ICF estimated the eligible stock for measures within each end-use and sector. This task required data on the number on customer types in DESC's service area, the number and types of buildings, the types of energy-using equipment that are in each building type, and the current saturation of energy-efficient equipment.

The measures were then screened for cost-effectiveness using the Total Resource Cost (TRC) test to determine the economic potential. Measures with a TRC test result of 1.0 or better passed to the next stage of the analysis. Non-energy benefits were included in the TRC calculations, including water and wastewater savings, natural gas savings, and avoided and deferred equipment replacement costs. Water savings were included for water usage reducing measures, such as low-flow showerheads, while natural gas savings were included for measures, such as insulation and air sealing, installed in gas-heated buildings. Avoided and deferred equipment replacement cost savings were included for measures that have a longer estimated useful life than the technologies they are replacing. The longer lifetime means that the measure will require fewer replacements. The most prominent example is light-emitting diode (LED) lighting, which has an estimated useful lifetime in the range of 20 years, instead of the base technology lifetime of five years. This means that over the LED lifetime there are three additional replacements of lighting that no longer occur because of the new measure.

With the eligible stock of the technical potential and cost-effective measures of the economic potential defined, ICF then conducted the achievable potential analysis, which required developing savings forecasts for demand-side management (DSM) programs for the 2020–2029 period under two scenarios: (1) a **current programs scenario** where DESC programs were modeled based on program designs implemented and performance achieved by DESC through PY7, and (2) an **expanded programs scenario**, which includes the programs in the current programs scenario, some of which were modified or expanded, plus new best practice programs. In addition, a mathematical optimization of the expanded programs scenario was run. The optimization that was performed intended to maximize the TRC ratio of the portfolio of programs targeting each customer segment. The optimization varied the participation for each measure in a range based on the historical program performance and other variables used in estimating program participation. The upper and lower bounds for the optimization were set independently for each program. Other assumptions that varied between these cases included participation rates, program marketing costs, and net-to-gross (NTG) ratios. Other utility assumptions, such as retail rates, avoided costs, and discount rates, were held constant in both scenarios.

During this study, there were multiple major points for stakeholder engagement, which included both in-person meetings and addressing written feedback. The first was early in the process to present the approach to the Energy Efficiency Advisory Group and discuss the full list of measures that would serve as the starting point for the study. During the study, workshops similar to focus group meetings were held with trade allies/contractors to present program ideas and receive feedback. Near the end of the study draft results were presented to the Energy Efficiency Advisory Group. All collected feedback was addressed to finalize the forecasts.

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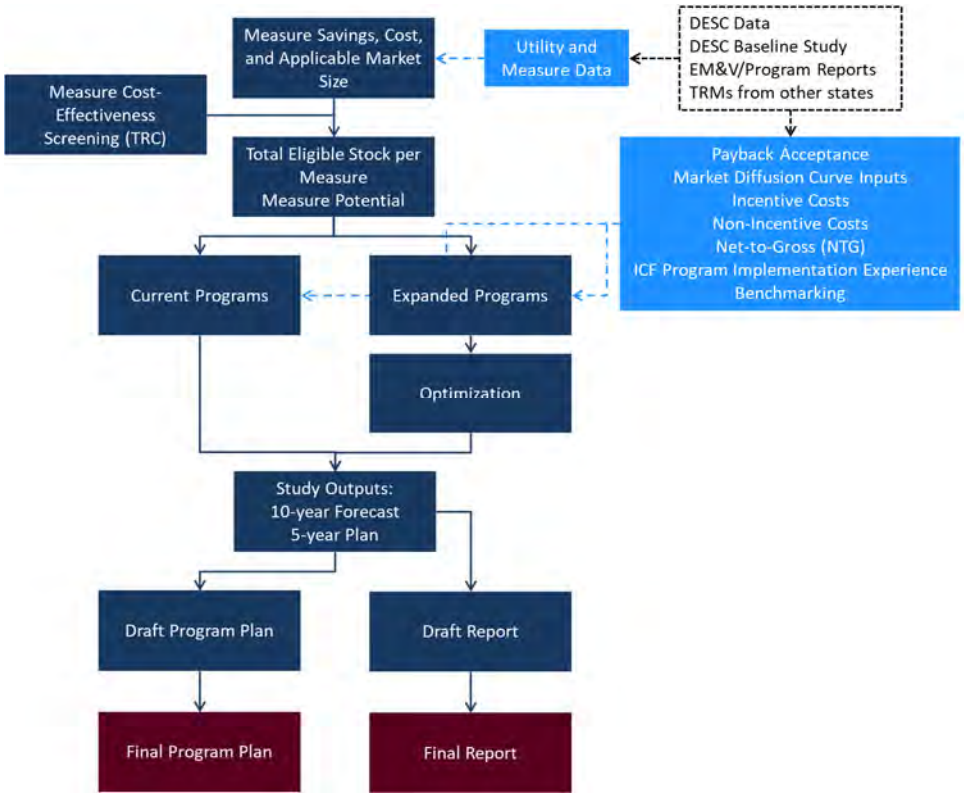
Figure 1 shows the approach to this study.

Figure 1. Overview of Bottom-up Approach to Potential Study



Data Review and Gap Analysis

Baseline Market Characterization

Opinion Dynamics Corporation (ODC) performed the baseline market characterization for both the Residential and Commercial market segments. This included telephone surveys of a large sample of the customer base and a select set of site visits for more detailed and verifiable data. The details of this information, as well as supplemental work performed by ICF, are included below in Section 4, Utility Service Area Characteristics.

Utility, Measure, and Program Data

ICF developed some of the data specifically for this study (Table 1), performing engineering calculations and building simulations to develop energy-savings estimates for some measures, as well as processing the data provided into a usable form. ICF experts also informed program participation rates that are detailed further in the following sections. ICF used data on utility characteristics, measure baselines and parameters, and programs using DESC and South Carolina-specific data, where possible. Standard industry sources for the South Atlantic region and national data supplemented the local data. Table 1 presents the data sources for this study.

Table 1. Study Data Sources

Data/Information Type	Source	Primary Purpose of Study
Utility Data		
Avoided costs	DESC data	Cost-effectiveness testing

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Data/Information Type	Source	Primary Purpose of Study
Other planning assumptions, such as DESC discount rates, line losses, or growth rates	DESC data	Cost-effectiveness testing
Customer counts (residential, commercial, and industrial)	DESC data	Calculating eligible stock
Load forecast/sales data	DESC data	Calculating load impacts of DSM potential
Retail rates for all rate classes	DESC data	Calculating Participant Cost Test and participation for achievable potential analysis
Baseline Data		
Residential building characteristics and efficiency saturation	Opinion Dynamics Corporation (ODC) Residential Appliance Saturation Surveys (RASS)	Calculating eligible stock
	U.S. DOE Residential Energy Consumption Survey (RECS, 2015)	
Commercial building characteristics and efficiency saturation	ODC Commercial Appliance Saturation Survey	Calculating eligible stock
	DESC Commercial Customer Data	
	U.S. DOE 2012 Commercial Buildings Energy Consumption Survey (CBECS, 2016)	
Agricultural building characteristics and efficiency saturation	USDA Census Data	Calculating eligible stock
	SC Department of Natural Resources, Coastal Plain Water Well Inventory	
Industrial subsector characteristics and efficiency saturation	DESC Industrial Customer Consumption Data	Calculating eligible stock
	DESC Industrial Customer Segments based on Standard Industrial Classification	
	U.S. DOE 2010 Manufacturing Energy Consumption Survey (MECS, 2013)	
Measure Data		

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Data/Information Type	Source	Primary Purpose of Study
Residential and commercial measure data	DESC Program Evaluation and Tracking Data	Measure database development
	Technical Reference Manuals; including Arkansas and Texas	
Agricultural measure data	ICF Program Implementation Experience	Measure database development
	Technical Reference Manuals; including Arkansas and Pennsylvania	
Industrial measure data	U.S. DOE studies	Measure database development
	U.S. EPA studies	
	LBNL studies	
	ICF expert knowledge	
Program Data		
ICF program data and expert judgment	ICF	Estimating achievable potential
Historical program savings (evaluation) and cost data	DESC	Calculating eligible stock, Estimating program expenses, Estimating achievable potential
Energy efficiency program savings and costs data run by other utilities	ESource Database	Estimating achievable potential

Measure Analysis

Measure Database

ICF developed a comprehensive measure database for this study, including commercially available measures covering each relevant savings opportunity within each end-use and sector. The database includes prescriptive or "deemed" type measures, whole building options (e.g., commercial custom and new construction projects), and behavioral measures (e.g., residential home energy report benchmarking and retro-commissioning measures). Measure end-uses covered include the following:

- Residential
  - Appliances
  - Consumer electronics
  - Envelope (building shell)
  - Water heating
  - Heating, ventilation, and air conditioning (HVAC)
  - Lighting
  - Other (e.g., benchmarking)

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- Commercial
  - Envelope (building shell)
  - Food services equipment
  - Water heating
  - HVAC
  - Lighting
  - Miscellaneous
  - Refrigeration

- Industrial
  - Compressors
  - Facility HVAC
  - Facility lighting
  - Fans
  - Machine drive
  - Motor, other applications
  - Other process and non-process uses
  - Process cooling and refrigeration
  - Process heating
  - Pumps

- Agricultural
  - Lighting
  - Pumping
  - Ventilation
  - Water cooling
  - Water heating

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Table 2 shows the illustrative characteristics of each measure modeled.

Table 2. Illustrative Characteristics of Measures

Measure Characteristic	Value
1. Applicable sector	Commercial
2. Applicable subsector	Grocery
3. Building type	All grocery
4. End-use	Refrigeration
5. Measure name	Night covers for open refrigerated display cases
6. Measure definition	Curtains or covers on top of open refrigerated or freezer display cases
7. Baseline definition	No night cover, average of vertical, semi-vertical, and horizontal units
8. Measure unit	Per linear foot of display case
9. Measure delivery type	Retrofit
10. Incremental cost	$42
11. Baseline unit effective useful life	N/A
12. Efficient unit effective useful life (years)	10.0
13. Incremental (annual) kilowatt-hour (kWh) savings	126
14. Incremental kilowatt (kW) savings	0.0

In total, ICF analyzed 454 measure types and 1,442 measure permutations for this study. Many measures required permutations for different applications, such as different building types, lamp wattages, efficiency levels, and decision types. For example, there are permutations of central air conditioners by seasonal energy efficiency ratio (SEER) level, subsector, and building type. Descriptions of each measure type and permutation appear in Appendix D as well as measure cost-effectiveness results.

All measures were analyzed for cost-effectiveness using the measure TRC test.[1] In most cases, only measures with a TRC of 1.0 or higher (in their representative test years) passed to the next stage of the analysis. A measure with a TRC result of 1.0 indicates that the measure is cost-effective on a stand-alone basis (before consideration of program costs or NTG ratios). An exception to this rule for non-economic measure permutations was made when most of the permutations of that measure type were cost-effective. For example, if a measure type was cost-effective for a majority of, but not all, applicable building types, the measure type was included for all building types in the achievable potential analysis. Excluding participation by customers in a specific building type can be impractical in implementation.

ICF also applied the converse principal in a small number of cases. For example, if a measure was cost-effective for a minority of building types, ICF excluded all permutations of the measure in the

[1] Measure TRC benefits include avoided energy costs, avoided capacity costs, and other non-electricity savings over the lifetime of the measure. Measure TRC costs are measure incremental costs; these include the difference in equipment and labor costs between the efficient and baseline units.

achievable potential analysis, because it can be impractical in implementation to limit participation to certain building types.

Table 3 shows the number of measures evaluated for cost-effectiveness and the number that were economic. About 70% of the measures evaluated were found to be economic and were therefore included in energy efficiency programs.

Table 3. Number of Measures Tested for Cost-Effectiveness and Included in the Analysis

Subsector	Measure Types Tested for Cost-Effectiveness	Total Measure Permutations Tested for Cost-Effectiveness	Number of Measure Types Passing Cost-Effectiveness Screening Included in the Analysis	Number of Measure Permutations Passing Cost-Effectiveness Screening Included in the Analysis
Residential	152	337	101	223
Commercial	203	447	144	318
Industrial	93	644	69	478
Agricultural	6	14	6	13
TOTAL	**454**	**1,442**	**320**	**1,032**

For the purposes of evaluating cost-effectiveness, DESC uses a difference in revenue requirements methodology to calculate both the energy component and the capacity component of its avoided costs. This approach involves calculating the revenue requirements between a base case and a change case.

For the avoided energy cost calculation, the base case is defined by DESC's existing fleet of generators plus any projected future generators, as well as the solar facilities with which DESC has executed a power purchase agreement. The change case is the same as the base case except that the hourly loads are reduced by a 100 MW EE profile. The avoided energy cost is simply the difference between the base case costs and the change case costs. For the purposes of this calculation, a value of $0.0358 per kWh (in 2019 dollars) was used, followed by the application of an 8% average line-loss factor.

For the avoided capacity cost calculation, a resource plan populated with internal combustion turbines (ICT) is used. DESC calculates the incremental capital investment related revenue required to support the ICT resource plan. DESC derives a change case in its resource plan by adding a 100 MW purchase then adjusting the expansion plan accordingly. The difference in the revenue requirement between the base case and the change case defines the avoided capacity cost. For EE that value is multiplied by 63.7% which is the percentage of EE available at winter peak. For more information avoided costs are discussed in Appendix B.

A key measure baseline change accounted for in this study was a new federal efficiency standard for split HVAC systems. The change increases the baseline from SEER 14 to SEER 15 in 2023. In addition, lighting savings are expected to significantly decrease, or be removed, due to the Energy Independence and Security Act (EISA), 2007. This baseline change is discussed in detail in the Residential Sector Results section.

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Eligible Stock

The eligible stock is the size of the market for efficiency measures, in measure units, such as bulbs, tons of cooling, or number of homes. ICF estimated the eligible stock for each measure within each end-use and sector. Key data from the baseline sources noted previously include items such as:

- Percentage of homes with an equipment type (e.g., light bulbs, central AC, refrigerator)
- Equipment counts (e.g., number of bulbs per home, tons of cooling per home, refrigerators per home)
- Equipment efficiency level (e.g., bulb type, SEER rating, ENERGY STAR® rating)
- Equipment age

A simple example of an eligible stock calculation for residential electric water heater blankets is shown in Table 4. This example shows that there are 87,304 water heaters eligible for tank wrap insulation (row h). Because this is a retrofit measure, the eligible stock does not account for stock turnover. Stock turnover is the rate at which existing equipment expires and requires replacement. It is the inverse of equipment age, or 1 divided by the equipment's effective useful life (EUL). If this were a replace-on-burnout Water Heater measure, the eligible stock would equal 1/5 years (1/a) times row h, which equals 17,461 water heater tank wraps wearing out every year and eligible for replacement.

Table 4. Illustrative Measure Eligible Stock Calculation (Water Heater Blanket)

	Variable	Value	Source or Calculation
	Measure Name	Electric Water Heater Blanket	
	Measure Baseline	No Water Heater insulation	
a	Baseline unit EUL (years)	5	DESC Program Evaluation
b	Low-income customers	145,144	DESC
c	Homes with electric water heaters (%)	69.2%	DESC RASS, survey performed by ODC
d	Number of measure units per home	1.00	1 water heater unit per home
e	Applicability (% of homes with storage water heaters)	97.7%	RECS 2015, South Atlantic region data
f	Efficient unit saturation	11.0%	DESC RASS, survey performed by ODC
g	Not yet adopted rate	89%	1 – f
h	Total eligible stock in 2020 (number of potential WH storage tanks w/o insulation)	87,304	b × c × d × e × g

Program Modeling

Program Types Modeled

ICF modeled eight residential and five non-residential program types for this study, as described briefly below, by sector. These program types result in 10 programs within the five-year program plan.

Residential Programs

- **Appliances Recycling** – Promotes the retirement and recycling of inefficient, working refrigerators and freezers from households by offering incentives and free pick-up and responsible recycling of the equipment.

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- **Heating and Cooling –** Promotes investment in long-term savings by providing rebates for the purchase and installation of high-efficiency home HVAC equipment. A new addition to the program is rebates for Air-Source Heat Pumps when replacing electric resistance heating and higher incentives to encourage the installation of 15 SEER units over baseline equipment (14 SEER equipment).
- **Home Energy Check-up** – Conducts audits of all residential home types to educate on home energy consumption and identify opportunities to save energy and money. Direct install measures, including LED bulbs and faucet aerators, are installed for free. In addition, water heater and water pipe wrap insulation are left with customers with electric water heaters. Participants also can receive incentives for more comprehensive measures installed that are identified during the audit, such as duct sealing and ceiling insulation.
- **Home Energy Reports** (home energy benchmarking) – This program (electronically or through mail) provides information on energy use to home occupants that encourages them to save energy. This information typically includes home energy use for the last month compared with historical energy use, and also compares the occupants' energy use with the energy use of similar homes. In the expanded case, the program switches from opt-in to an opt-out model.
- **Neighborhood Energy Efficiency** – Provides energy education, an on-site energy survey of the dwelling, and direct installation of select energy-saving measures at no additional cost for customers based on qualifying income levels. These are delivered in a door-to-door "sweep" approach in neighborhoods that have a significant number of households with low income, defined as ≤ 150% of the federal poverty guidelines.
- **EnergyWise Savings Store (Online Store)** – Provides rebates for qualifying ENERGY STAR® lighting and smart thermostats through an online store, as well as education to increase customer awareness of energy-efficient appliances.
- **Water Heating** – Provides rebates to customers to encourage the installation of heat pump water heaters. In the five-year program plans, this offering will fall under the Heating and Cooling expanded program.
- **Multifamily** – Provides energy education, an on-site energy survey of the dwelling, and direct installation of select energy-saving measures specific to multifamily customers. In addition, energy efficiency measures will be recommended for common areas to include LED lamps and/or fixtures which will result in incentives for property owners.

Commercial Programs

- **EnergyWise for Your Business** – The prescriptive element of the program provides incentives to customers per unit based on the deemed savings. The custom element identifies and implements site-specific and unique cost-effective energy efficiency opportunities that are not available via the prescriptive element. Customized incentives, based on calculated savings for specific customer projects, are offered. Agricultural focused measures were added to the program to meet the specific needs of that business type in the commercial sector.
- **Small Business Direct Install** – Implements energy efficiency projects for customers under 300 megawatt-hours (MWh) annually and with no more than five accounts owned by a single customer. These customers include convenience stores, offices, garages, warehouses, restaurants, and other smaller businesses. The program measures are directly installed for the customers and are primarily lighting and refrigeration.
- **Municipal LED Lighting** – Provides incentives for municipal customers to convert municipal street lighting from high-intensity discharge to LED (solid state).

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Industrial Programs

- **Industrial Efficiency** – Provides prescriptive and custom incentives for measures implemented on industrial facilities, such as lighting and HVAC. Custom incentives for measures implemented on industrial plant equipment include motors and compressed air. In the five-year program plans, this offering will be fall under the EnergyWise for Your Business expanded program.
- **Strategic Energy Management** – Helps businesses reduce their energy costs with tools, coaching, and technical resources to support energy goals through a year-long series of workshops and one-on-one coaching. Draws on the principles of continuous improvement, other cost savings, and operational excellence initiatives. The offering helps implement behavior changes and systematic practices that can lead to significant energy and cost savings. In the five-year program plans, this offering will be fall under the EnergyWise for Your Business expanded program.

Program Assumptions

This section describes how ICF developed key assumptions for programs, including costs, participation rates, and NTG ratios.

Program Costs

ICF estimated program costs to reflect average annual costs over the long run; incentive and non-incentive program cost estimates were developed. Incentives are program payments to customers, contractors, retailers, or manufacturers that lower the cost of efficient products and services and may include the installation of measures, when appropriate. Non-incentive costs include administration, marketing, education and training, and evaluation costs. ICF did not estimate individual non-incentive cost categories for this study. Costs in the current programs scenario were generally based on existing DESC program costs. Expanded versions of existing programs in the expanded case typically had higher incentive levels and higher non-incentive costs to cover additional outreach and program delivery. Costs for new programs in the expanded case were developed using historical program spending and by ICF through secondary research and program implementation experience. Cost estimates by program appear in the respective portions of Section 5, Achievable Energy Efficiency Potential below.

Participation

A participation rate is the percentage of eligible stock or applicable customer population predicted to install an efficiency measure each year. The approach to developing participation rates in this potential study was similar to the approach used in most utility potential studies. It involves:

1. Developing a maximum market acceptance rate, or S_{max}, which is the maximum annual participation rate for a given measure.
2. Estimating a participation rate in Year 1 of the forecast.
3. Developing a ramp-up schedule from Year 1 to the year in which S_{max} is predicted to occur.
4. Forecasting participation for the years after the year in which S_{max} is expected to be achieved.

The shape of a participation curve can take a variety of forms, depending on the nature of the measure, the program in which it is being delivered, the relevant market barriers, baseline changes, and the size and nature of the eligible stock. ICF assessed achievable participation on a measure-by-measure basis. Because such a wide variety of measures is included in this study, one formulaic approach to estimating program participation could not be applied for all measures. Each measure

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was put in a group[2] with similar measures for assigning participation approaches and payback curves; these assignments are shown in Appendix C.

Participation rate estimates for the current programs scenario were based largely on current DESC program performance, accounting for the impact of adopted federal standards. Participation rates in the expanded case were developed using:

1. Primary research conducted by Opinion Dynamics Corporation in DESC's service area on customer market barriers and acceptance rates at different incentive levels,
2. Benchmarking of similar programs, typically from the South Census region,
3. Payback acceptance rates, and
4. ICF expert input.

Participation Approach A

This approach to estimating participation combines research on customers' financial decision making with research on the diffusion of innovative technologies in the marketplace.

One way that programs motivate customers to participate is by improving the financial attractiveness of the efficient option over the standard, or baseline, option. Financial attractiveness in Approach A is a function of how much the incentive lowers customer simple payback. Customer payback is the amount of time it takes for a customer to recover the costs of investing in the efficient unit instead of the standard unit. Customer payback equals the difference in cost between the efficient and standard units (commonly known as the incremental cost) divided by the utility bill savings due to the efficient unit.[3] Payback before the incentive is applied is calculated as:

[2] Most programs have multiple measure groupings, or bundles. Some, such as the Home Energy Reports program, only have one group.
[3] Incremental costs include the difference in the cost of equipment, labor and operations, and maintenance.

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PRE-INCENTIVE CUSTOMER PAYBACK (YEARS) =
INCREMENTAL COST ÷ UTILITY BILL SAVINGS

And payback after the incentive is applied is calculated as:

POST-INCENTIVE CUSTOMER PAYBACK (YEARS) =
(INCREMENTAL COST – INCENTIVE COST) ÷ UTILITY BILL SAVINGS

Incentive levels for measures included in the study that are also currently offered by DESC were estimated based on DESC's current incentive levels; feedback from market actors in the DESC service territory, including contractors and distributors; and ICF expert judgment. Incentive levels for measures not currently offered by DESC were initially estimated based on measure simple payback and adjusted on a case-by-case basis by ICF program experts. Incentive levels ranged from 25% to 100% of measure incremental costs, with incentive levels for most measures falling between 25% and 75% of measure incremental costs. Notable exceptions are the Neighborhood Energy Efficiency program, low-income and multifamily direct install measures, and the new Municipal Lighting program, which all have incentive levels at 100% of incremental measure cost. An incentive calculation for an illustrative measure is shown in Table 5.[4]

For this illustrative measure, the payback target is two years, the pre-incentive payback is 5.2 years (row g), and the post-incentive payback is two years (row m). Not all incentives bring down the payback to two years. This occurs when the maximum incentive is reached, when the pre-incentive payback is already less than two years, or when the incentive would need to be greater than the incremental cost to bring the payback down to two years.

Table 5. Illustrative Measure Incentive Calculations

Variable		Value	Source or Calculation
a	Retail Electricity Rate – kWh	$0.094	DESC
b	Retail Capacity Charge – kW	$5.847	DESC
	Base Measure Lifetime	10	DESC program evaluation
c	Total Incremental Cost	$100	Market review
d	Annual kWh Savings	180	DESC program evaluation
e	Annual kW Summer-Peak Savings	0.104	DESC program evaluation
f	Annual Bill Savings	$19.35	(a × e) + (b × d)
g	Pre-Incentive Payback (years)	5.2	c / f
Incentive Assumptions			
h	Minimum Incentive Level	25%	Assumption
i	Maximum Incentive Level	75%	Assumption
j	Post-Incentive Payback Target (years)	2.0	Assumption
k	Incentive as a % of Incremental Cost	62%	MAX [MIN (i, 1 – j / g), h]
l	Incentive	$62	k × c
m	Post-Incentive Payback (years)	2.0	(c – l) / f

Incentives are used to calculate program costs and to forecast participation. ICF uses the post-incentive payback to estimate the fraction of customers who may choose the efficient unit over the standard unit. This estimation was done using payback acceptance curves, an example of which is

[4] Values indicated in Table 5 are generic and are only shown to demonstrate the approach. The values should not be construed as the actual assumptions used in this study. Actual assumptions are noted as such in the body of this report and in Appendix D.

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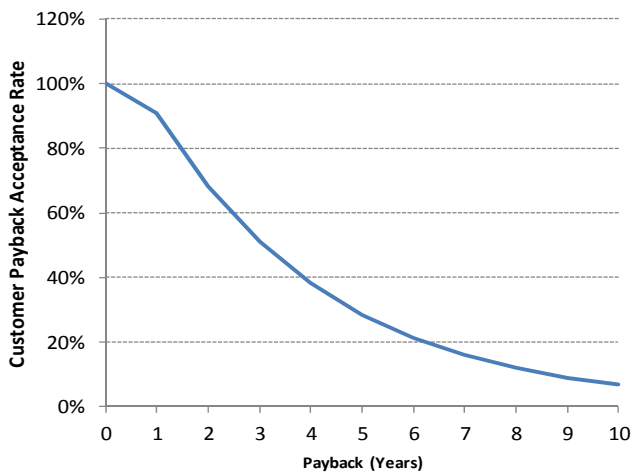
shown in Figure 2. Different payback curves were utilized for each sector. All payback curves utilized in this study are shown in Appendix C.

The curve below plots the results from residential surveys on payback acceptance.[5] The curve shows that 68% of eligible residential customers stated that they are willing to accept a two-year measure payback. However, people tend to overstate their payback acceptance in surveys, which is known as survey response bias. When customers are making actual decisions about installing equipment, they are usually willing to accept much shorter payback levels than they stated they would in a survey.

Figure 2. Illustrative Payback Acceptance Curve



In Approach A, three variables determine the shape of the participation curve for a measure. Illustrative values are shown in Table 6:

1. *Maximum market acceptance rate*, or S_{max}, is used to estimate the maximum annual participation rate.[6]
2. *Ramp-up rate* is used to estimate the first-year participation.
3. *Ramp-up shape* is applied to reflect how quickly a program could reach the maximum annual participation rate.

The maximum annual market acceptance (S_{max})[7] is the product of the customer-stated payback acceptance and the program market acceptance rate:

MAXIMUM ANNUAL MARKET ACCEPTANCE RATE (S_{MAX}) =
CUSTOMER-STATED PAYBACK ACCEPTANCE X PROGRAM MARKET ACCEPTANCE RATE

Moreover, the first-year participation rate is the maximum annual market acceptance rate divided by the ramp-up rate. To summarize:

FIRST-YEAR PARTICIPATION RATE =
MAXIMUM ANNUAL MARKET ACCEPTANCE RATE ÷ PROGRAM RAMP-UP RATE

[5] Multiple pay-back acceptance surveys were conducted prior to this study and may include some outside of DESC's service area.
[6] The program participation rate in the year the program reaches maturity.
[7] The highest estimated level of program market penetration in each year.

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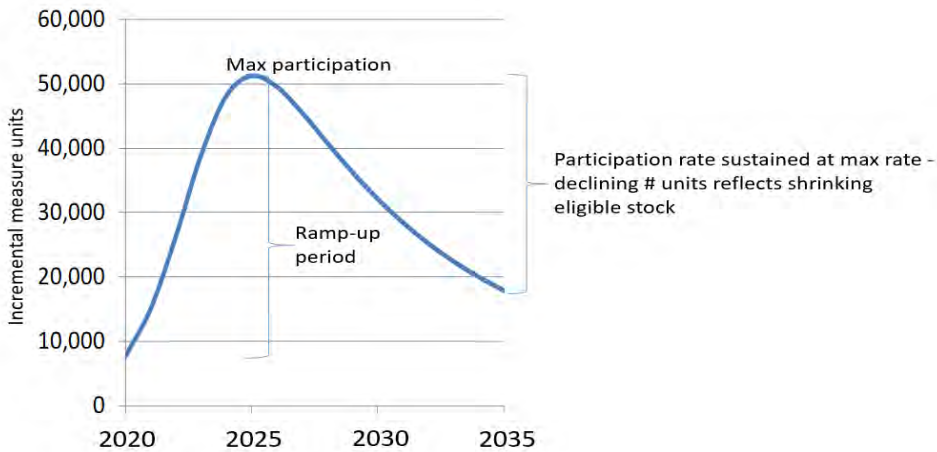
Table 6. Illustrative Market Diffusion Assumptions

Variable		Value	Source or Calculation
a	Customer States Payback Acceptance	68%	Payback Acceptance Calculation
b	Program Market Acceptance Rate	30%	
c	Ramp-up Rate (years)	5	
d	Ramp-up Shape	100%	
e	Program Start Year	2020	
f	Study Period (years)	20	
First-Year Participation Estimates			
g	Maximum Annual Market Acceptance (S_{MAX})	20.4%	b × a
h	First-Year Share of Installations (S_0)	4.1%	g / c

Figure 3 illustrates the outcome of Approach A. Program participation in the first year is 4%. The participation rate in each year grows until it reaches the maximum estimated level of 20%. Increasing the ramp-up shape steepens the curve, and decreasing it makes the curve more gradual. This figure is an example of "market diffusion," or an S-curve.

Figure 3. Market Diffusion Curve



This approach to modeling DSM program participation is only applicable to measure and program types where payback acceptance is relevant to customer financial decision making.

Participation Approach B

Participation Approach A, described above, is not applicable to energy efficiency measure and program types where payback acceptance is a less relevant proxy for customer financial decision making. This is the case for home energy audit programs, for example, where the participation and implemented measures are not purchase decisions. Nor does the payback acceptance survey data apply to customer decisions about participating in demand response programs. For such measures, Approach B was used – participation rates were individually input for each year based on program experience. Participation approaches by measure type are documented in Appendix D.

Net-to-Gross Ratios

Program evaluators use different evaluation methods, such as randomized control trials (RCTs) and quasi-experimental designs, surveys, market sales data analysis, or case studies, to estimate the net program savings associated with energy efficiency programs. The ratio of net savings to gross savings is called the program NTG ratio. Gross savings are changes in energy consumption that

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result directly from program-related actions taken by participants of an energy efficiency program, regardless of why they participated. Net savings refer to changes in energy use that are attributable to a particular energy efficiency program. These changes may implicitly or explicitly include the effects of free-ridership,[8] spillover,[9] and induced market effects.[10] Applying the NTG ratio to gross savings results in net savings.

NTG ratios for all measures and programs that are currently offered by DESC were estimated based on DESC program impact evaluation results. NTG ratios for new measure types and programs were estimated by ICF based on program implementation experience.

Scenario Development

ICF forecasted achievable energy efficiency potential under two scenarios, which are defined in the points that follow. ICF first developed the current programs estimates by measure for each program using the approaches described previously; then the estimates for the expanded programs were developed.

- **Current programs** – Where DESC programs were modeled based on program designs implemented and performance achieved by DESC through Program Year 7.
- **Expanded programs** – Includes programs in the current programs scenario, some modified or expanded, plus new programs that have been successful in other, similar utility territories.

The names of the current programs (included in both scenarios) and new best practice programs (included only in the expanded programs scenario) are shown below in Table 7.

[8] "Free ridership" is the program savings attributable to free-riders (program participants who would have implemented a program measure or practice in the absence of the program).
[9] Spillover refers to additional reductions in energy consumption or demand that are due to program influences beyond those directly associated with program participation. As a result, these savings may not be recorded in the program tracking system and credited to the program.
[10] National Renewable Energy Laboratory, Chapter 17, Estimating Net Savings: Common Practices, September 2014, https://energy.gov/sites/prod/files/2015/01/f19/UMPChapter17-Estimating-Net-Savings.pdf

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Table 7. Potential Study Scenario Programs, by Customer Sector

Current Scenario	Expanded Scenario
Residential ○ Existing Program(s) • Appliance Recycling • Heating & Cooling • Home Energy Check-up • Home Energy Report • Neighborhood Energy Efficiency Program • EnergyWise Savings Store (Online)	**Residential** ○ New Program(s) • Multifamily ○ New Offering(s) • Water Heating ○ Expanded Program(s) • Appliance Recycling • Heating & Cooling • Home Energy Check-up • Home Energy Report • Neighborhood Energy Efficiency Program • EnergyWise Savings Store (Online)
Commercial ○ Existing Program(s) • EnergyWise • Small Business	**Commercial** ○ New Program(s) • Municipal Lighting ○ Expanded Program(s) • EnergyWise • Small Business
Industrial ○ Existing Program(s) • Industrial Efficiency	**Industrial** ○ New Offering(s) • Industrial Strategic Energy Management ○ Existing Program(s) • Industrial Efficiency

Assumptions about customer preferences and decision-making criteria, utility assumptions (e.g., avoided costs, discount rates), and exogenous economic factors (e.g., growth, inflation) were all held constant for both scenarios.

Residential Program Differences

Of the programs targeting the residential sector, most of the changes in the expanded case are an increase in participation, increase in incentive, or the addition of select measures. Beyond this, there are two new programs – Multifamily Program and Water Heating program/offering– and the change in the Home Energy Report program from an opt-in to an opt-out design. A list of the changes for the residential sector programs is in Table 8 below.

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Table 8. Current and Expanded Scenario Residential Program Differences

Current Programs scenario	Expanded Programs scenario	Key differences in Expanded scenario
Appliance Recycling	Appliance Recycling	Expanded participation
Heating & Cooling	Heating & Cooling	Higher incentives; electric resistence heating -> Air Source Heat Pump (ASHP) measures added
Home Energy Check-up	Home Energy Check-up	Tier 2 measures added; additional direct install measures
Home Energy Reports	Home Energy Reports	Opt-out beginning 2023
Neighborhood Energy Efficiency Program	Neighborhood Energy Efficiency Program	Expanded participation
Online store	ENERGY STAR® Lighting	Smart thermostats
	Multifamily	New program
	Water Heating	Heat Pump Water Heater (HPWH) focus; higher incentives (to be offered under Heating & Cooling)

Commercial Program Differences

Both existing programs targeting the commercial sector have increased incentives and greater participation in the expanded scenario. In addition, the EnergyWise for Your Business program has additional measures targeting the agricultural subsector, and a new program was added for municipal lighting (Table 9).

Table 9. Current and Expanded Scenario Commercial Program Differences

Current Programs scenario	Expanded Programs scenario	Key differences in Expanded scenario
EnergyWise for Your Business - Commercial	EnergyWise for Your Business - Commercial	Added Agricultural offering element; Higher incentives & expanded participation for lighting, other end uses
Small Business	Small Business	Higher incentives; expanded participation
	Municipal LED Lighting	New program

Industrial Program Differences

The existing program targeting the industrial sector is unchanged in the expanded scenario; however, there is a new program offering added targeting small and medium enterprises with assistance, financial and technical, for strategic energy management (Table 10).

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Table 10. Current and Expanded Scenario Industrial Program Differences

Current Programs scenario	Expanded Programs scenario	Key differences in Expanded scenario
EnergyWise For Your Business - Industrial Efficiency	EnergyWise For Your Business - Industrial Efficiency	None
	Strategic Energy Management	New offering (to be included within EnergyWise For Your Business)

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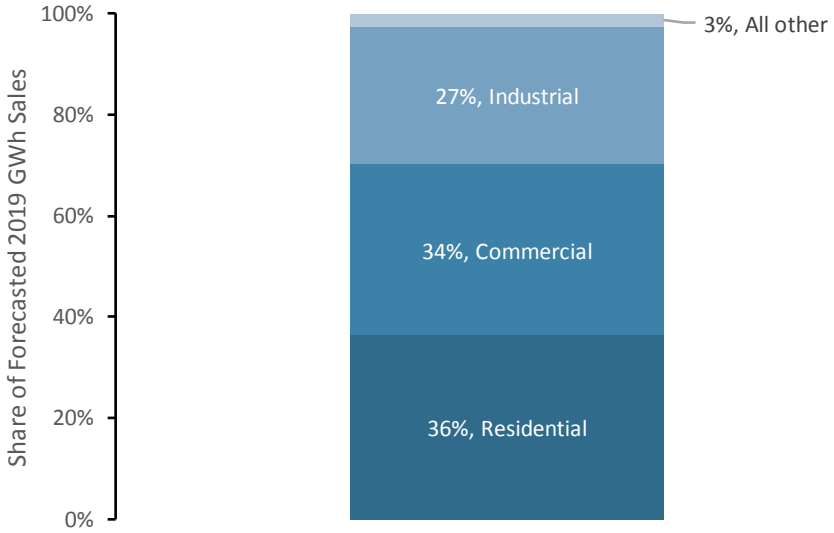
4. UTILITY SERVICE AREA CHARACTERISTICS

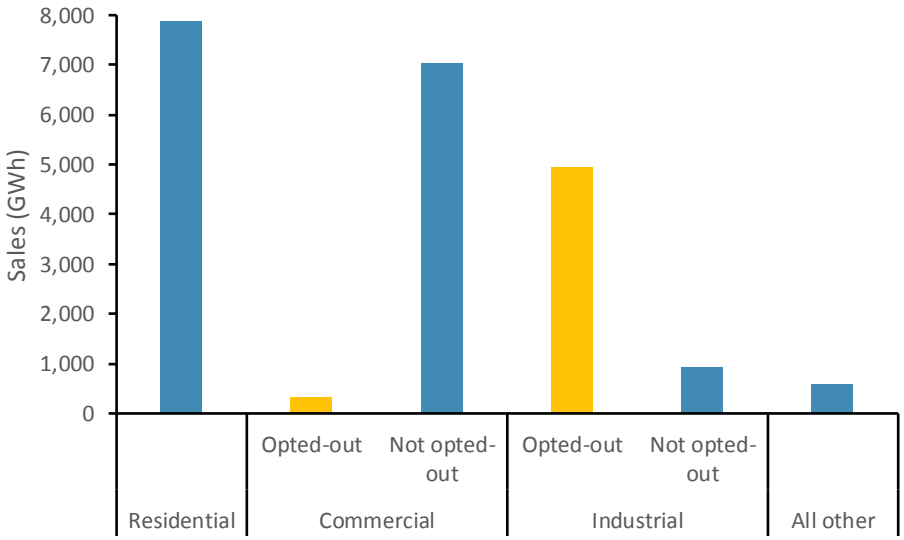
Electricity use in the DESC service area is 36% residential, 34% commercial, and 27% industrial (Figure 4).

Figure 4. Share of Total Estimated DESC Retail GWh Sales in 2019, by Customer Class



While the distribution of sales may suggest similar scale savings and programs targeting each sector, the distribution of customers who have opted-out of participating in the energy efficiency programs means that the possible industrial savings and programs targeting that sector will be significantly smaller (Figure 5). Customers accounting for 84% of industrial sales and 5% of commercial sales have opted-out.

Figure 5. Opted-out vs. Not Opted-out Sales in 2019, by Customer Class



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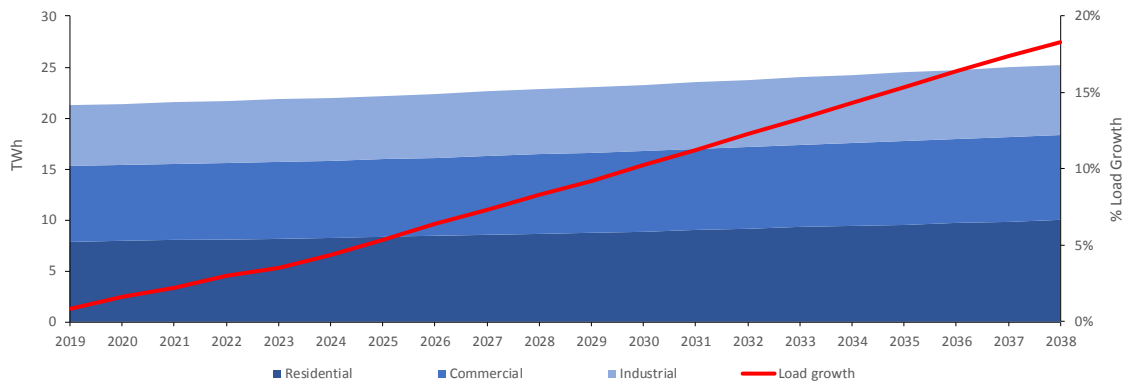
In the base case,[11] the total load is forecasted to grow 18% during the forecast period (using a 2019 baseline),[12] as shown in Figure 6. The compound annual growth rate (CAGR) over the same period is 0.9%, driven largely by a 1.3% CAGR in the residential sector.

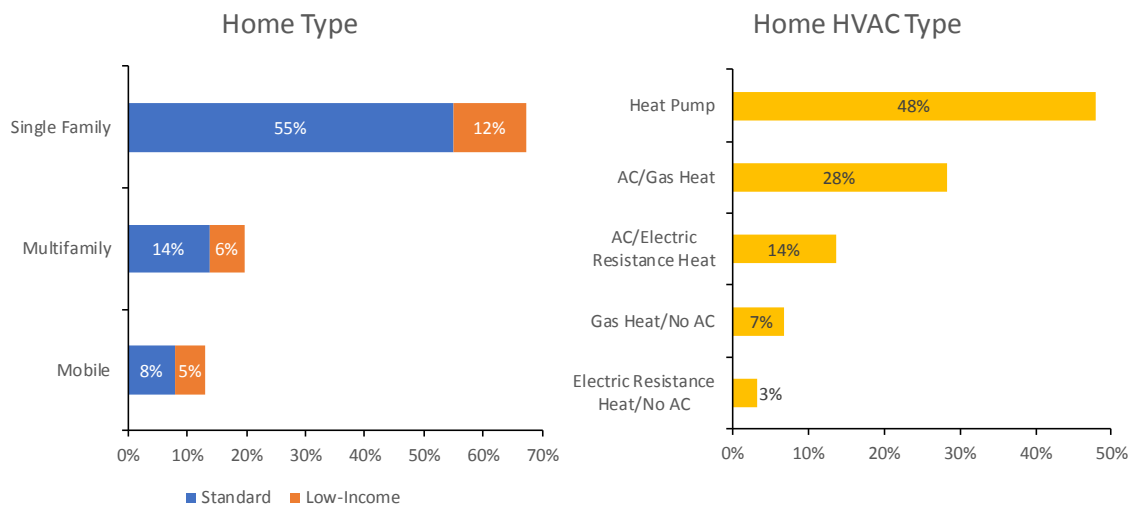
Figure 6. System Load (left axis) and Load Growth (right axis) in the Base Case



Residential Characteristics

Single-family homes are a large majority of the residential building stock. This means that targeted residential efficiency programs would be expected to focus on this subsector. Forty-eight percent of homes have a heat pump, and another 42% have central air conditioning; 10% of homes have heating but no air conditioning. Most homes have an electric water heater (67%). Figure 7 shows home types and home HVAC configurations.[13]

Figure 7. Distribution of Home Types and Home HVAC Types in the DESC Service Area (Total: 626,687 homes)



[11] The base case is the load as forecasted by DESC for the forecast period (2020–2029) prior to the energy efficiency potential forecast conducted in this study.
[12] Calculated as the compound annual growth rate (CAGR) over the 2020–2029 period.
[13] DESC Residential Appliance Saturation Survey, ODC, 2018; ICF assumptions.

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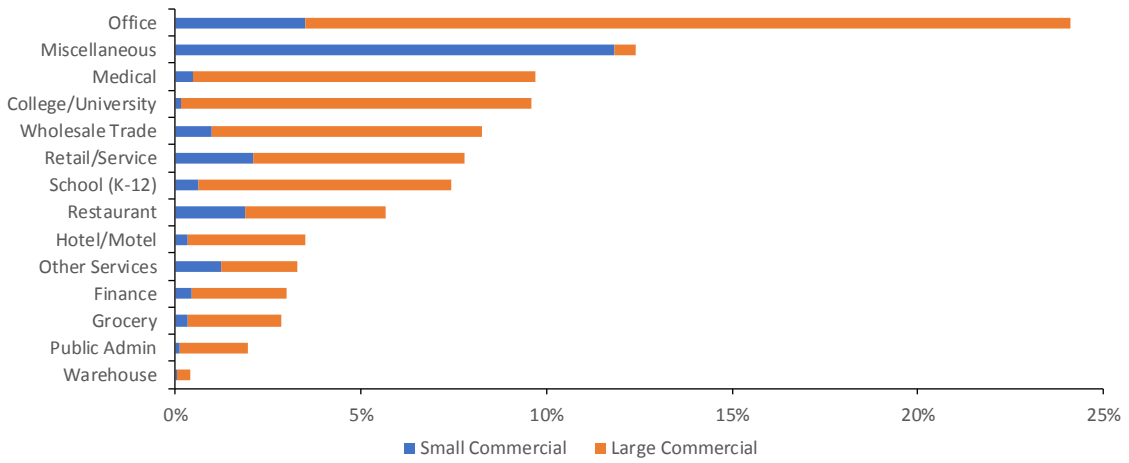
Commercial Characteristics

Approximately three out of five, or 64%, of commercial accounts are categorized as small, based on the qualifications for the Small Business Program (customers with five or fewer DESC electric accounts and an annual energy use of 350,000 kWh or less). Small offices account for 4% of all C&I customer usage, retail accounts for 3%, restaurants account for 2%, and other services account for 2%. The uncategorized small customer account for 12% of total C&I usage.

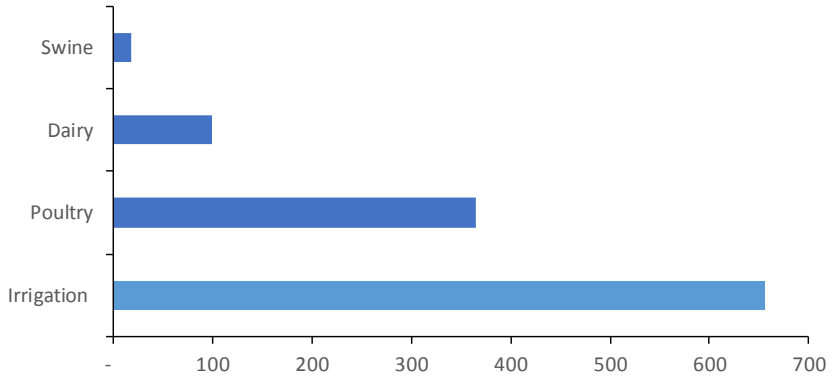
Thirty-six percent of commercial accounts are categorized as large customers, with energy usage of more than 350,000 kWh annually or more than five electric accounts. As with small customers, offices (20%) are the most common large commercial building type, followed by higher education (10%), medical (9%), wholesale trade (8%), schools (7%), retail (6%), restaurants, and lodging (4% each). Figure 8 shows share of usage for large and small commercial customer types.

Figure 8. Commercial Customer Usage, by Building Type



A group that was broken out from the miscellaneous category is agricultural customers (Figure 9). This category of customer is largely irrigation pumping (58%); however, there also are a significant number of other agricultural customers. The largest of these is poultry (32%), followed by dairy (9%), and finally a small number of swine producers (2%).

Figure 9. Agricultural Customer Count



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Industrial Characteristics

The food production and transportation equipment industries account for 34% of total industrial energy use, followed by small industrial (15%), plastic and polymers (11%), and machinery (10%).[14] Machine drive applications consume 45% of electric energy in large industrial facilities, and 22% is used in process heating and cooling. The combined share of electricity used by facility lighting and facility HVAC is 25% in large industrial plants, and 16% in small industrial plants; industrial achievable potential within these end-uses is relatively high because these efficiency measure types are lower risk than measures affecting production processes. Figure 10 shows the distribution of industrial electricity use by subsector, and Table 11 shows industrial electricity use by end-use in small[15] and large industrial facilities.

Figure 10. Distribution of Industrial Electricity Use by Subsector (Total: 983 GWh)

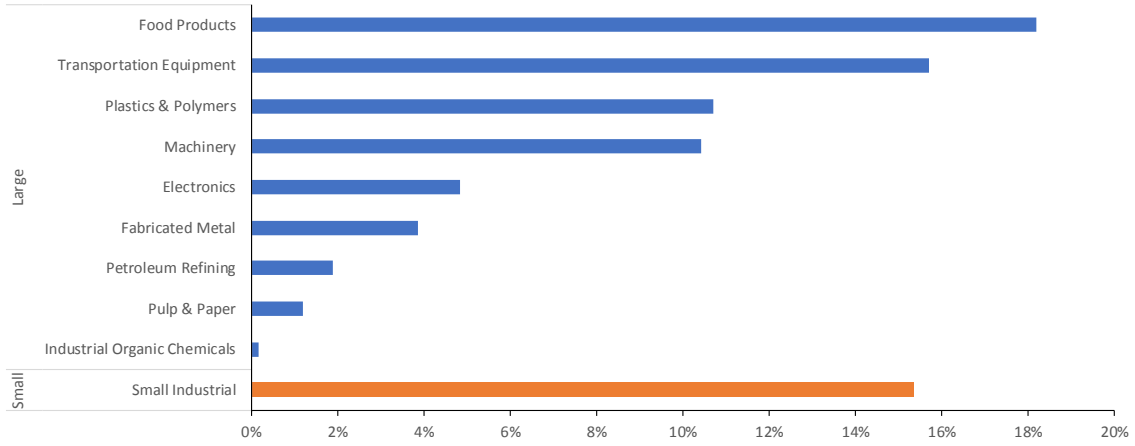

Table 11. Industrial Electricity Use, by End-use (Total: 983 GWh)

% kWh Use	Large Industrial	Small Industrial
Machine Drive	44%	52%
Pumps	*11%*	*14%*
Fans	*6%*	*8%*
Compressed Air	*6%*	*9%*
Motor - Other	*21%*	*22%*
Process Heating	12%	11%
Process Cooling	11%	7%
Other Process Uses	3%	2%
Electro-Chemical	4%	9%
Facility HVAC	15%	10%
Facility Lighting	10%	6%
Other Non-Process Use	2%	2%

[14] Based on Standard Industrial Classification data provided by DESC and U.S. Energy Information Administration Manufacturing Energy Consumption Survey (MECS) data for South Carolina.
[15] Small facilities are defined as customers in the Small General Service rate class.

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5. ACHIEVABLE ENERGY EFFICIENCY POTENTIAL

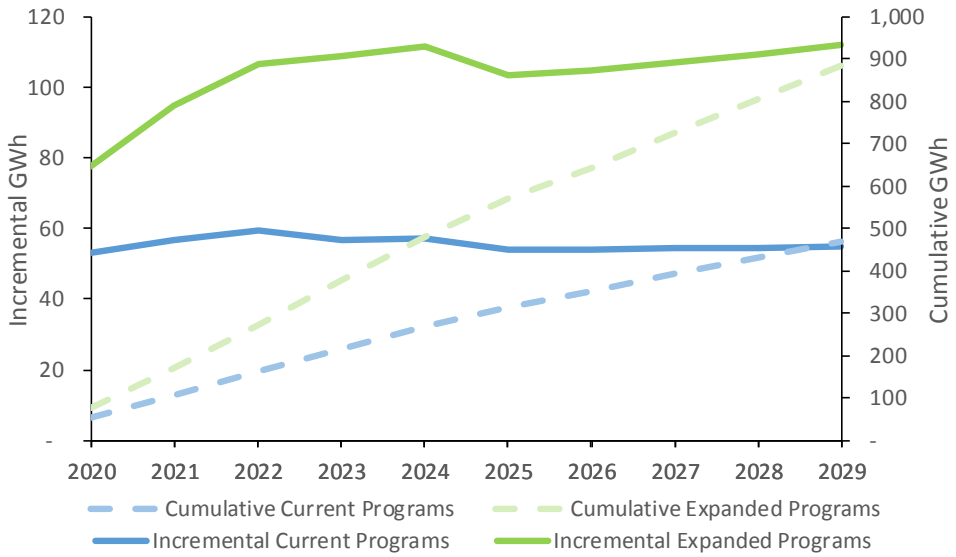
Portfolio Results

Incremental Energy Savings

In the expanded programs scenario, annual savings achieved by DESC programs grow to 1.6 times the savings achieved by DESC programs in PY7, in 2017–2018. Annual, or "incremental," savings are achieved in a program year from measures installed or implemented by programs during that same year. The growth in annual savings is due to increased budgets for existing DESC programs, and to savings achieved by new (expanded) programs, which contribute to a doubling of savings compared with the current programs scenario level in 2022.

Incremental savings grow to 1.6 times that of PY7 savings.

Figure 11. Incremental and Cumulative Portfolio Energy Savings



Cumulative Energy Savings

Cumulative savings grow from 77 GWh in 2020 to nearly 883 GWh by 2029 in the expanded programs scenario (Figure 11). Cumulative savings include the savings achieved in one program year plus savings from measures installed in previous program years that are still functioning. These savings are approximately 5.2% of all energy sales from participating customers. This calculation, shown annually in Table 12, excludes the forecasted sales from opt-out customers.

Cumulative savings offset up to 5.2% of forecasted sales.

Table 12. Forecasted MWh Savings as a Percentage of Previous Year Sales

Portfolio Savings	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Incremental (Annual)										
Current Program Scenario	0.3%	0.4%	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%
Expanded Program Scenario	0.5%	0.6%	0.7%	0.7%	0.7%	0.6%	0.6%	0.6%	0.6%	0.7%
Cumulative										
Current Program Scenario	0.3%	0.7%	1.0%	1.3%	1.6%	1.9%	2.1%	2.3%	2.6%	2.8%
Expanded Program Scenario	0.5%	1.1%	1.7%	2.3%	3.0%	3.5%	3.9%	4.3%	4.8%	5.2%

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Portfolio Cost-Effectiveness

The full portfolio of programs, as well as the portfolio of each customer sector, is cost-effective in both scenarios, as shown by the TRC ratios in Table 13 and Table 14. TRC benefits include all energy and capacity savings over the lifetime of the measures installed by the programs. TRC costs include program non-incentive costs and measure incremental costs.

Individual program bundles per customer class, as well as the full portfolio, remain cost-effective by design.

Table 13. Current Scenario Customer Class Benefit-Cost Ratio Results

Benefit-Cost Ratios	TRC	PAC	RIM	PCT
Residential	2.4	1.3	0.3	3.5
Commercial	1.8	2.6	0.4	3.1
Industrial	1.4	1.7	0.5	6.2
Portfolio Total	*1.9*	*2.1*	*0.4*	*3.2*

In the expanded programs scenario, TRC benefits outweigh TRC costs by a factor of 1.8. This is down from the ratio in the current case but is still very beneficial for the total system of individuals in the DESC territory.

Table 14. Expanded Scenario Customer Class Benefit-Cost Ratio Results

Benefit-Cost Ratios	TRC	PAC	RIM	PCT
Residential	1.7	1.2	0.3	3.2
Commercial	1.9	1.9	0.4	3.3
Industrial	1.4	1.7	0.5	6.2
Portfolio Total	*1.8*	*1.6*	*0.4*	*3.3*

To summarize, there is significant cost-effective, achievable savings potential in the residential, commercial, and industrial sectors in the DESC service area. The residential savings are expected to move away from lighting and toward more complete shell measures as well as new measures and increases in existing incentives to promote the installation of ENERGY STAR® heating and cooling equipment. Commercial program savings will be increased by expanding further into the small commercial sector. The potential in the industrial sector is lower, but there is still room for expansion above current programs performance, which could be achieved by the addition of program elements such as Strategic Energy Management.

Levelized Cost of Energy Savings

In the current scenario, the levelized cost for all customer class-focused programs is lower than the avoided cost of energy (Table 15). Thus, the full portfolio of programs has a levelized cost of energy saved that is firmly below the avoided cost of energy.

The levelized cost of energy is the net present value of the full program costs divided by the net present value of the cumulative lifetime savings from all the measures from the program. On the other hand, the annual cost of energy is the sum of all program costs divided by the incremental program savings. This means that the levelized cost takes into account all savings from the program, as well as being in real dollars, while the annual cost is in actual dollars and only considers first-year savings.

Potential efficiency savings are cheaper than standard generation.

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Table 15. Current Scenario Annual and Levelized Cost of Energy Saved, by Sector

Cost of Energy Savings ($/kWh)	Annual $/kWh	Levelized $/kWh
Residential	$ 0.27	$ 0.042
Commercial	$ 0.18	$ 0.021
Industrial	$ 0.23	$ 0.027
Portfolio Total	*$ 0.20*	*$ 0.026*

In the expanded case, the commercial programs collectively have a higher levelized cost; however, it is still below that of the avoided cost of energy, while the residential portfolio levelized cost rises even higher (Table 16). Only the industrial programs continue to have a very low levelized cost. However, this does not take into account the demand savings, which are in addition to the energy savings. Despite the rising costs, all programs, as well as the combined portfolio, have lower levelized cost of energy than the system-wide avoided energy cost.

Table 16. Expanded Scenario Annual and Levelized Cost of Energy Saved, by Sector

Cost of Energy Savings ($/kWh)	Annual $/kWh	Levelized $/kWh
Residential	$ 0.34	$ 0.047
Commercial	$ 0.23	$ 0.028
Industrial	$ 0.23	$ 0.027
Portfolio Total	*$ 0.26*	*$ 0.033*

In Table 17 and Table 18, the annual program costs, in millions, are shown. These include all program costs, including incentive and non-incentive costs. These costs are not cumulative, but are instead the estimated costs that are due to that program during that year.

Table 17. Current Scenario Total Annual Program Costs

Program Costs ($M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Residential	$ 4.7	$ 4.8	$ 4.9	$ 4.2	$ 4.2	$ 3.1	$ 3.2	$ 3.2	$ 3.2	$ 3.2
Commercial	$ 5.9	$ 6.5	$ 6.9	$ 7.0	$ 7.1	$ 7.1	$ 7.2	$ 7.2	$ 7.2	$ 7.3
Industrial	$ 0.3	$ 0.3	$ 0.4	$ 0.4	$ 0.4	$ 0.3	$ 0.3	$ 0.3	$ 0.3	$ 0.3
Portfolio Total	*$ 11.0*	*$ 11.6*	*$ 12.2*	*$ 11.6*	*$ 11.7*	*$ 10.6*	*$ 10.6*	*$ 10.7*	*$ 10.7*	*$ 10.8*

Table 18. Expanded Scenario Total Annual Program Costs

Program Costs ($M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Residential	$ 9.4	$ 10.4	$ 11.0	$ 10.6	$ 10.8	$ 8.9	$ 9.0	$ 9.1	$ 9.2	$ 9.2
Commercial	$ 12.5	$ 16.3	$ 18.7	$ 19.2	$ 19.1	$ 15.6	$ 15.9	$ 16.3	$ 16.7	$ 17.1
Industrial	$ 0.3	$ 0.3	$ 0.4	$ 0.4	$ 0.4	$ 0.3	$ 0.3	$ 0.3	$ 0.3	$ 0.3
Portfolio Total	*$ 22.3*	*$ 27.0*	*$ 30.1*	*$ 30.2*	*$ 30.2*	*$ 24.8*	*$ 25.2*	*$ 25.6*	*$ 26.1*	*$ 26.6*

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Residential Sector Results

Incremental Energy Savings

In the current scenario, Home Energy Reports Program is the largest residential savings opportunity, with plans to expand the program by changing to an opt-out offering. While residential programs savings have historically been driven by CFLs and LEDs, federal minimum energy performance standards for general service lamps (the Energy Information and Security Act of 2007, or EISA 2007) have gradually decreased the ability of programs to provide incentives for efficient standard screw-in light bulbs.

RECENT DEVELOPMENTS IN THE FEDERAL MINIMUM ENERGY PERFORMANCE STANDARDS FOR GENERAL SERVICE LIGHTING

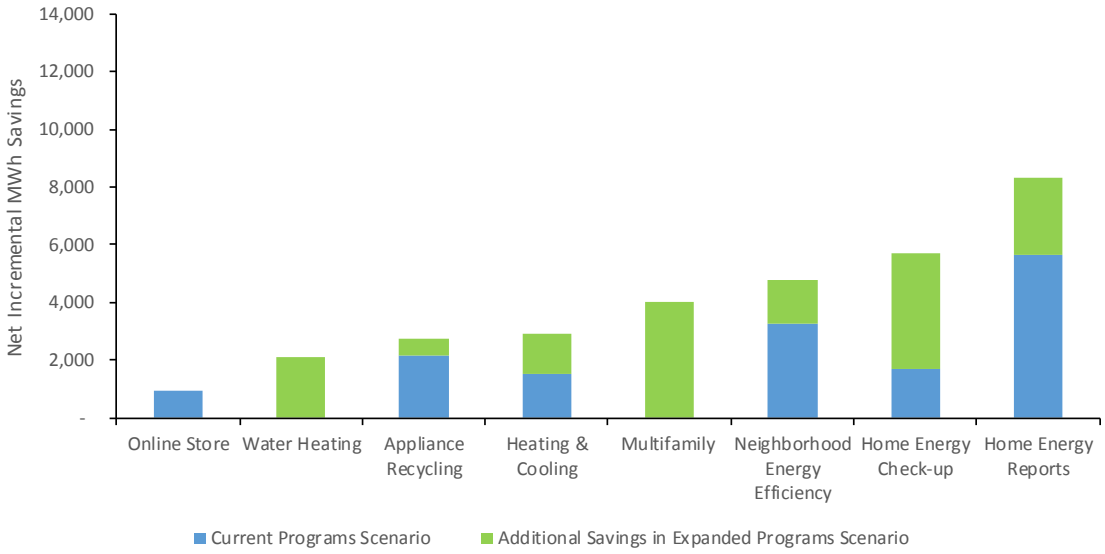
There has been much discussion in the energy efficiency industry about the definitions that the U.S. Department of Energy (DOE) released in January 2017, which revised the definition of a general service lamp (GSL), or light bulb, which would have expanded the scope of bulb types that are subject to efficiency standards. Those revised definitions had an effective date of January 1, 2020. DOE made an announcement on February 6, 2019, about a proposal to withdraw those definitional changes. In summary:

1. DOE issued a pre-publication notice of proposed rulemaking for the definition of a light bulb on February 6, 2019.
2. If it is approved, bulb types currently excluded from efficiency standards will continue to be excluded; essentially, only standard 40, 60, 75, 100 watt (W) A-lamps will continue to be subject to efficiency standards.
3. Utility programs would continue to have viability for most specialty bulbs since the bulb types would not be subject to efficiency standards.
4. There is still uncertainty around the efficiency standard, as DOE has not decided whether the backstop will go into effect for the bulb types that meet the definition of a GSL. This means an efficacy standard of 45 lumens per watt (lm/W), effective January 1, 2020, is still unknown.

The Home Energy Report program triples in the expanded programs scenario.

In the expanded scenario, there are many significant opportunities to improve the energy efficiency of the shell measure of existing homes in South Carolina, which can be delivered through the Home Energy Check-up (HEC) program. This program has both the largest total savings increase and the greatest potential for expansion given the current program scale (Figure 12). Overall, the newly expanded programs could increase residential sector savings by up to 40%, driven largely by the addition of the new Multifamily program.

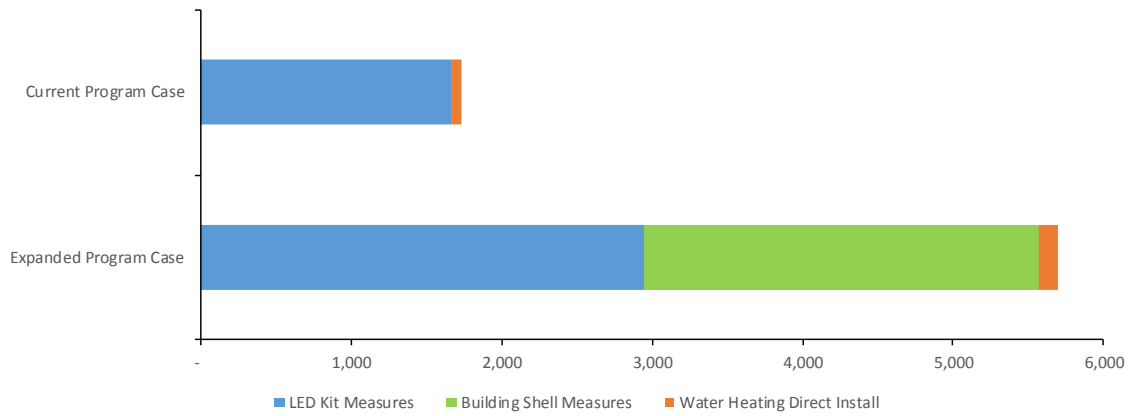
Figure 12. Net Residential Incremental MWh Savings in 2024, by Program



In addition, Home Energy Reports (HER) can be easily scaled to increase incremental savings. The program has been run as an opt-in program, which means that people choose to participate. In the expanded scenario, the program design was changed to opt-out by 2023. The program design switches to an opt-out model where one-half of the top quartile of energy users receive an HER. This results in approximately double the current participation level. However, for this behavioral program, a measure life of one year is assumed, which means that savings do not accumulate over time as they do with equipment measures. Therefore, the program is more effective in helping to meet short-term energy-savings goals, rather than meeting long-term resource needs.

The growth of the HEC program in the expanded case is based on the benchmarking of home performance type programs in the South Census region. Comparing DESC's current program to this reference class of programs indicated that DESC's program has room to grow, primarily through the focus on existing homes by the addition of building shell measures (Figure 13). The shell measures could include a wide range of insulation, such as attic knee wall, radiant barrier, wall insulation, and attic access covers, as well as air sealing and window film.

Figure 13. Net Home Energy Check-up Incremental MWh Savings in 2024, by Measure Type



The Multifamily offerings could quickly achieve significant savings from "low-hanging fruit" such as in-unit and common area LEDs, as well as other direct install measures, including in-unit LEDs and in-unit water conservation measures (Figure 14). By targeting property owners and managers, this program can ramp up quickly based on an average of seven units per building. The program also has a large sector to target, with roughly 94,000 multifamily customers comprised of approximately 13,000 common area accounts and 81,000 residential multifamily accounts.

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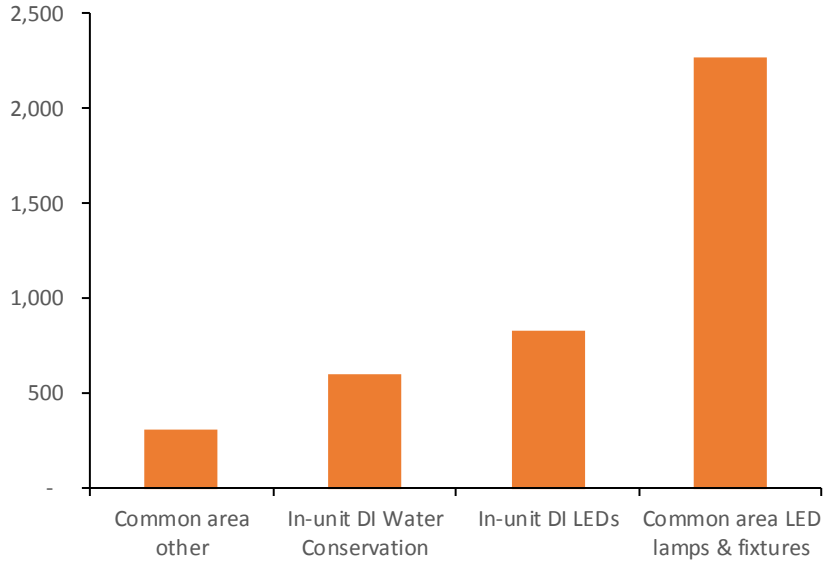
Figure 14. Net Multifamily Incremental MWh savings in 2024, by Measure Type

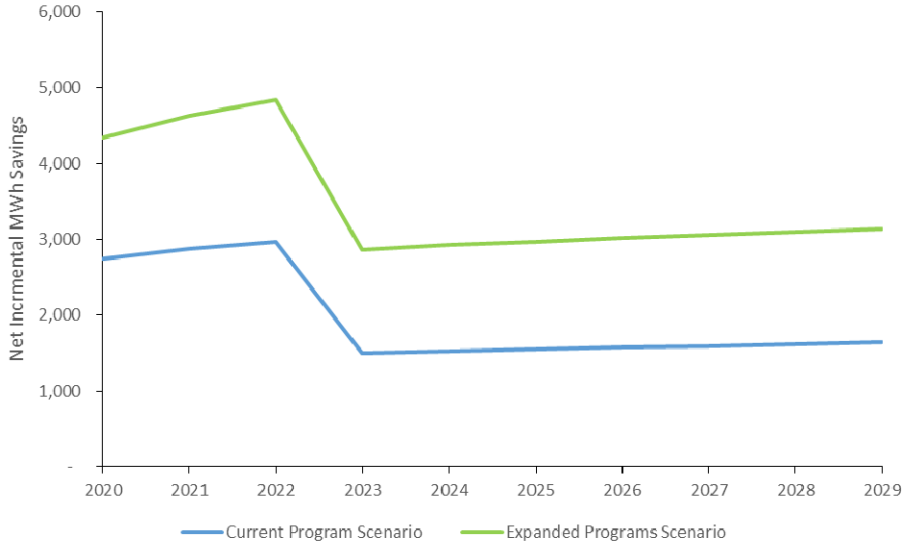


Cumulative Energy Savings

In 2023, the federal minimum energy performance standard increases from SEER 14 to SEER 15. This has a significant impact on the residential sector savings and specifically the Heating and Cooling program savings (Figure 15).

The federal standards change results in a two-thirds decrease in Heating and Cooling program savings in later years.

Figure 15. Total Incremental Heating and Cooling Program Savings



This is complimentary to the assessment of the likely date for implementation of the Tier 2 federal minimum energy performance standard for general service lamps. Together, these result in a sharp decrease in the savings from the entire residential portfolio (Figure 16). The reduction leads to an assumed phase-out of direct installation of LED bulbs after 2024. There is an uptick in the savings from the residential programs in the expanded case, starting in 2023, from the conversion of the Home Energy Report from an opt-in approach to an opt-out model.

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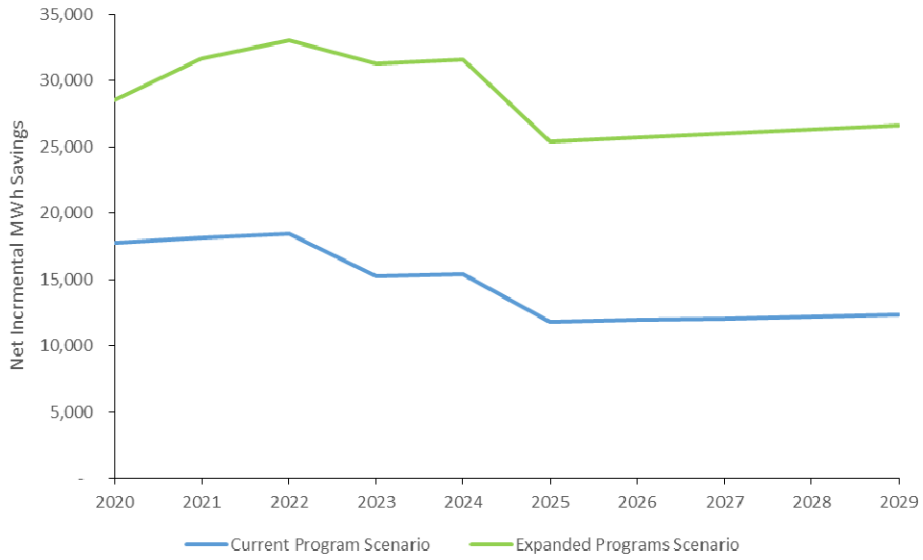
Figure 16. Net Incremental Residential Portfolio MWh Savings



Program Cost-Effectiveness

The residential portfolio of programs is cost-effective in both scenarios, as shown by the TRC test in Table 19 and Table 20. Of both the residential portfolio and the overall portfolio, the EnergyWise Savings (Online) Store has the highest cost-effectiveness. The programs' TRC benefits outweigh TRC costs by a factor of between 8 and 10. This high ratio of benefits to cost helps ensure that the overall portfolio of residential programs is also cost-effective, despite other programs not performing nearly as well, although none of the existing programs has a TRC ratio lower than 1.0.

The residential portfolio of programs is highly cost-effective and is driven by the Online Store followed by the Neighborhood Energy Efficiency program.

Table 19. Current Scenario Residential Portfolio Cost-Effectiveness Results

Benefit-Cost Ratios	TRC	PAC	RIM	PCT
Appliance Recycling	1.1	0.9	0.2	12.4
Heating & Cooling	1.0	1.6	0.4	1.5
Home Energy Check-up	1.7	0.5	0.2	3.3
Home Energy Reports	1.4	0.4	0.2	High
Neighborhood Energy Efficiency	5.2	2.1	0.3	6.7
Online Store	9.8	5.5	0.3	4.7
Residential Total	*2.4*	*1.3*	*0.3*	*3.5*

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Table 20. Expanded Scenario Residential Portfolio Cost-Effectiveness Results

Benefit-Cost Ratios	TRC	PAC	RIM	PCT
Appliance Recycling	1.1	0.9	0.2	12.4
Heating & Cooling	1.0	1.5	0.4	1.7
Home Energy Check-up	1.0	0.8	0.3	2.4
Home Energy Reports	1.9	0.3	0.2	High
Neighborhood Energy Efficiency	5.2	2.1	0.3	6.7
Online Store	8.1	4.5	0.3	4.4
Water Heating	0.7	1.0	0.2	2.2
Multifamily	2.0	1.6	0.3	4.4
Residential Total	*1.7*	*1.2*	*0.3*	*3.2*

Levelized Cost of Energy Savings

High costs from dominant programs drive the residential levelized cost of energy higher, although it is still cheaper than standard generation.

Of the residential programs in the current scenario, the Home Energy Check-up and Home Energy Report programs have the highest levelized cost and are both above the avoided energy cost (Table 21). This is due to the high upfront cost of the building shell measures in the Home Energy Check-up and the short lifetime of the savings from the Home Energy Report program. On the other hand, the Online Store and Neighborhood Energy Efficiency programs, which have much lower levelized costs, have longer lifetimes for their savings, as well as very low non-incentive costs. The fact that most of the residential savings come from the Home Energy Check-up and the Home Energy Report programs results in the total levelized cost for the residential programs being higher, although it is still lower than the avoided energy cost.

Table 21. Current Scenario Residential Annual and Levelized Cost of Energy Saved, by Program

Cost of Energy Savings ($/kWh)	Annual $/kWh	Levelized $/kWh
Appliance Recycling	$ 0.35	$ 0.049
Heating & Cooling	$ 0.68	$ 0.058
Home Energy Check-up	$ 0.38	$ 0.085
Home Energy Reports	$ 0.18	$ 0.178
Neighborhood Energy Efficiency	$ 0.18	$ 0.021
Online Store	$ 0.07	$ 0.008
Residential Total	$ 0.27	$ 0.042

While the new residential programs in the expanded scenario have a relatively low levelized cost of energy saved, the expansion of some of the existing programs increases their levelized cost (Table 22). The results are a higher overall levelized cost of energy savings for the residential programs in the expanded case; however, the total is still lower than the system-wide avoided energy cost.

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Table 22. Expanded Scenario Residential Annual and Levelized Cost of Energy Saved, by Program

Cost of Energy Savings ($/kWh)	Annual $/kWh	Levelized $/kWh
Appliance Recycling	$ 0.35	$ 0.049
Heating & Cooling	$ 0.60	$ 0.052
Home Energy Check-up	$ 0.67	$ 0.079
Home Energy Reports	$ 0.20	$ 0.196
Neighborhood Energy Efficiency	$ 0.18	$ 0.021
Online Store	$ 0.09	$ 0.009
Water Heating	$ 0.42	$ 0.045
Multifamily	$ 0.26	$ 0.030
Residential Total	$ 0.34	$ 0.047

In Table 23 and Table 24, the annual program costs for each residential program are displayed in millions of dollars.

Table 23. Current Scenario Total Annual Residential Program Costs

Program Costs ($M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Appliance Recycling	$ 0.8	$ 0.8	$ 0.8	$ 0.8	$ 0.8	$ 0.8	$ 0.8	$ 0.7	$ 0.7	$ 0.7
Heating & Cooling	$ 1.7	$ 1.8	$ 1.8	$ 1.1	$ 1.1	$ 1.1	$ 1.1	$ 1.1	$ 1.2	$ 1.2
Home Energy Check-up	$ 0.7	$ 0.7	$ 0.7	$ 0.7	$ 0.7	$ -	$ -	$ -	$ -	$ -
Home Energy Reports	$ 0.5	$ 0.5	$ 0.5	$ 1.0	$ 1.0	$ 1.0	$ 1.0	$ 1.1	$ 1.1	$ 1.1
Neighborhood Energy Efficiency	$ 0.6	$ 0.6	$ 0.6	$ 0.6	$ 0.6	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2
Online Store	$ 0.4	$ 0.4	$ 0.4	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1
Residential Total	*$ 4.7*	*$ 4.8*	*$ 4.9*	*$ 4.2*	*$ 4.2*	*$ 3.1*	*$ 3.2*	*$ 3.2*	*$ 3.2*	*$ 3.2*

Table 24. Expanded Scenario Total Annual Residential Program Costs

Program Costs ($M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Appliance Recycling	$ 1.0	$ 1.0	$ 1.0	$ 1.0	$ 1.0	$ 1.0	$ 0.9	$ 0.9	$ 0.9	$ 0.9
Heating & Cooling	$ 2.7	$ 2.8	$ 2.8	$ 1.7	$ 1.7	$ 1.8	$ 1.8	$ 1.8	$ 1.8	$ 1.9
Home Energy Check-up	$ 2.5	$ 3.0	$ 3.3	$ 3.5	$ 3.5	$ 2.4	$ 2.4	$ 2.5	$ 2.5	$ 2.5
Home Energy Reports	$ 0.5	$ 0.5	$ 0.5	$ 1.7	$ 1.7	$ 1.7	$ 1.7	$ 1.7	$ 1.8	$ 1.8
Neighborhood Energy Efficiency	$ 1.0	$ 0.9	$ 0.9	$ 0.9	$ 0.9	$ 0.3	$ 0.3	$ 0.3	$ 0.3	$ 0.3
Online Store	$ 0.5	$ 0.6	$ 0.7	$ 0.0	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1	$ 0.1
Water Heating	$ 0.4	$ 0.5	$ 0.7	$ 0.8	$ 0.9	$ 0.9	$ 0.9	$ 0.9	$ 1.0	$ 1.0
Multifamily	$ 0.8	$ 1.0	$ 1.0	$ 1.0	$ 1.0	$ 0.8	$ 0.8	$ 0.8	$ 0.9	$ 0.9
Residential Total	*$ 9.4*	*$ 10.4*	*$ 11.0*	*$ 10.6*	*$ 10.8*	*$ 8.9*	*$ 9.0*	*$ 9.1*	*$ 9.2*	*$ 9.2*

Commercial Sector Results

Energy Savings

In the current scenario, EnergyWise for Your Business is the largest commercial savings opportunity (Figure 17). It is a program targeting large commercial customers and consists of a wide variety of measures – both prescriptive and custom. In the expanded case, agricultural energy efficiency measures were added to address that customer segment in South Carolina.

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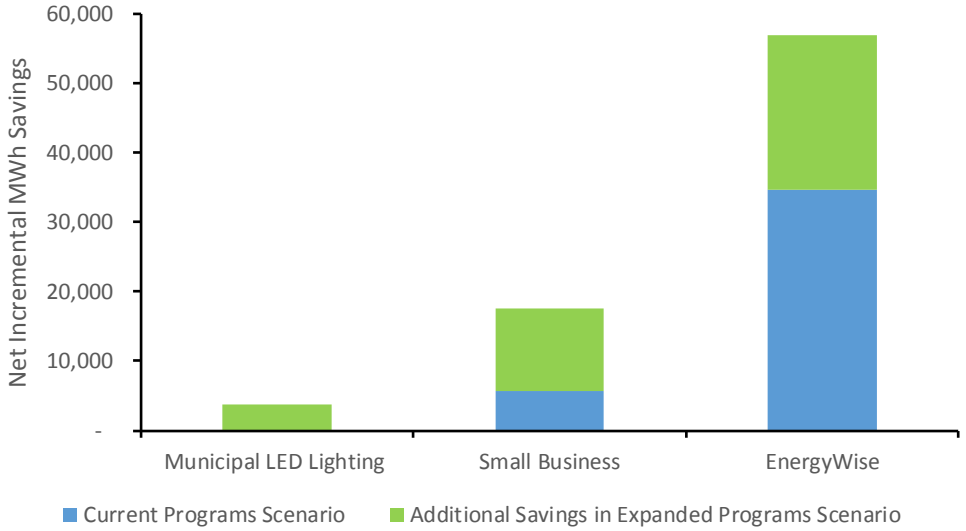
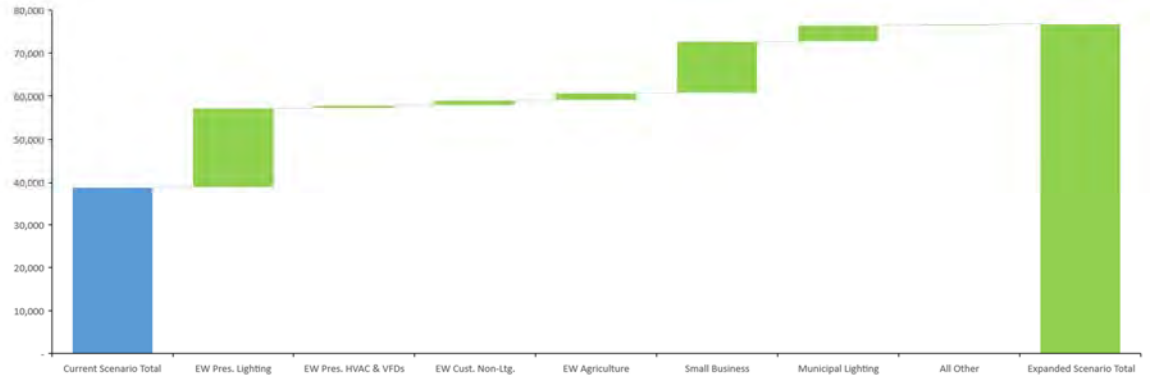
Figure 17. Net Commercial Incremental MWh Savings in 2024, by Program



Small Business is one of the largest areas for commercial sector savings growth in the expanded scenario (Figure 18). The Small Business has a large sector to target, with roughly 34,000 small commercial accounts as compared with only 19,000 large commercial accounts. However, both the small and large commercial programs are heavily dependent upon lighting measures.

The Small Business program drives an increase in savings for the commercial sector.

Figure 18. Additional Net Incremental MWh Savings in 2024 in Expanded Scenario, by Measure Type



The new Municipal LED Lighting program would service about half the cities in DESC's service area over five years, but further increases the reliance of lighting measures to achieve portfolio energy savings.

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Program Cost-Effectiveness

The commercial portfolio of programs is cost-effective in both scenarios, as shown by the TRC test in Table 25 and Table 26. The commercial programs perform more consistently than the residential programs, with all programs having a cost-effectiveness ratio above 1.0. This means that no single program must ensure the performance of the sectors' portfolio of programs.

The commercial programs all perform well individually and as a whole.

Table 25. Current Scenario Commercial Portfolio Cost-Effectiveness Results

Benefit-Cost Ratios	TRC	PAC	RIM	PCT
EnergyWise	1.8	2.7	0.5	2.9
Small Business	1.9	1.9	0.4	6.3
Commercial Total	*1.8*	*2.6*	*0.4*	*3.1*

Table 26. Expanded Scenario Commercial Portfolio Cost-Effectiveness Results

Benefit-Cost Ratios	TRC	PAC	RIM	PCT
EnergyWise	1.8	2.2	0.4	3.0
Small Business	1.9	1.8	0.4	6.6
Municipal LED Lighting	2.4	0.4	0.2	5.0
Commercial Total	*1.9*	*1.9*	*0.4*	*3.3*

Levelized Cost of Energy Savings

In the current scenario, the levelized cost of the Small Business program is higher than the EnergyWise program (Table 27); however, as shown in Figure 17, the commercial portfolio savings are predominantly from the EnergyWise program. This helps keep the overall commercial portfolio levelized cost low.

Table 27. Current Scenario Commercial Annual and Levelized Cost of Energy Saved, by Program

Cost of Energy Savings ($/kWh)	Annual $/kWh	Levelized $/kWh
EnergyWise	$ 0.18	$ 0.020
Small Business	$ 0.17	$ 0.029
Commercial Total	*$ 0.18*	*$ 0.021*

In the expanded scenario, the larger increase in the Small Business program, as well as the high levelized cost of the new Municipal LED Lighting program, result in a large increase in the overall commercial portfolio levelized cost of energy (Table 28).

The expanded scenario sees a rise in the cost of energy savings for commercial

Table 28. Expanded Scenario Commercial Annual and Levelized Cost of Energy Saved, by Program

Cost of Energy Savings ($/kWh)	Annual $/kWh	Levelized $/kWh
EnergyWise	$ 0.21	$ 0.024
Small Business	$ 0.18	$ 0.031
Municipal LED Lighting	$ 1.05	$ 0.086
Commercial Total	*$ 0.23*	*$ 0.028*

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In Table 29 and
Table 30, the annual program costs for each commercial program are displayed in millions of dollars.

Table 29. Current Scenario Total Annual Commercial Program Costs

Program Costs ($M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
EnergyWise	$ 5.1	$ 5.6	$ 6.0	$ 6.1	$ 6.1	$ 6.2	$ 6.2	$ 6.2	$ 6.2	$ 6.3
Small Business	$ 0.8	$ 0.9	$ 0.9	$ 1.0	$ 1.0	$ 1.0	$ 1.0	$ 1.0	$ 1.0	$ 1.0
Commercial Total	*$ 5.9*	*$ 6.5*	*$ 6.9*	*$ 7.0*	*$ 7.1*	*$ 7.1*	*$ 7.2*	*$ 7.2*	*$ 7.2*	*$ 7.3*

Table 30. Expanded Scenario Total Annual Commercial Program Costs

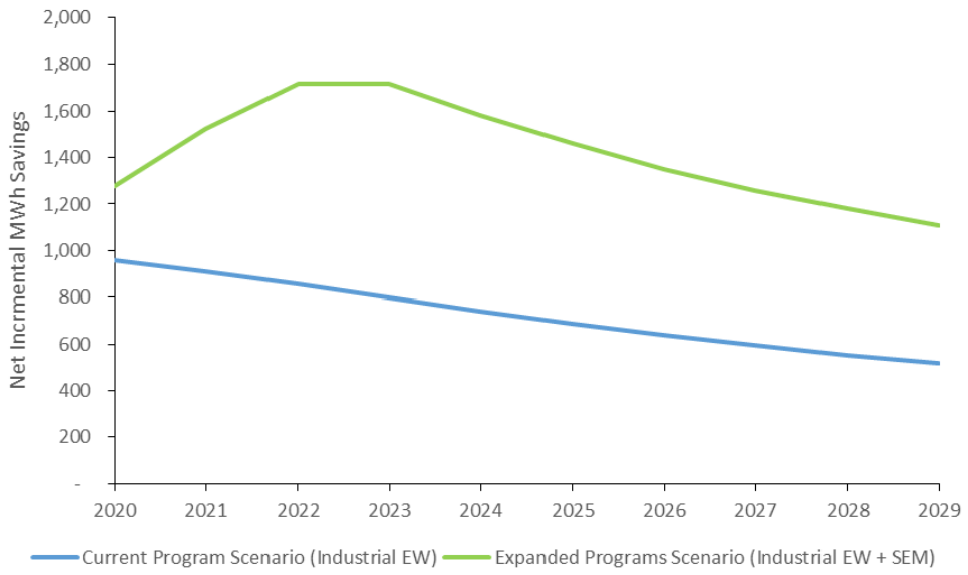
Program Costs ($M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
EnergyWise	$ 7.7	$ 9.4	$ 11.8	$ 11.7	$ 12.1	$ 12.5	$ 12.8	$ 13.2	$ 13.6	$ 14.0
Small Business	$ 1.6	$ 2.4	$ 2.9	$ 3.0	$ 3.1	$ 3.1	$ 3.1	$ 3.1	$ 3.1	$ 3.1
Municipal LED Lighting	$ 3.2	$ 4.5	$ 4.1	$ 4.4	$ 3.9	$ -	$ -	$ -	$ -	$ -
Commercial Total	*$ 12.5*	*$ 16.3*	*$ 18.7*	*$ 19.2*	*$ 19.1*	*$ 15.6*	*$ 15.9*	*$ 16.3*	*$ 16.7*	*$ 17.1*

Industrial Sector Results

Energy Savings

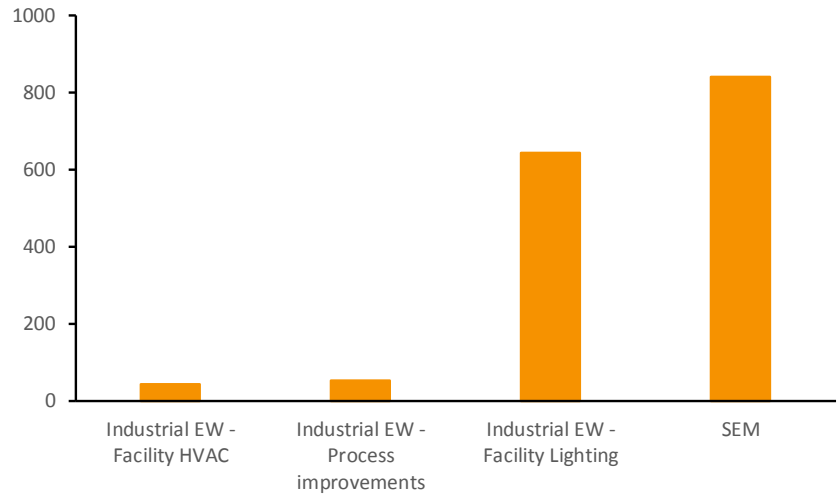
As shown earlier, in Figure 5, industrial customers have heavily opted out of the energy efficiency programs in South Carolina. Based on this significantly reduced participation rate, savings from large industrial customers decline steadily in the current scenario (Figure 19). This occurs because the small population of participants becomes saturated and begins to reach a mature state.

Figure 19. Net Industrial Incremental MWh Savings in 2024, by Program



To counter this mature program decline, a new Strategic Energy Management (SEM) program offering was added to the expanded case (Figure 20). This offering would assist small to medium enterprises in enhancing operational efficiency. Many such enterprises do not have the knowledge, time, or resources to make those improvements, so the program is designed to provide technical training, as well as incentives for those optimizations and other low-cost measures.

Figure 20. Net Incremental MWh Savings in 2024, by Measure Type



Program Cost-Effective

The industrial portfolio of programs is cost-effective in both scenarios, as shown by the TRC test in Table 31. The industrial programs perform especially well in the Participant Cost Test (PCT), which indicates that the measures should be a good return on investment for the customers participating in the program. This is particularly valuable for a sector with such a high rate of opting-out.

The cost-effectiveness is high from the participants' perspective in the industrial programs.

Table 31. Industrial Portfolio Cost-Effectiveness Results

Benefit-Cost Ratios	TRC	PAC	RIM	PCT
Industrial Efficiency	1.7	1.8	0.5	6.5
Strategic Energy Management	1.1	1.5	0.5	5.7
Industrial Total	*1.4*	*1.7*	*0.5*	*6.2*

Levelized Cost of Energy Savings

Each individual industrial program, as well as the entire portfolio, have a levelized cost of energy savings below the avoided cost of energy (

Table 32). This indicates that despite the small size of the industrial portfolio savings, it is a very strong offering.

The levelized cost of energy savings remains low for the industrial portfolio.

The new Strategic Energy Management program offering helps address the large number of opt-outs.

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Table 32. Industrial Annual and Levelized Cost of Energy Saved, by Program

Cost of Energy Savings ($/kWh)	Annual $/kWh	Levelized $/kWh
Industrial Efficiency	$ 0.24	$ 0.024
Strategic Energy Management	$ 0.22	$ 0.031
Industrial Total	*$ 0.23*	*$ 0.027*

In Table 33, the annual program costs for each industrial program are displayed in millions of dollars.

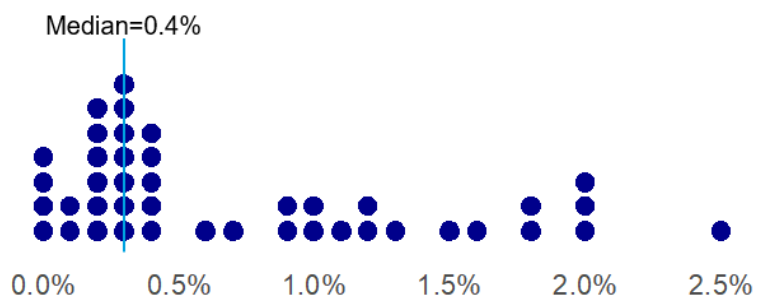
Table 33. Total Annual Industrial Program Costs (in millions of dollars)

Program Costs ($M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Industrial Efficiency	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1
Strategic Energy Management	$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.1	$ 0.1	$ 0.1	$ 0.1
Industrial Total	*$ 0.3*	*$ 0.3*	*$ 0.4*	*$ 0.4*	*$ 0.4*	*$ 0.3*	*$ 0.3*	*$ 0.3*	*$ 0.3*	*$ 0.3*

Portfolio Benchmarking

Energy efficiency program savings levels across the United States have generally declined as minimum energy performance standards for general service light bulbs (EISA 2007) were implemented by the U.S. Department of Energy. In the U.S. South Census region, median total electric savings as a percentage of sales was 0.4% in 2017 (Figure 21).[16] The forecast for this study, in comparison, ramps up to 0.7% of sales by 2022 in the expanded case. This is 75% higher than the 2017 median shown below.

Figure 21. Histogram of Total Savings Impacts in the South Census Region for 2017 (n=42)



Source: U.S. Energy Information Administration

The median total energy efficiency portfolio cost per kWh saved[17] in the South Census region was $0.22 in 2017 (Figure 22). In comparison, the cost per kWh in the current programs scenario in this study is $0.20 per kWh, and $0.26 in the expanded scenario[18] – savings double in the expanded scenario with a 30% increase in cost per kWh saved.

[16] Each dot on the chart represents the total energy efficiency portfolio savings as a percentage of sales for one investor-owned utility in the South Census region in 2017. Note that some states only report gross energy savings, and Evaluation, Measurement, and Verification (EM&V) methods vary by state; therefore, performance across states is not 100% comparable.
[17] Calculated as the total program costs divided by incremental (annual) savings for 2017.
[18] Calculated as the sum of program costs divided by the sum of incremental savings for 2020–2029.

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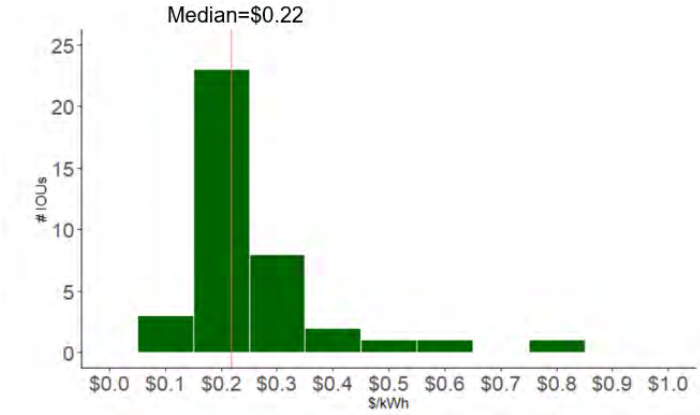
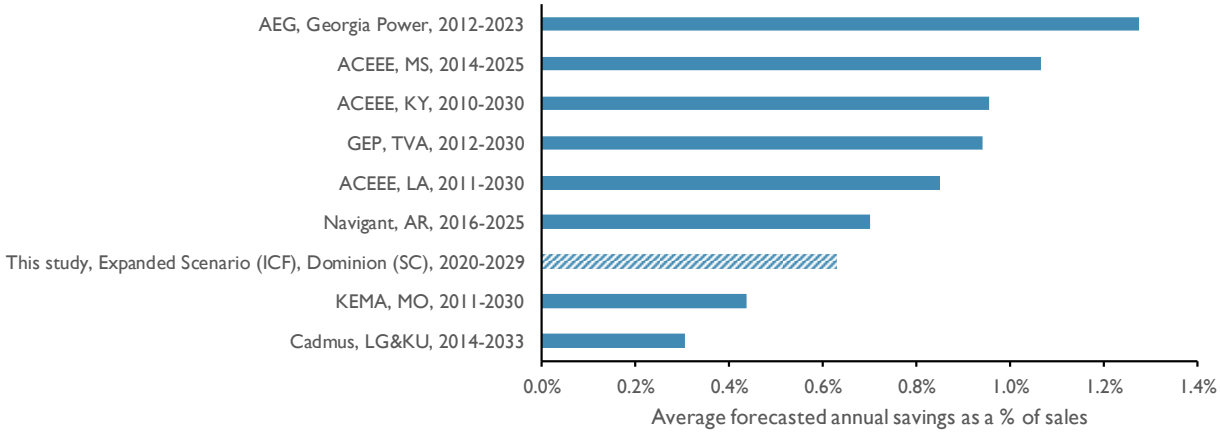
Figure 22. Histogram of Total Energy Efficiency Portfolio, in $/kWh, in the South Census Region for 2017 (n=40)



Source: U.S. Energy Information Administration

The results of this study are reasonable compared to the results of several other potential studies covering areas of the United States primarily in the South. ICF identified a reference class of eight potential studies conducted by analysts other than ICF. The average annual savings as a percentage of sales forecasted in each reference class study's "high" case is shown in solid blue, below. The horizontal axis in Figure 23 is average annual savings as a percentage of sales over the forecast period. The vertical access shows the studies (study author, study area, study time horizon). The annual average savings level forecasted across the ten-year study period in the Expanded case (0.6%) is shown in candy-stripe blue. The median value of the reference class of eight studies is 0.9%. Importantly, the reference class studies all include earlier time periods less impacted by federal minimum energy performance standards for general light bulbs (EISA 2007); therefore, the results of the reference class studies likely include much more savings from standard screw-in LEDs and CFLs than this study. Further, some of the studies, including those performed by ACEEE, were conducted using top-down methods, making the results less comparable to this study, which was developed using a bottom-up approach.

Figure 23. Results from eight comparable potential studies in the U.S. Southern region, and from this study



Sources: ACEEE; Navigant

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6. DEMAND RESPONSE POTENTIAL STUDY EXECUTIVE SUMMARY

This report on demand response potential complements the section on energy efficiency potential analysis, both of which were performed as part of the DSM study.

As with the energy efficiency potential study, a bottom-up process was used to determine achievable potential forecasts for the 2020–2029 period for multiple demand response programs covering the residential, commercial, and industrial sectors under current and expanded scenarios. The current scenario case comprised existing programs, while the expanded case explored new programs that could potentially be implemented in the DESC service territory. The focus of the modeled scenarios was to reduce the winter peaking demand and thus all results discussed are for the winter peaking season. The key results are:

- **Demand response (DR) programs reduce the winter peak load in 2029 by 3.86%** in the expanded scenario, where the new program contribution is 0.85%.
- **Demand growth is offset by 60% in 2029** in the expanded case due to the DR programs.
- **The interruptible load program for industrial customers remains the dominant program**, as in the current scenario.
- **The Direct Load Control (DLC) program contributes to an additional 28% of winter demand savings** in 2029 in the expanded scenario, which spans the residential and commercial sectors.
- The DR programs recommneded to DESC show a **Total Resource Cost (TRC) test benefit-to-cost ratios of 1.8** or above for all programs in both scenarios, with a **total portfolio TRC ratio of 2.0**.

It should be noted that the results presented in Achievable Demand Response Potential section, do not consider any Advanced Metering Infrastructure (AMI) deployment beyond what is currently installed, as DESC did not have an AMI installation deployment plan at the time the analysis was conducted. Following the merger with Dominion Energy, additional discussions began regarding further AMI deployment. No AMI rollout plans have not been finalized. An additional scenario with an ICF anticipated deployment plan for AMI was developed and included in Appendix A to show the DR programs' potential in the event a deployment plan is implemented.

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7. STUDY APPROACH

Overview

A bottom-up approach was used to evaluate DR potential for DESC. Two scenarios were analyzed for the study: (1) **current programs scenario** and (2) **expanded programs scenario**. While the current scenario was modeled based on existing programs and informed mainly by past program performance, the expanded scenario underwent a full potential modeling process. The list of programs and differences for the expanded programs from the current programs scenario are listed in Table 34.

Table 34. Scenarios Modeled

Current Programs Scenario	Expanded Programs Scenario	Differences in Expanded Scenario	Applicable Sectors
Interruptible Load	Interruptible Load	None	Industrial
Standby Generation	Standby Generation	None	Commercial
	Time-of-Use Program	Modified rates (incremental impact over existing program)	All Sectors – Residential, Commercial, Industrial
	Direct Load Control *Smart Thermostat* *Water Heater Switch*	New Program	Residential, Small and Medium Commercial
	Critical Peak Pricing	New Program	Residential, Commercial

The analysis began with the development of a comprehensive list of DR program types currently implemented in U.S. markets. The data required to model and evaluate the parameters for different programs were then collected, such as implementation costs, market size, and participation criteria. Data sources include DESC data; publicly available data, such as potential studies and annual reports; and ICF expert input. This information was then run through the ICF Demand Response models to evaluate savings and cost-effectiveness.

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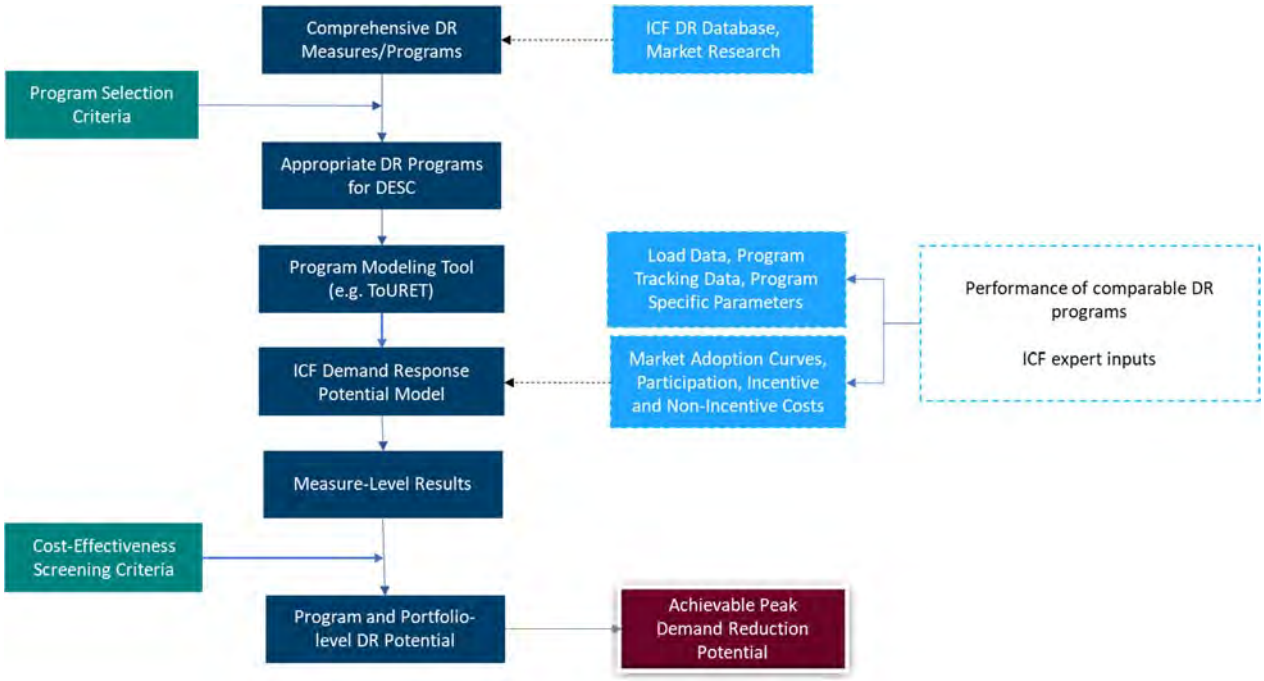
Figure 24 shows the bottom-up approach for this study.

Figure 24. Overview of Bottom-up Approach to Potential Study



This study provides the potential DESC winter peak impact due to existing and expanded DR programs, along with the details of savings forecasted for every year of the analysis, annual program costs, and program benefit-cost results.

Data Review

Utility System Data

Utility system data were provided by DESC, and the list of data items is provided here:

- Forecasted hourly load for 2019–2021, by customer class
- Forecasted annual system energy and demand forecasts, by customer class and season
- Forecasted electricity avoided capacity and energy costs for 2019–2038
- Forecasted customer counts, by sector
- AMI meter saturation data
- Utility discount rate
- Reserve margin and transmission and distribution losses as a percentage
- Retail rates of electricity, by sector

Measure and Program Data

Based on the data provided, territory-specific inputs were developed for the selected programs. Existing program data were obtained from DESC Evaluation, Measurement, and Verification (EM&V) reports, tariff documents, and event dispatch details. For example, Interruptible load and standby generation programs data were obtained as follows:

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- Event durations from the previous dispatch details
- Incentive levels from rate documents or paid incentives details
- Program historic MW levels

New and modified program data and modeling are discussed in more detail in the following subsections.

Time of Use (ToU) Modified

The Time-of-Use program was modified from the current price to examine whether a different (more aggressive, but conforming to industry standards) price would result in any savings beyond what the current program achieves. The ToU prices were modelled using load and cost duration curve analysis to arrive at the peak to off-peak ratios that align with programs across the country, and were then designed to be revenue neutral with current program implementation.

The data collection and modeling process involved:

- Obtaining the participation levels for ToU programs across sectors to calibrate the participation curve for the potential. Participation was constant across the historic period, which was determined to be the case going forward.
- Determining the fraction of the population eligible for the program. As with most rate-based programs, this is bound above by the number of AMI meters installed per customer sector.
- Researching ToU programs implemented by other program administrators to validate the peak to off-peak pricing ratio obtained using the load/cost duration curve analysis.
- Since there are no events in the ToU program, the impact estimation is done using elasticities. Elasticity data for various programs across the United States were researched and customized to DESC territory using expert opinion at ICF.

Direct Load Control (DLC)

DLC programs involve DESC remotely operating the switches for devices in consumer homes and businesses to shave loads during peak events. For a smart thermostat program, the utility is assumed to control the set points of customers' thermostats within an allowed range during the event. This program applies to the residential and commercial customer classes. The program was modeled based on the measures listed in Table 35.

Table 35. DLC Measures Considered

Class/Sector	DLC Measure
Residential	Water Heater Switch
	Smart Thermostat
Commercial	Water Heater Switch
	Smart Thermostat

The data collection process for DLC programs included the following:

- Developing the S-curve for participation, with maximum participation reached by 2039 (20 years), and using the data from the curve through 2029 (10 years). This is based on the Bass diffusion curve, coupled with maximum participation levels from existing programs and potential studies, and refined using ICF expertise.
- Determining the fraction of the population eligible for the program. This defines the market size for a measure and is determined by the saturation of enabling technologies. The market saturation was obtained from ODC.

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- Researching DLC programs implemented by other program administrators.
- Estimating the number of DLC events each year. For this study, the DLC events were determined by the top 10 4-hour block events per season each forecast year.

Critical Peak Pricing (CPP)

Winter CPP programs for residential and commercial sectors are rate-based programs that have a higher price for energy during specified events. The consumers are offered a discount on regular usage (i.e., there are lower energy prices during any non-event times) for participation in this program to compensate for the high price during the events, with the expected revenue (bill for a consumer) the same with regular rates and with CPP pricing.

The CPP program was modeled using data from various programs across the United States. The data collection and modeling process involved:

- Developing the S-curve for participation, with maximum participation reached by year 2039 (20 years), and using the data from the curve through 2029 (10 years). This is based on the Bass diffusion curve, coupled with maximum participation levels from existing programs and potential studies, and refined using ICF expertise.
- Determining the fraction of the population eligible for the program. As with most rate-based programs, this is bound above by the number of AMI meters installed per customer sector.
- Researching CPP programs implemented by other program administrators to obtain the critical peak to off-peak pricing ratio.
- Estimating the number of CPP events during each year. For this study, the CPP events were determined by the top 10 3-hour or 4-hour block events per season each forecast year.

Program Modeling

Program Types Modeled

The process began by assessing the two primary DR program types – dispatchable and rate-based programs – as shown in Table 36.

Table 36. Sample List of DR Programs From Which Applicable Program List Is Filtered

Dispatchable / Load Response	Rate-Based / Price Response
Direct Load Control	Time-of-Use Pricing
Interruptible Load	Critical Peak Pricing
Standby Generation	

Dispatchable programs are programs in which the utility offers customers payments for reducing demand during specified periods. These can include either the reduction of usage by a customer when an event is called, or the control of switches by the utility directly. Note that such programs require the analysis of multiple measures, the details of which are described below.

Rate-based programs are programs in which customers voluntarily reduce their demand in response to energy price signals or pre-informed pricing structures in which they enroll ("opt-in" programs).

The following criteria were used to choose the programs most applicable to the DESC service area:

- DESC hourly load profile
- Availability of required technologies for program deployment
- Availability of data from programs across the United States

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- Discussion with DESC
- Expert opinion of ICF

One modified and two new programs were selected to model for this analysis, along with the existing levels of interruptible load and standby generation programs. These other programs included the DLC program with two measures – smart thermostats and water heater switches, for both residential and commercial load; the CPP program for residential and commercial; and a modified ToU program for all sectors. While real-time pricing existed for some customers, it has since been suspended indefinitely and hence was assumed to be discontinued in this analysis as per discussions with DESC.[19]

Both the current standby generator and interruptible programs were reviewed but not modeled under the expanded scenarios. Factors that supported this decision included the large percentage of industrial customers that would most likely participate in the offerings have already made the decision to opt-out of the current DSM programs. For the standby generator program, EPA changes (NESHAP RICE[20]) which limit non-compliant units from running more than 500 hours/year, has restricted and limited participation. Throughout the course of ICF's analysis, the capacity provided by the standby generator program was assumed to remain constant at 25 MW from wholesale and 10MW from retail based on historical data.

An offering with a focus on winter peak reduction was modelled under the assumption of 150 MW maximum interruptible load based on historic data. Winter curtailments present greater challenges to manufacturing and other industrial customers since one important consideration includes needing to heat facilities and buildings during the coldest times of the year. ICF's review of recent potential studies conducted for IRP support show that typical winter DR programs offering interruptible/ curtailment programs range from 0.4%-2.7% of peak, less than the 3.2% that DESC currently offers.

Of the selected new programs, DLC for commercial (both smart thermostat and water heater switches) and DLC for residential (only smart thermostat) passed the TRC test. Since a ToU program for all sectors (residential and commercial and industrial [C&I]) already existed, considering that there would not be any initial costs, a modified-rate ToU program was defaulted to being cost-effective. The CPP program did not pass the TRC test, primarily because there were very few customers with AMI installed, resulting in the benefits not being enough to cover the initial costs of setting up the program. The DLC water heater program for residential also did not pass the TRC test, mainly due to the recruitment costs, which included a switch purchase, and installation and labor costs. The smart thermostat passed the TRC test for both sectors (residential and commercial) since it was modeled as a Bring Your Own Thermostat program and thus did not include the cost of equipment and additional expenses. Note that the measures for DLC in the commercial sector mainly included the small and medium commercial customers.

With the shorter planning timescale, 5-years, no new programs were cost effective and thus none were developed for the program plan.

[19] SCPSC Docket No. 1999-30-E, https://dms.psc.sc.gov/Attachments/Matter/4cccf7cf-d14e-4ede-8d2d-34aa21dc353a

[20] National Emission Standard for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines

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Program Assumptions

Program Costs

Program costs were estimated to reflect average annual costs based on the following:

- Actual program costs of different programs being implemented in the United States
- Costs published in DR potential studies
- ICF program evaluation and implementation experience

DR program costs that were considered for the programs include the following standard components:

- Initial Costs
  - New participant incentives – Program payments that DESC would make to the customers to opt-in to the DR programs. Incentive costs were estimated for each measure.
  - Recruitment costs – Costs per participant, paid to set up a customer as a program participant, marketing, and switch costs (such as water heater switches) and installation, if any.

  The new participant incentive costs are assumed to be zero for all programs modeled in this study. It was assumed that the customers – residential and commercial – who have the smart thermostats are the ones eligible for the corresponding DLC program. For the water heater non-residential customers, the installation and switch costs are included in the initial recruitment costs.
- Annual Costs
  - Ongoing incentives – The amount, per kilowatt, paid for ongoing participation in the program, typically via direct payment/bill discount.
  - Program administrative costs – Costs of the program, in dollar per kilowatt, that are paid for ongoing participation in the program, which vary depending on that participation, and include customer service, maintenance, replacement of switches on burn-out, and so forth.
- Fixed Costs – Costs, in dollars, paid for the program for system coordination and so forth. These are independent of the number of customers enrolled in the program.

Participation

The participation schedule for each program was forecasted according to:

- Base rate, or the participation level in Year 1 of the program
- Maximum participation rate
- Ramp-up rate, which determines how quickly the participation grows from the base rate to the maximum rate

A key assumption was that all programs were modeled as opt-in DR products. Therefore, the programs are first implemented with low participation numbers that gradually ramp up to maximum participation levels. For this study, which spans 10 years of analysis, the first 10 years of the participation curve are taken into account when modeling the potential. A customer must enroll in order to participate in the pilot or the program, and the cost development included this assumption. Opt-in programs are typically characterized by lower maximum rates of adoption and generally lower participation levels than opt-out programs; however, the per participant impact of these types of programs is higher than those of opt-outs.

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Program Evaluation

ICF's Demand Response Potential Model (DRPM) was used to forecast savings, evaluate the program costs, and generate program post-impact loadshapes. While the DRPM aggregates the results from various programs to output portfolio-level information and provides an avenue to perform cost-effectiveness calculations, individual program models calculate the savings impact that serves as the input for DRPM. The various assessment models used in this study are described below.

- Time-of-Use Rate Evaluation Tool (ToURET)

  ICF's ToURET uses time-varying tariff data (e.g., time of use) to model the demand/consumption shifts that reflect consumer behavior. It inputs price elasticity values to quantify the response of the consumer to dynamic pricing. The output is an annual DR load profile for use in resource planning, along with various DR output metrics, such as peak demand reduction, utility revenue change, and annual consumption impact.

  While it was designed for time-of-use programs, ToURET also allows impact evaluation of various other rate-based programs, such as CPP. ToURET also facilitates the evaluation of impacts over multiple pricing and elasticity scenarios. The elasticities were calculated as the national average of time-of-use programs researched for this study, with modifications, as necessary, to suit to DESC service area.

- Direct Load Control Model

  The DLC model uses historic and potential program information to quantify the impact of measures during DR events. The per customer peak impacts are used in the model to account for the rebound or snap-back that occurs during the hours immediately following a DR event.

  As with the ToURET model, the DLC model also can evaluate the impacts of dispatchable programs, such as interruptible load and standby generation.

Measure and Program Screening for Cost-Effectiveness

Measure screening was performed on DLC measures using the TRC test. Measure TRC benefits include avoided costs due to the measure over the measure lifetime. For DLC, the measure life in utility programs is typically considered one year. Measure TRC costs include participant costs and program implementation costs, and exclude the program-level fixed costs for initial setup of the program. Three of the four DLC measures passed the measure TRC test. These measures are shown in Table 37. Water heater switches for residential programs did not pass the TRC test, mainly because of the initial recruitment costs, which are not outweighed by the corresponding avoided costs benefits.

Table 37. DLC Measures with a TRC Benefit/Cost Test Ratio of 1.0 or Higher

Class / Sector	DLC Measure
Residential	Smart Thermostat
Commercial	Water Heater Switch
	Smart Thermostat

Standby generation and interruptible load programs are already being implemented and comfortably pass the TRC test. The rate-based programs do not have individual measures that require screening. Hence, the screening was performed at a program level at this point. CPP programs do not pass the screening test, while ToU program is *assumed* to be cost-effective since the program is already operational. The main reason CPP does not pass the screening test is that the number of AMIs installed in the territory is low, leading to low participation, especially in the near term (the lower end of the S-curve).

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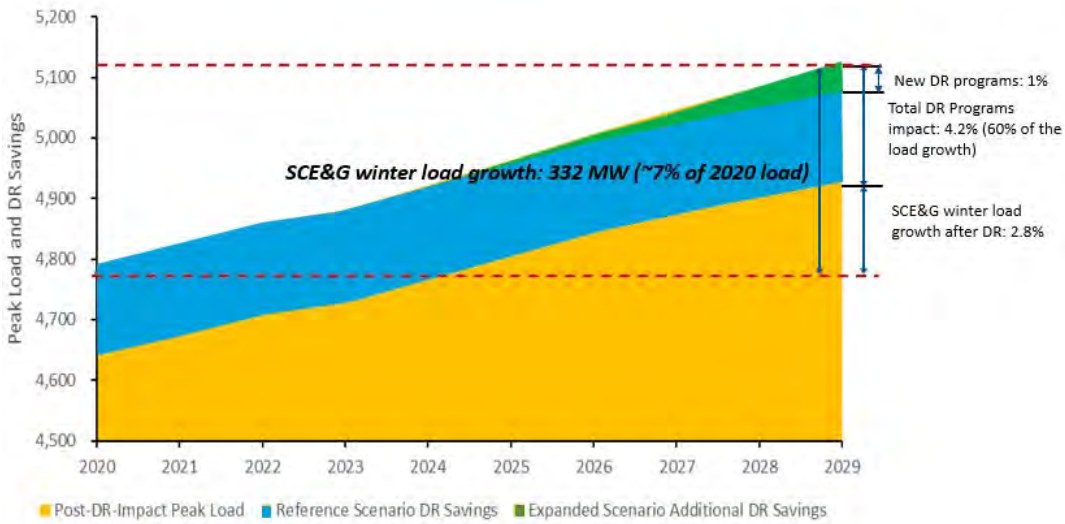
8. ACHIEVABLE DEMAND RESPONSE POTENTIAL

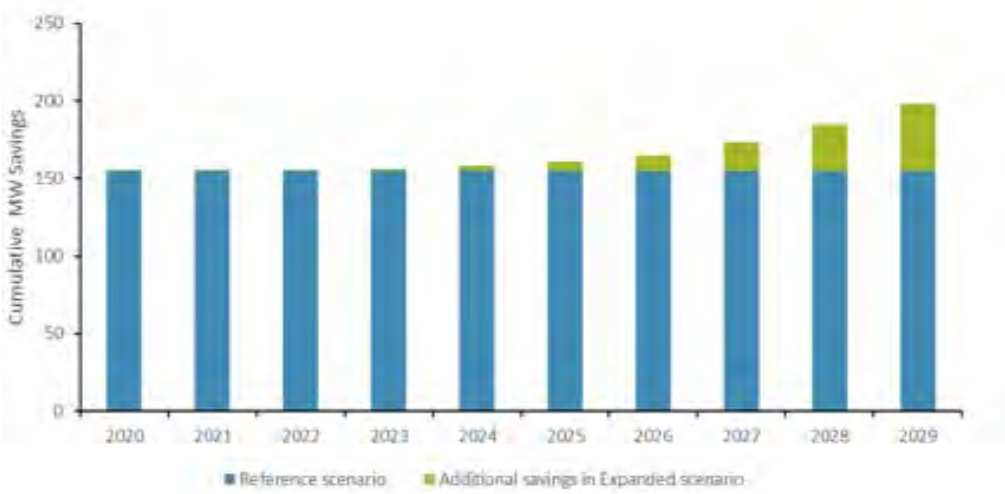
All results discussed in this section are winter demand savings from the expanded programs scenario.

Figure 25. Load Growth and Load Impact, by DR Program



DR programs offset as much as 60% of the demand growth between 2020 and 2029 in the expanded scenario, as shown in Figure 25. In other words, the winter peak is expected to increase by 7% in the absence of DR programs (but includes the effect of the ToU program that is rolled out as a tariff option). Due to peak load reduction by the DR programs, this growth would be limited to 2.8%. A large amount of the load growth was already being offset by the interruptible load and standby generation programs (46%); however, the new DLC program contributes significantly to the total reduction achieved in the expanded case (14%).

Figure 26. Winter DR Savings Forecast



In absolute terms, by winter 2029, an additional 43 MW can be achieved via new programs, with the majority being recognized from DLC (including smart thermostat) programs for the residential and commercial sectors, as shown in Figure 26. While much of the savings are from the interruptible load program, the DLC program also provides a significant amount by 2029. The DLC program

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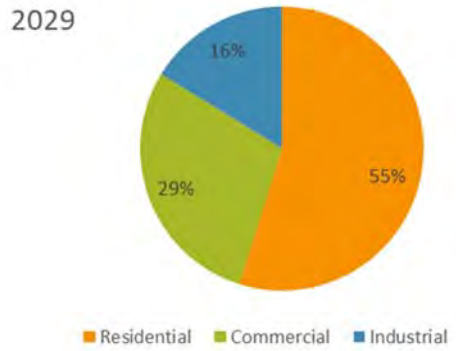
contribution comes from the commercial measures of smart thermostats and water heater switches, as well as the residential smart thermostat measure. The modified ToU rate does not contribute much due to the low number of AMI meters installed and the limited incremental impact of altering the prices. ToU participation has been flat over the years, and is expected to continue that way.

Figure 27. DESC Winter Peak Load Share by Sector



DESC winter peak is dominated by the residential sector (55% in 2029), followed by C&I, as shown in Figure 27. This indicates that there may be untapped potential in these sectors, and the current DR program approach is considering programs for these sectors.

Figure 28 shows how the DR program split changes in the form of sector-level contribution. The existing programs are interruptible load in industrial and standby generation in commercial. The new DLC program adds to the commercial component in the form of smart thermostat and water heater switch measures, and to the residential sector in the form of smart thermostat programs. The industrial sector has higher savings than the commercial sector as a whole, mainly due to the interruptible load program, which is characterized by high savings compared to other C&I programs.

Figure 28. System Load and Load Savings Distribution by Sector From 2020 to 2029

Program implementation costs for the new programs mainly follow the participation curve as the recruitment costs and the incentives are aligned with the number of participants. Consequently, it starts out slowly and grows rapidly from 2024 to 2029. Costs, if projected for another 10 years, would level-off over that time. Note that post-merger with Dominion Energy, the AMI installation schedule was revised, which would significantly impact the rate-based programs' participation levels. These are discussed in Appendix A.

The cost progression over the program period is shown in Table 38.

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Table 38. Winter Program Annual Costs for New Programs ($M)

Program - Sector	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Direct Load Control - Residential	$ 0.22	$ 0.13	$ 0.15	$ 0.17	$ 0.22	$ 0.31	$ 0.47	$ 0.71	$ 1.02	$ 1.34
Direct Load Control - Commercial	$ 0.31	$ 0.14	$ 0.15	$ 0.19	$ 0.24	$ 0.35	$ 0.51	$ 0.83	$ 1.23	$ 1.67

Table 39 shows the levelized costs of the programs (in dollars per kilowatt) and the benefit-cost test results. The programs are all cost-effective under the TRC test, and overall, the portfolio of programs is highly cost-effective, with a TRC test result of 2.0 in the expanded scenario. The levelized costs for all programs are reasonable and comparable to the other market projections available.

Table 39. Levelized Costs and Benefit-Cost Test Results of the DR Portfolio

Program	Sector	Cost Benefit Ratio Test			Levelized Costs ($/kW)
		TRC Test	PAC Test	RIM Test	
Interruptible Load	Industrial	1.8	1.4	1.1	$ 63.50
Standby Generator	Commercial	3.6	2.8	2.4	$ 31.75
Direct Load Control	Residential	1.8	1.0	1.0	$ 85.15
Direct Load Control	Commercial	2.0	0.8	0.8	$ 107.76
Total Sector-Level	Residential	1.8	1.0	1.0	$ 85.15
	Commercial	3.2	2.1	1.9	$ 41.38
	Industrial	1.8	1.4	1.1	$ 63.50
Total Portfolio	**All**	**2.0**	**1.5**	**1.2**	**$ 59.27**

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9. FIVE-YEAR PROGRAM PLAN EXECUTIVE SUMMARY

This Comprehensive Report and Demand Side Management Portfolio Plan documents the development of the DESC-proposed PY10 through PY14 Demand Side Management (DSM) portfolio. This report includes:

- Program descriptions and rebate tables (where applicable)
- Summaries of major program design changes
- Estimated program participation by year
- Energy and demand savings estimates at the measure level
- Estimated energy and demand savings by program, by year
- Comparison to DESC's Potential Study
- Budgets by major category
- Program cost-effectiveness
- Program evaluation plans

The process of developing the programs in the portfolio included the following steps:

1. Establishment of the demand and energy impacts of a broad range of DSM measures.[21]
2. Screening of individual measures for cost-effectiveness.
3. Bundling of the measures that pass cost-effectiveness testing into "programs."
4. **Forecasting of participation** in each program, including estimation of the number of customers who would adopt each efficiency measure.
5. **Costing of each program**, including estimation of customer incentives, administration, marketing, EM&V, and other necessary costs.
6. **Screening of program cost-effectiveness** based on the bundled measures and program costs.

To create the program plan, DESC relied on the recently completed 10-year Potential Study. As described in the Potential Study discussion, the development of the forecasts included consideration of market changes since DESC originally introduced its DSM programs; DESC's implementation experience with the existing programs, including EM&V results; successful programs delivered by other utilities; and feedback from DESC customers and other stakeholders. Each of those individual steps is discussed in detail in the Potential Study.

Recommended programs, as listed in Table 40, include existing programs with enhancements in program design and new programs designed to meet important evolving market opportunities.

[21] As used in this report, a "measure" is a single instance of a particular energy-efficient technology or activity, such as a single type of efficient lighting. A "program" is a bundle of efficient measures that are delivered within a single programmatic framework and may, for example, include many lighting technologies all delivered under one umbrella.

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Table 40. Summary of Programs Recommended for Implementation

Program	TRC	Sum of Incremental for Program Years 10–14				
		Non-Incentive $	Incentive $	Total $	MWh	MW
Appliance Recycling	1.11	$2,547,062	$2,425,774	$4,972,836	14,149	1.7
H&C and Water Heating	1.02	$3,386,440	$11,702,348	$15,088,788	27,271	13.5
Home Energy Check-up	1.00	$6,808,468	$9,015,591	$15,824,059	27,406	6.1
Home Energy Reports	1.88	$895,740	$3,847,221	$4,742,962	24,473	9.3
Neighborhood Energy Efficiency	5.90	$969,974	$3,730,671	$4,700,645	24,439	2.8
Online Store	8.15	$345,799	$1,533,467	$1,879,266	19,799	1.7
Multifamily	1.76	$1,527,150	$3,442,875	$4,970,025	18,627	2.9
Residential Portfolio	1.84	$16,480,633	$35,697,946	$52,178,580	156,164	37.8
EnergyWise for Your Business	1.84	$18,672,720	$35,828,135	$54,500,855	252,196	57.1
Small Business Direct Install	1.91	$4,910,887	$8,184,812	$13,095,699	71,541	20.6
Municipal LED Lighting	2.37	$5,035,877	$14,957,202	$19,993,079	19,070	–
C&I Portfolio	1.89	$28,619,484	$58,970,149	$87,589,633	342,807	77.7
Total Portfolio	1.88	$45,100,117	$94,668,095	$139,768,212	498,971	115.5

The cumulative total expenditure on the recommended programs is estimated to be $139,768,212 during the PY10–PY14 period. Cumulative net energy and demand savings associated with these expenditures are 498,971 MWh and 115.50 MW, and the TRC benefit-cost ratio of the portfolio of programs is 1.88.

The primary drivers for the recommended changes in the programs include the following:

- Results from the Potential Study
- Recommendations from the program evaluations, process changes, and measure offerings
- Addition of programs specifically mentioned and/or requested in stakeholders' comments

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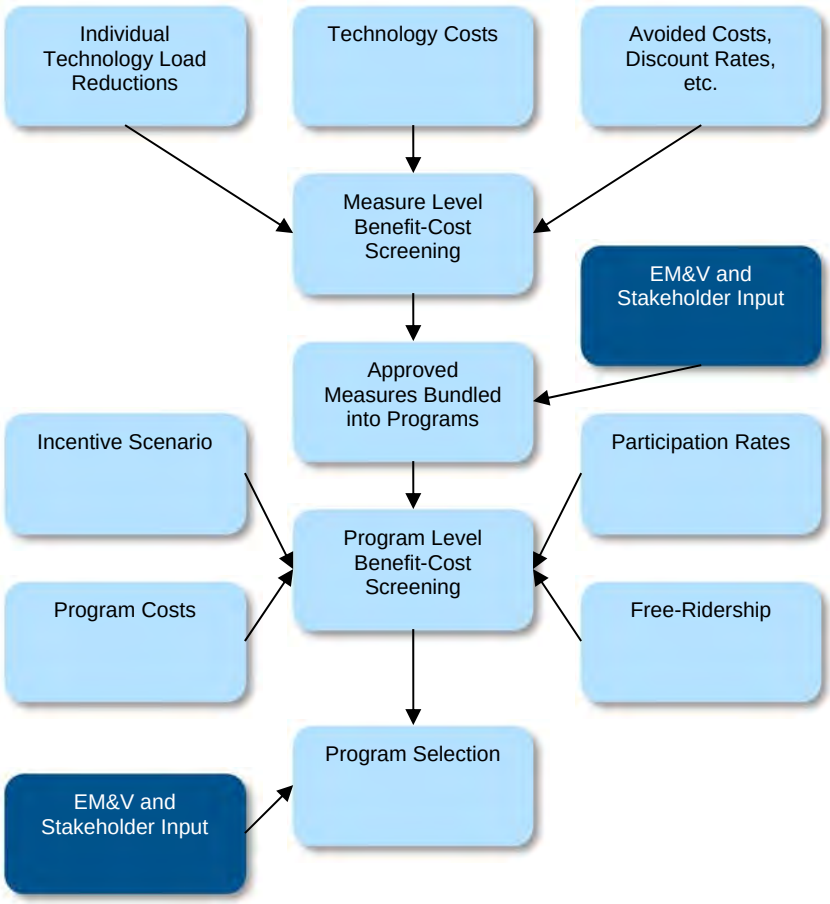
10. OVERVIEW OF METHOOLOGY

While the forecasts for the PY10–PY14 program period rely on the 10-year Potential Study, below is discussion concerning the typical program development process. This mirrors what took place in the Potential Study and more details on the bottom-up approach can be found in the Potential Study report.

The program development process is illustrated in Figure 29.

Figure 29. Program Development Process



10.1 Development of DSM Measure Load Impacts

Measure impacts include the estimated peak demand and annual energy reductions associated with a single instance of the DSM measure being installed, along with the estimated incremental cost of the measure.[22] Sources of data included evaluations and engineering reviews prepared by DESC's third-party EM&V contractor, Opinion Dynamics Corporation (ODC); data gathered during program implementation; and other sources.

[22] The incremental cost of the measure is defined as the additional cost of the efficient measure over and above the cost of the baseline measure (i.e., the measure the customer would have installed in the absence of the program).

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10.2 Screening of Individual Measures

Using the information gathered in Step 2.1, each individual measure was evaluated for cost-effectiveness using the TRC test, as defined by the California Standard Practice Manual and the National Standard Practice Manual. This step identifies any measures that are not cost-effective as a stand-alone measure (i.e., absent consideration of additional program costs or free-ridership). Usually, measures that are not cost-effective on their own are not considered for inclusion in a program, absent a compelling reason to do so.

In addition, non-energy benefits (NEBs) were included in the analysis and include water savings, gas savings, and deferred replacement savings for measures, where appropriate.

10.3 Bundling of Measures

Measures that passed the initial cost-effectiveness screening were bundled into groups representing "program types." A program type represents a group of measures that are likely to be delivered under a single "umbrella," typically using similar channels and incentive strategies, and which can share in the common costs associated with program implementation. The program types employed were drawn from a review of best practice program information developed by the American Council for an Energy Efficient Economy (ACEEE), the Consortium for Energy Efficiency (www.cee1.org), the California Public Utilities Commission's (CPUC) Best Practices website, and from review of programs operated by utilities and other program administrators across the country.

Measures that were cost-effective were bundled into at least one program. In certain cases, non-cost-effective measures were included in a program if it was believed that the measure should remain for reasons such as reducing the entry barrier for other measures or meeting the needs of hard-to-reach customers.

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10.4 Forecasting of Participation

- Participation was forecasted on a measure-by-measure basis. Depending on the program design and whether the program targeted retrofit, replacement, or new opportunities, the participation forecasting may have considered the following:
- Historic participation in the program
- Participation in similar programs offered by other utilities
- The incentive strategy and level (percentage of incremental cost rebated) and resulting customer payback period
- Turnover in the stock of baseline equipment
- Level of new construction and/or major remodeling
- Changes in future codes and standards
- Trade ally feedback
- The level of marketing and promotion

The forecasted measures installed and/or estimated participation numbers (as appropriate) and associated budget by year is provided for each program in the Individual Program Descriptions section of this report.

10.5 Costing of Programs

Total program costs were estimated based on a combination of DESC's prior experience and the experience of other utilities implementing similar programs, adjusted as necessary to reflect the scale and other unique characteristics of DESC's programs. Program costs generally included the following:

- Administrative costs
- Implementation and delivery costs
- QA/QC costs
- Marketing costs
- IT costs
- Incentive processing costs
- Customer service costs
- EM&V costs
- Other program costs

The annual costs associated with each program are detailed in the Individual Program Descriptions section of this report.

10.6 Program Cost-Effectiveness Screening

Combining the results of the previous steps, each program was screened for cost-effectiveness using the TRC test. Table 41 highlights the differences between the "measure-specific" and "program" TRC test calculations.

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Table 41. Measure and Program Cost-Effectiveness Screening Comparison

	Measure	Program
Benefits		
Savings	Gross	Net (includes NTG)
Costs		
Incremental Costs	Gross	Net (includes NTG)
Incentive Costs	–	Net (includes 1 – NTG)
Non-Incentive Costs	–	Gross

The two main differences between the measure and program screening are (a) the use of net savings ratios, and (b) the inclusion of program costs. Program cost-effectiveness is based on program net savings (savings that are attributable directly to a program after netting out free-ridership). Net savings are accounted for in the calculation by multiplying gross program savings by the net-to-gross (NTG) ratio. The NTG ratio is the ratio of the net savings for a program to the gross savings. The difference between net and gross savings is represented by the savings realized by customers who:

1. Would have implemented an efficiency measure even in the absence of a program (free-ridership), and
2. Adopted a measure that is promoted by a program after having been influenced by the program, but without taking the program incentive (free drivers or spillover).

Although both effects should be accounted for in the calculation of an NTG ratio, evaluations typically estimate only the free-rider effect, and thus, data are often not available for the spillover effect. Therefore, the effect of applying the NTG ratio is to reduce program savings and cost-effectiveness (since program costs are not reduced by the NTG ratio). The primary sources for the applied NTG ratios included the third-party EM&V contractor, ODC, other regionally evaluated similar programs, and the Energy Efficiency Policy Manual (Policy Manual), prepared by the Energy Division of the CPUC. As needed, other sources were used as appropriate. The NTG assumed for each program is documented in the Individual Program Descriptions section of this report.

Program cost-effectiveness testing also includes the program implementation costs. The methodology for developing these program costs was discussed in Step 2.5. Additional steps necessary to complete the program cost-effectiveness screening included the following:

- Calculating the value of measure benefits using the same approach, as described earlier under Screening of Individual Measures.
- Summing these benefits over all measures and installations included in a program.
- Reducing these gross benefits by the NTG ratio.
- Calculating the total incentive costs by summing over the number of measures and installations projected.
- Summing the total measure incremental costs over all measures and installations included in a program.
- Calculating the total non-incentive program costs, calculated as a percentage of total incentive costs as described above.

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- Calculating the TRC, and other test benefit-cost ratios over the forecast period:
  - UCT Test = Utility Avoided Supply Costs divided by Utility Incentive and Program Costs
  - PCT Test = Participant Savings and Incentives divided by Participant Incremental Costs
  - RIM Test = Utility Avoided Supply Costs divided by Utility Revenue Loss

The program cost-effectiveness results are provided in Table 42 below, and are provided in more detail for each program in the Individual Program Descriptions section of this report.

Table 42. Program Cost-Effectiveness Summary

Program	TRC	UCT
Appliance Recycling	1.11	0.92
Heating & Cooling, Water Heating	1.02	1.46
Home Energy Check-up	1.00	0.83
Home Energy Reports	1.88	0.32
Neighborhood Energy Efficiency	5.90	2.12
EnergyWise Online Store	8.15	4.51
Multifamily	1.76	1.54
Residential Portfolio	**1.84**	**1.16**
EnergyWise for Your Business	1.84	2.16
Small Business Direct Install	1.91	1.82
Municipal LED Lighting	2.37	0.42
C&I Portfolio	**1.89**	**1.87**
Total Portfolio	1.88	1.64

10.7 Comparison of DSM Program Plan to the Potential Study

In general, the DSM Program Plan follows the development of the 10-year Potential Study. After completion of the Potential Study, the market actor workshops were held to ensure that program design would be supported and that participation for specific measures exists. Some measures were then excluded from the DSM Program Plan, such as residential and small commercial HVAC tune-ups, based on input from market actors and trade allies.

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11. INDIVIDUAL PROGRAM SUMMARIES

This section provides an overview of the modeling results and key assumptions for each recommended program. Included in each section are:

- An overview of the program design
- A summary of the program impacts and cost-effectiveness testing
- A discussion of program enhancements relative to the current program, if applicable
- The program incentives budget
- The annual program costs
- The assumed NTG ratio

DESC has estimated annual cost, demand savings, energy savings, measure count, and participant count. Factors such as the nature of participants (e.g., the number of measures per participant) and the mix of demand savings versus energy savings per participant may vary from the planning assumptions.

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11.1 Residential Appliance Recycling

11.1.1 *Program Design*

The Residential Appliance Recycling program provides residential electric customers with incentives for allowing DESC to collect and recycle less efficient, but operable, secondary refrigerators, and/or stand-alone freezers, permanently removing the units from service. The program seeks to achieve savings by permanently removing less efficient appliances from service, and preventing older appliances from being transferred within DESC electric territory, where they would continue to operate inefficiently. In addition to energy savings and demand reductions generated, the program recycles all participating appliances in an environmentally safe manner. Qualified appliances are collected at no additional cost.

11.1.2 *Rebate Table*

The current incentive payment per measure is provided in Table 43. DESC anticipates updating the incentive payments as program participation, evaluation results, baseline shifts, or other factors dictate during the finalization of program planning and during implementation. In addition, DESC may rely on limited-time offers (LTOs) to boost participation when needed. These are short-term events that increase the rebate for taking action during a specific time period and have been shown to increase participation during the promotional period.

Table 43. Program Incentives Summary for Residential Appliance Recycling

Residential Appliance Recycling	
Measure Description	**Per Unit Incentive**
Refrigerator Recycling	$50
Freezer Recycling	$50

11.1.3 *Impact and Cost-Effectiveness Summary*

Over the next five years, the program is anticipated to have a TRC benefit-cost ratio of 1.11, reduce energy demand by 1.72 MW and energy consumption by 14,149 MWh, and cost $4,972,836. Year-by-year impacts are summarized in Table 44. The assumed NTG ratio is 0.60.

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Table 44. Program Impact Summary for Appliance Recycling

Appliance Recycling	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Net Annual MWh Savings	2,909	2,867	2,828	2,790	2,755	14,149
Net Annual MW Savings	0.35	0.35	0.34	0.34	0.33	1.72
Measures / units recycled	4,383	4,316	4,253	4,192	4,135	21,279
Incentive Costs	$499,643	$492,049	$484,811	$477,917	$471,353	$2,425,774
Non-Incentive Costs	$524,625	$516,652	$509,052	$501,812	$494,921	$2,547,062
Total Program Costs	$1,024,268	$1,008,701	$993,863	$979,729	$966,275	$4,972,836
TRC Ratio	1.11					
UCT Ratio	0.92					
Net-to-Gross Ratio	0.60					

11.1.4 *Program Enhancements*

The Appliance Recycling program has proven to be successful within DESC's service territory and DESC will continue to recruit as many participants as possible. Due to this success, the program will focus on increasing participation through increased marketing and promotional events.

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11.2 Residential Heating & Cooling and Water Heating Program

11.2.1 *Program Design*

The current Residential Heating & Cooling program offer incentives to residential electric customers for the purchase of new ENERGY STAR® qualified HVAC equipment that replaces older inefficient equipment. Additionally, incentives to encourage customers to improve the efficiency of existing AC and heat pump systems through complete duct replacements, duct insulation and duct sealing are offered. The program's major goals are to assist customers with reducing electricity consumption without compromising comfort in the home. The rebates help to offset the upfront cost for purchases of energy-efficient HVAC equipment.

11.2.2 *Rebate Table*

The current incentive table is listed below.

System Type		Current Minimum Ratings			Current Rebate
		SEER	EER	HSPF	
Air Conditioner	Split	15	12.5	-	$300
		16	13	-	$500
	Packaged	15	12	-	$300
		16	12.5	-	$500
Heat Pump	Split	15	12.5	8.5	$300
		16	13	9	$500
	Packaged	15	12	8.2	$300
		16	12.2	8.3	$500
Duct Improvement Type					**Rebate**
Duct Sealing					$150
Duct Insulation					$150
Complete Duct Replacement					$300

The anticipated incentive payment per measure and new measures are provided in Table 45. DESC anticipates additional measures and updating the incentive payments as program participation, evaluation results, baseline shifts, or other factors dictate during the finalization of program planning and during implementation.

Table 45. Program Incentives Summary for Residential Heating & Cooling and Water Heating Program

Residential Heating & Cooling and Water Heating Program	
Measure Description	**Per Unit**
High-Efficiency Heat Pump or Central A/C Tier 1 (SEER 15-15.99)	$400
High-Efficiency Heat Pump or Central A/C Tier 2 (SEER 16-16.99)	$500
High-Efficiency Heat Pump or Central A/C Tier 3 (SEER 17-17.99)	$600
Air Source Heat Pump replacing Electric Resistance Heat Tier 1 (SEER 15-15.99)	$550
Air Source Heat Pump replacing Electric Resistance Heat Tier 2 SEER 16-16.99)	$650
Air Source Heat Pump replacing Electric Resistance Heat Tier 3 (SEER 17-17.99)	$750
Air Source Heat Pump replacing Electric Resistance Heat Tier 4 (SEER >18)	$875

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Duct Sealing	$300
Heat Pump Water Heater (HPWH)	$750

Additional ENERGY STAR eligibility requirements, similar to the current minimum ratings listed in Table 44 (current rebate table), may be applied to heating and cooling equipment during the implementation phase of the program.

11.2.3 *Impact and Cost-Effectiveness Summary*

Over five years, the program is anticipated to have a TRC benefit-cost ratio of 1.02, reduce energy demand by 13.47 MW and energy consumption by 27,271 MWh, and cost $15,088,788. Year-by-year impacts are summarized in
Table 46. The assumed NTG ratio is 0.76.

Table 46. Program Impact Summary for Heating & Cooling and Water Heating

Heating &Cooling, and Water Heating	Year 10	Year 11	Year 12	Year 13	Year 14	*Total*
Net Annual MWh Savings	5,034	5,843	6,521	4,832	5,042	27,271
Net Annual MW Savings	3.18	3.32	3.44	1.75	1.79	13.47
Measures	5,569	5,997	6,383	5,012	5,158	28,119
Incentive Costs	$2,367,466	$2,578,053	$2,765,361	$1,962,915	$2,028,553	$11,702,348
Non-Incentive Costs	$748,913	$715,486	$774,752	$563,428	$583,861	$3,386,440
Total Program Costs	$3,116,380	$3,293,538	$3,540,114	$2,526,343	$2,612,414	$15,088,788
TRC Ratio	1.02					
UCT Ratio	1.46					
Net-to-Gross Ratio	0.76					

11.2.4 *Program Enhancements*

DESC has found significant success with the heating and cooling offerings in the past. In order to continue the success of the program, DESC has increased the rebates offered for the lower SEER HVAC equipment. In this manner, DESC will be able to have the greatest impact on the greatest number of customers. In addition, DESC is offering a higher rebate for the replacement of electric resistance heating, which results in greater savings for the customer. DESC also is adding a rebate for electric heat pump water heaters, which can provide a customer with significant electricity savings over an electric resistance water heater.

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11.3 Residential Home Energy Check-up Program

11.3.1 *Program Design*

The Residential Home Energy Check-up (HEC) program currently provides electric customers in the DESC territory with a home visit that includes a free visual inspection of the home and an energy consultation. During the check-up, DESC representatives, who are Building Performance Institute (BPI) certified, identify sources of high energy use and provide the customer with a list of various low- and no-cost energy-saving recommendations and tips. As part of the consultation with the customer, DESC reviews up to two years of consumption data and weather impacts, as well as discusses energy-saving behaviors (e.g., thermostat settings, turning lights off, changing air filters, water heater settings). During the check-up, customers also receive a leave-behind energy efficiency kit consisting of ENERGY STAR® bulbs and water heater tank wrap and pipe insulation, as appropriate. For the expanded version of the program, participants may also be provided with the direct installation of LEDs, low-flow faucet aerators and/or low-flow showerheads and other cost effective measures at no additional cost. In addition, DESC will also be offering incentives for customers who want to install Tier 2 measures, which include air sealing, home insulation, and other home shell measures.

11.3.2 *Rebate Table*

The current and anticipated incentive payment per measure is provided in Table 47. DESC anticipates updating the incentive payments as program participation, evaluation results, baseline shifts, or other factors dictate during the finalization of program planning and during implementation.

Table 47. Program Incentives Summary for Residential Home Energy Check-up Program

Residential Home Energy Check-up Program	
Measure Description	**Per Unit Incentive**
Home Consultation	100% of cost
LEDs	100% of cost
Low-flow faucet aerators	100% of cost
New Measure Description	**Per Unit Incentive**
Low-flow showerheads	100% of cost
Tier 2 – Air Sealing	Up to 75% of cost
Tier 2 – Home Insulation	Up to 75% of cost
Tier 2 – Misc. Home Shell Measures	Up to 75% of cost

11.3.3 *Impact and Cost-Effectiveness Summary*

Over five years, the program is anticipated to have a TRC benefit-cost ratio of 1.00, reduce energy demand by 6.06 MW and energy consumption by 27,406 MWh, and cost $15,824,059. Year-by-year impacts are summarized in Table 48. The assumed NTG ratio is 0.80.

Table 48. Program Impact Summary for Home Energy Check-up

Home Energy Check-up	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Net Annual MWh Savings	4,947	5,392	5,650	5,722	5,696	27,406
Net Annual MW Savings	0.85	1.12	1.29	1.38	1.42	6.06
Measures installed	1,232,185	1,816,224	2,211,173	2,418,244	2,521,653	10,199,478
Estimated Homes	3,604	3,652	3,700	3,749	3,799	18,504
Incentive Costs	$1,448,512	$1,718,321	$1,890,997	$1,967,062	$1,990,699	$9,015,591
Non-Incentive Costs	$1,092,005	$1,297,062	$1,428,394	$1,486,400	$1,504,606	$6,808,468
Total Program Costs	$2,540,518	$3,015,383	$3,319,392	$3,453,462	$3,495,305	$15,824,059

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TRC Ratio	1.00
UCT Ratio	0.83
Net-to-Gross Ratio	0.80

11.3.4 *Program Enhancements*

The Home Energy Check-up program has proven to be popular with DESC customers. In line with evolving the program, DESC continues to consistently evaluate new measures that prove to be cost-effective for direct installation and may include additional measures in the future should they prove to be popular with targeted customers.

In addition, DESC has included incentives for the Tier 2 measures, which aim to increase the efficient operation of the overall house. These measures include home insulation, improvements for duct work and air sealing, and other home shell efficiency measures. DESC will continue to monitor these measures and provide rebates for similar measures as they prove to be popular with customers and deliver energy savings.

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11.4 Residential Home Energy Reports

11.4.1 *Program Design*

The Residential Home Energy Reports (HER) program offers qualifying customers monthly/bi-monthly reports comparing their energy usage to a peer group and to themselves over time. The reports also provide information to help participants identify, analyze, and act on energy efficiency upgrade opportunities and energy-saving behaviors to reduce their household energy use. Reports are provided to customers at no additional cost.

11.4.2 *Rebate Table*

The HER program does not maintain a traditional "incentive" structure. Instead, the cost of the reports, messaging and access to the online portal for participants are counted as "rebates" and will continue to be accrued as such.

11.4.3 *Impact and Cost-Effectiveness Summary*

Over five years, the program is anticipated to have a TRC benefit-cost ratio of 1.88, reduce energy demand by 9.27 MW and energy consumption by 24,473 MWh, and cost $4,742,962. Year-by-year impacts are summarized in Table 49. The assumed NTG ratio is 1.00.

Table 49. Program Impact Summary for Home Energy Reports

Home Energy Reports	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Net Annual MWh Savings	2,606	2,641	2,676	8,205	8,345	24,473
Net Annual MW Savings	0.99	1.00	1.01	3.11	3.16	9.27
Measures	37,647	38,144	38,648	80,906	81,974	277,319
Incentive Costs	$342,964	$347,493	$352,083	$1,393,141	$1,411,540	$3,847,221
Non-Incentive Costs	$121,600	$123,206	$124,833	$261,325	$264,777	$895,740
Total Program Costs	$464,564	$470,699	$476,916	$1,654,466	$1,676,317	$4,742,962
TRC Ratio	1.88					
UCT Ratio	0.32					
Net-to-Gross Ratio	1.00					

11.4.4 *Program Enhancements*

DESC is currently researching ways to garner more participation and encourage use of the web portal portion of the HER program while targeting higher energy users. It is expected that, by PY13, the HER program will move to an opt-out offering instead of opt-in. Through this method, DESC expects to increase participation and savings per participant since these customers are new to the program and are receiving messaging for the first time.

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11.5 Residential Neighborhood Energy Efficiency Program

11.5.1 *Program Design*

The Residential Neighborhood Energy Efficiency program (NEEP) provides qualifying customers with energy education, an on-site energy survey of the dwelling, and direct installation of low-cost energy-saving measures at no additional cost to the customer. The program is delivered in a neighborhood door-to-door sweep approach and offers customers who are eligible and wish to participate a variety of direct installation energy efficiency measures. The program approaches neighborhoods that have at least 50% of households with income levels equal to or less than 150% of the poverty line as defined by the federal government. A subset of mobile home customers (approximately 125 per year) are offered additional measures to address these specific home types.

11.5.2 *Rebate Table*

The current incentive payment per measure is provided in Table 50. DESC anticipates updating the incentive payments and measures as program participation, evaluation results, baseline shifts, or other factors dictate during the finalization of program planning and during implementation. All measures are provided at no additional cost to the customer and are directly installed. New cost-effective measures will be added as the availability arises. Below is a table of measures, which may be expanded at any time, as needed, throughout the program period.

Table 50. Program Incentives Summary for Residential Neighborhood Energy Efficiency Program

Residential Neighborhood Energy Efficiency Program	
Core Measure Description	**Per Unit Incentive**
LEDs	100% of cost
HVAC Filters	100% of cost
Low-Flow Faucet Aerators	100% of cost
Advanced Power Strips	100% of cost
Water Heater Blankets / Water Heater Pipe Wrap	100% of cost
Water Heater Turn Down	100% of cost
Mobile Home Measure Descriptions	**Per Unit Incentive**
Air Sealing (various levels of leakage reduction)	100% of cost
Duct Sealing with >10% reduction	100% of cost
Belly Board Insulation / Repair	100% of cost
Programmable Communicating/Wi-Fi Thermostat	100% of cost
Reflective Roof Coating	100% of cost
Attic Plug & fill Insulation (>R30)	100% of cost

11.5.3 *Impact and Cost-Effectiveness Summary*

Over five years, the program is anticipated to have a TRC benefit-cost ratio of 5.90, reduce energy demand by 2.78 MW and energy consumption by 24,439 MWh, and cost $4,700,645. Year-by-year impacts are summarized in Table 51. The assumed NTG ratio is 1.00.

Table 51. Program Impact Summary for Neighborhood Energy Efficiency

Neighborhood Energy Efficiency	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Net Annual MWh Savings	4,975	4,929	4,885	4,844	4,805	24,439
Net Annual MW Savings	0.56	0.56	0.56	0.55	0.55	2.78
Measures	106,902	106,762	106,661	106,598	106,572	533,494
Estimated homes	4,243	4,299	4,355	4,413	4,471	21,781

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Neighborhood Energy Efficiency	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Incentive Costs	$760,387	$752,887	$745,765	$739,012	$732,619	$3,730,671
Non-Incentive Costs	$197,701	$195,751	$193,899	$192,143	$190,481	$969,974
Total Program Costs	$958,088	$948,638	$939,664	$931,155	$923,100	$4,700,645
TRC Ratio	5.90					
UCT Ratio	2.12					
Net-to-Gross Ratio	1.00					

11.5.4 *Program Enhancements*

The NEEP offering has proven to be popular with customers and the community officials that assist in promoting the program. DESC will continue to further expand and deliver savings and services for hard-to-reach communities using the existing neighborhood sweep approach. Additionally, DESC will prioritize this program to deliver energy savings to some of its most needy customers by serving even more customers during the PY10–PY14 period. Participation is expected to increase approximately 25% over previous program years.

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11.6 Residential EnergyWise Savings Store

11.6.1 *Program Design*

The Residential EnergyWise Savings Store program provides online incentivizes to residential electric customers to purchase and install high-efficiency ENERGY STAR® LED lighting products, advanced power strips and other energy efficiency measures. The program is designed to provide education regarding lighting and associated energy savings and offers an easy-to-use online marketplace for customers that results in low-cost, high-efficiency options. Customers must provide a valid DESC account number in order to make purchases through the online store.

11.6.2 *Rebate Table*

The currently anticipated incentive payment per measure is provided in Table 52. DESC anticipates updating the incentive payments as program participation, evaluation results, baseline shifts, or other factors dictate during the finalization of program planning and during implementation.

Table 52. Program Incentives Summary for Residential Online Store

Residential Online Store	
Measure Description	**Per Unit Incentive**
LEDs – Standard	Up to $3
LEDs – Specialty	Up to $6
LEDs – Connected	Up to $10
Smart Thermostats	Up to $75
Low-Flow Faucet Aerators	Up to $5
Low-Flow Showerheads	Up to $10
Advanced Power Strips	Up to $20

11.6.3 *Impact and Cost-Effectiveness Summary*

Over five years, the program is anticipated to have a TRC benefit-cost ratio of 8.15, reduce energy demand by 1.67 MW and energy consumption by 19,799 MWh, and cost $1,879,266. Year-by-year impacts are summarized in Table 53. The assumed NTG ratio is 0.80.

Table 53. Program Impact Summary for Online Store

Online Store	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Net Annual MWh Savings	5,439	6,000	6,503	895	962	19,799
Net Annual MW Savings	0.49	0.51	0.53	0.07	0.08	1.67
Measures	112,540	115,917	118,980	8,402	9,030	364,869
Incentive Costs	$416,517	$486,170	$548,677	$39,573	$42,530	$1,533,467
Non-Incentive Costs	$96,302	$110,268	$122,807	$7,915	$8,506	$345,799
Total Program Costs	$512,819	$596,439	$671,484	$47,488	$51,036	$1,879,266
TRC Ratio	8.15					
UCT Ratio	4.51					
Net-to-Gross Ratio	0.80					

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11.6.4 *Program Enhancements*

DESC has been operating the online store to provide discounts on lighting products to its customers throughout the PY7–PY9 period. New to the online store is the addition of smart thermostats to provide deeper heating and cooling savings to the participants.

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11.7 Multifamily

11.7.1 *Program Design*

The Multifamily program will focus on helping customers living in non-single family dwellings, as well as apartment building owners and managers, overcome the split-incentive and other market barriers to residential energy efficiency. The split incentive barrier exists in rental situations: non-occupant building owners are less inclined to make efficiency upgrades when they do not pay efficiency bills, and renters are less likely to make efficiency upgrades because they do not own their dwelling.

The program will achieve this goal by directly installing LEDs and water-saving measures in apartments, and by providing high incentives (75%) for building common area measures, such as lighting and HVAC upgrades. Tenants that are DESC customers will benefit from lower energy bills, and from better quality lighting and other non-energy benefits. Building owners and managers may benefit from higher tenant satisfaction and retention.

Multifamily building owner owners and property managers are the program's primary target markets.

11.7.2 *Rebate Table*

The currently anticipated incentive payment per measure is provided in Table 52. DESC anticipates updating the incentive payments as program participation, evaluation results, baseline shifts, or other factors dictate during the finalization of program planning and during implementation.

Table 54. Program Incentives Summary for the Multifamily Program

Multifamily Program	
Measure Description	**Per Unit Incentive**
LEDs – Standard	100% of cost
LEDs – Specialty	100% of cost
Low-Flow Faucet Aerators	100% of cost
Low-Flow Showerheads	100% of cost
Common Area Lighting and HVAC Upgrades	Up to 75%

11.7.3 *Impact and Cost-Effectiveness Summary*

Over five years, the program is anticipated to have a TRC benefit-cost ratio of 1.76, reduce energy demand by 2.85 MW and energy consumption by 18,627 MWh, and cost $4,970,025. Year-by-year impacts are summarized in Table 53. The assumed NTG ratio is 0.90.

Table 55. Program Impact Summary for Multifamily Program

Multifamily	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Net Annual MWh Savings	2,641	3,984	3,992	3,999	4,010	18,627
Net Annual MW Savings	0.40	0.61	0.61	0.61	0.62	2.85
Measures	10,721	16,193	16,259	16,330	16,406	75,909
Estimated MF units	1,358	2,023	1,990	1,958	1,927	9,256
Incentive Costs	$485,814	$734,489	$738,495	$739,832	$744,245	$3,442,875
Non-Incentive Costs	$344,326	$293,796	$295,398	$295,933	$297,698	$1,527,150
Total Program Costs	$830,140	$1,028,284	$1,033,893	$1,035,765	$1,041,943	$4,970,025
TRC Ratio	1.76					
UCT Ratio	1.54					
Net-to-Gross Ratio	0.90					

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11.7.4 *Program Enhancements*

Although the Neighborhood Energy Efficiency and Home Energy Check-up programs both include multifamily units, the specific targeting of multifamily properties is a new effort for DESC. DESC will continue to review the program during implementation, evaluation activities and optimize the program as needed.

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11.8 Commercial and Industrial EnergyWise for Your Business

11.8.1 *Program Design*

The EnergyWise for Your Business program includes prescriptive and custom paths for non-residential customers. The prescriptive path offers a simplified method for making efficient choices on pre-defined energy efficiency measures without requiring complex analysis or participation rules. Incentives and claimed savings are based on pre-defined technologies and calculation methods and covers the majority of common energy-saving measures across most customers and end-use markets. This path, through its ease of use and understanding, provides an effective way to reach all commercial and industrial customers.

The custom path supports customers in identifying and implementing more complex site-specific opportunities through measures not addressed by the prescriptive measures. The segment provides incentives and technical assistance to customers seeking to improve the efficiency of existing facilities, as well as at the time of new equipment purchases, facility modernization, and new construction. Custom projects must be able to show specific and verifiable energy savings and costs, typically developed by a third-party firm.

The EnergyWise for Your Business program is available to all qualifying non-residential customers who have not elected to opt-out, and targets all cost-effective energy efficiency retrofit opportunities.

11.8.2 *Rebate Table*

The currently anticipated incentive payment per measure is provided in Table 56. DESC anticipates updating the incentive payments as program participation, evaluation results, baseline shifts, or other factors dictate during the finalization of program planning and during implementation.

Table 56. Program Incentives Summary for EnergyWise for Your Business

EnergyWise for Your Business	
Measure Description	**Per Unit Incentive**
Lighting	
Fixture replacements or upgrades	$0.35 per watt reduced; up to 50% of project cost
Complete lighting design for new construction	$0.40 per watt reduced
HVAC	
HVAC Variable Frequency Drive	$50 per horsepower
HVAC Chillers	$10 – $30 per ton
Water and evaporative or unitary and unmatched split AC and HP Systems	$15 – $75 per ton
PTAC and PTHP Systems	$20 – $35 per ton
Food Service	
High-Efficiency Food Preparation Equipment	$300 – $1,000 per unit
High-Efficiency ice makers, clothes washers, or reach-in	$20 – $150 per unit
Custom	
Labor and material/equipment costs for retrofit projects	Up to 50%
Incremental material/equipment for new construction/major renovation	Up to 75%

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11.8.3 *Impact and Cost-Effectiveness Summary*

Over five years, the program is anticipated to have a TRC benefit-cost ratio of 1.84, reduce energy demand by 57.14 MW and energy consumption by 252,196 MWh, and cost $54,500,855. Year-by-year impacts are summarized in Table 57. The assumed NTG ratio is 0.70.

Table 57. Program Impact Summary for EnergyWise for Your Business

EnergyWise for Your Business	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Net Annual MWh Savings	37,076	45,753	54,278	56,593	58,497	252,196
Net Annual MW Savings	8.75	10.52	12.18	12.64	13.04	57.14
Measures	88,397	110,605	131,063	137,792	144,390	612,246
Estimated Projects	891	919	947	959	971	4,687
Incentive Costs	$5,058,290	$6,478,576	$7,805,134	$8,110,737	$8,375,397	$35,828,135
Non-Incentive Costs	$2,975,826	$3,234,448	$4,364,850	$4,002,212	$4,095,384	$18,672,720
Total Program Costs	$8,034,116	$9,713,024	$12,169,984	$12,112,949	$12,470,781	$54,500,855
TRC Ratio	1.84					
UCT Ratio	2.16					
Net-to-Gross Ratio	0.70					

11.8.4 *Program Enhancements*

The DESC EnergyWise for Your Business prescriptive offerings are constantly reviewed and compared against market conditions, industry best practices, and energy codes, as well as direct experience to date. On an annual basis, or more frequently, if needed, DESC reviews the current measures and incentive amounts to ensure that they are relevant and palatable in the marketplace and adhere to energy codes.

DESC also plans to offer the industrial class customers, who have not already opted-out of the programs by identifying specific measures and market trends that are already part of the current program offerings that could initiate some increased engagement and interest from this sector. DESC will bring this to market in the form of -industry-specific applications that highlight these measures, trainings geared toward market and technology trends in this sector, and additional testimonials and marketing efforts that will energize the interest of these customers.

In addition, DESC is including an agricultural component in the program. Measures included within this offering are related to specific agricultural uses, including lighting, pumping, ventilation, water cooling, and water heating. Also included within the EnergyWise program is a component including Strategic Energy Management (SEM). SEM helps businesses reduce their energy costs with tools, coaching, and technical resources to support energy goals through a year-long series of workshops and one-on-one coaching. The component draws on the principles of continuous improvement and organizational change, and integrates cost savings and operational excellence initiatives. The offering helps implement organizational structures, behavior changes, and systematic practices that can lead to significant energy and cost savings. The SEM offering will be targeted towards industrial customers, which as previously discussed, have a reduced participation rate due to the high rate of opt-out of large industrial customers.

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11.9 Small Business Direct Install (SBDI)

11.9.1 *Program Design*

The Small Business Direct Install program provides cost-effective, comprehensive retrofit services to small business customers on a turnkey basis. The program is available to small business and nonprofit customers with five or fewer electric service accounts and an annual energy use of 350,000 kWh or less. The program offers these small business customers the opportunity to receive financial incentives, as well as educational and technical assistance for projects involving the replacement of existing equipment where the equipment being replaced continues to function, but is outdated and energy inefficient. SBDI identifies cost-effective efficiency retrofit opportunities and provides the direct installation of measures, financial incentives, and other strategies to encourage early replacement of existing equipment with high-efficiency alternatives.

Customer incentives are provided to reduce a significant portion of the cost of installing energy-efficient equipment and are based on the total installed cost of the retrofits. All qualifying customers are eligible for an incentive of up to 90% of the total installation costs for lighting and refrigeration measures. Because of the unique and hard-to-reach customer base that small businesses

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represent, the program is designed to overcome the most common barriers to participation for these customers, which include the following:

- Business owners without technical expertise or time to devote to energy efficiency improvements
- Diversity of the small commercial sector in terms of business types
- Limited access to investment capital

11.9.2 *Rebate Table*

The currently anticipated incentive payment per measure is provided in Table 58. DESC anticipates updating the incentive payments as program participation, evaluation results, baseline shifts, or other factors dictate during the finalization of program planning and during implementation.

Table 58. Program Incentives Summary for Small Business Direct Install Program

Small Business Direct Install Program	
Measure Description	**Per Unit Incentive**
On-site energy analysis	100% of cost
Energy-efficient lighting and refrigeration	Up to 90% of cost

11.9.3 *Impact and Cost-Effectiveness Summary*

Over five years, the program is anticipated to have a TRC benefit-cost ratio of 1.91, reduce energy demand by 20.57 MW and energy consumption by 71,541 MWh, and cost $13,095,699. Year-by-year impacts are summarized in
Table 59. The assumed NTG ratio is 0.95.

Table 59. Program Impact Summary for Small Business Direct Install

Small Business Direct Install	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Net Annual MWh Savings	8,718	12,840	15,546	16,900	17,537	71,541
Net Annual MW Savings	2.48	3.67	4.47	4.87	5.07	20.57
Measures	110,227	173,487	210,108	228,253	236,420	958,495
Incentive Costs	$1,025,605	$1,519,888	$1,795,390	$1,905,446	$1,938,483	$8,184,812
Estimated Projects	678	968	928	758	744	4,076
Non-Incentive Costs	$615,363	$911,933	$1,077,234	$1,143,267	$1,163,090	$4,910,887
Total Program Costs	$1,640,968	$2,431,821	$2,872,624	$3,048,713	$3,101,573	$13,095,699
TRC Ratio	1.91					
UCT Ratio	1.82					
Net-to-Gross Ratio	0.95					

11.9.4 *Program Enhancements*

The SBDI program has proven to be popular with DESC small business customers; however, DESC believes that there is still space to grow this program. In order to grow the program, DESC is increasing the incentive level to 90% of project cost to reduce the barrier to entry for some hard-to-reach customers. DESC will continue to monitor the success and popularity of the program, remain

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in contact with customers and key trade allies, and evolve the program as it learns through its implementation experience.

11.10 Municipal LED Lighting

11.10.1 *Program Design*

DESC will be working with municipalities in the service territory to replace all street lights with high-efficiency LED street lights. Incentives will allow for a financial neutral option for municipalities to convert while improving lighting performance, providing remote monitoring/outage communications/control, faster repair response times and better overall customer experience. DESC has already begun seeking input and engaging municipalities interest about the offering. The program plans to replace approximately 54K municipal overhead fixtures with LED fixtures over the next 3-5 years. This program plan is based on a full five-year implementation schedule.

11.10.2 *Rebate Table*

The currently anticipated incentive payment per measure is provided in Table 60. DESC anticipates updating the incentive payments as program participation, evaluation results, baseline shifts, or other factors dictate during the finalization of program planning and during implementation.

Table 60. Program Incentives Summary for Municipal LEDs

Municipal LEDs	
Measure Description	**Per Unit Incentive**
LED Street Lights	100% of incremental cost

11.10.3 *Impact and Cost-Effectiveness Summary*

Over five years, the program is anticipated to have a TRC benefit-cost ratio of 2.37, reduce energy demand by 0.00 MW and energy consumption by 19,070 MWh, and cost $19,993,079. Year-by-year impacts are summarized in
Table 61. The assumed NTG ratio is 1.00.

Table 61. Program Impact Summary for Municipal LED Lighting

Municipal LED Lighting	Year 10	Year 11	Year 12	Year 13	Year 14	Total
Net Annual MWh Savings	3,017	4,307	3,876	4,186	3,684	19,070
Net Annual MW Savings	0.00	0.00	0.00	0.00	0.00	0.00
Measures / LED Fixtures installed	3,499	5,065	4,558	4,923	4,332	22,377
Incentive Costs	$2,342,663	$3,384,309	$3,045,878	$3,289,549	$2,894,803	$14,957,202
Non-Incentive Costs	$873,079	$1,116,822	$1,005,140	$1,085,551	$955,285	$5,035,877
Total Program Costs	$3,215,742	$4,501,131	$4,051,018	$4,375,100	$3,850,088	$19,993,079
TRC Ratio	2.37					
UCT Ratio	0.42					
Net-to-Gross Ratio	1.00					

11.10.4 *Program Enhancements*

This is a new program that DESC anticipates will be extremely well received by municipalities in the territory. DESC expects to exhaust the availability of the potential in this program within the five-year program period.

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12. CONCLUSIONS

With this portfolio, DESC is proposing programs that cost-effectively meet the needs of a broad range of customers, including hard-to-reach customers. These programs build on the momentum that DESC has created during the past nine years; reflect the impact of changing baselines; and incorporate feedback from customers, key trade allies, the third-party evaluator, and other stakeholders. They build on the knowledge gained in the Potential Study analysis and will continue to adapt to changing customer needs.

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APPENDICES

A. Additional Scenario – Planned AMI Installation

The study included an additional analysis of a scenario where AMI meters are expected to be installed for all customers by 2022. This scenario provides opportunities for the rate-based DR programs to be deployed on a larger scale, and thus increase the potential contribution of load reduction from DR by 2029. One assumption made to model this scenario is that the deployment schedule is done in such a way that if a customer wants to participate in a rate-based program (Critical Peak Pricing [CPP] or Time of Use [ToU], in this case), then priority for installation will be given to those customers. In this manner, the participation numbers are not limited by AMI, especially since the number of customers interested in the program is not expected to exceed AMI installations.

Figure 30. AMI Installations – (a) Required and (b) Expected

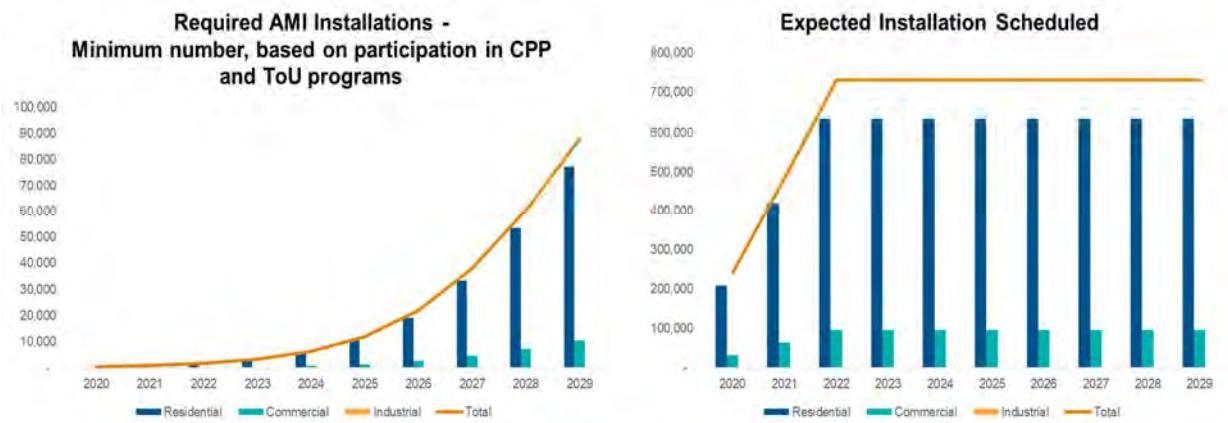

Figure 30(a) shows the required number of AMI installations required based on the maximum participation levels possible for ToU and CPP programs, while Figure 30(b) shows the ICF expected installation schedule for the AMIs (based on linear growth until 2022, when the installations for all customers are expected to be completed). Note the difference in axes in the two charts. Assuming the scheduling of installation followed will be as described in the previous paragraph, the participation will not be limited by the AMIs.

Figure 31. Additional AMI Scenario – DR Potential

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The additional potential from these expected AMI installations and resulting programs is shown in Figure 31. The additional potential achieved due to installation of further AMIs is 106 MW, from the ToU and CPP programs. This totals 149 MW in 2029, including the DLC program that contributed to the expanded scenario analyzed in the main content. Since the AMI installations are assumed to be completed by the utility, no additional cost is incurred by the customer for these programs, and the high participation levels as the years progress offset the initial costs for the CPP program, making it cost-effective in this scenario.

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B. Avoided Costs

For the avoided capacity cost calculation, a resource plan populated with internal combustion turbines (ICT) is used. DESC calculates the incremental capital investment related revenue required to support the ICT resource plan. DESC derives a change case in its resource plan by adding a 100 MW purchase then adjusting the expansion plan accordingly. The difference in the revenue requirement between the base case and the change case defines the avoided capacity cost. For the purposes of this calculation, a value of $63.37 per kW (in 2019 dollars), which is inclusive of transmission and distribution, was used along with the application of a 15% peak line-loss factor and a 14% reserve margin factor.

For the avoided energy cost calculation, the base case is defined by DESC's existing fleet of generators plus any projected future generators, as well as the solar facilities with which DESC has executed a power purchase agreement. The change case is the same as the base case except that the hourly loads are reduced by a 100 MW EE profile. The avoided energy cost is simply the difference between the base case costs and the change case costs. For the purposes of this calculation, a value of $0.0358 per kWh (in 2019 dollars) was used, followed by the application of a 8% average line-loss factor.

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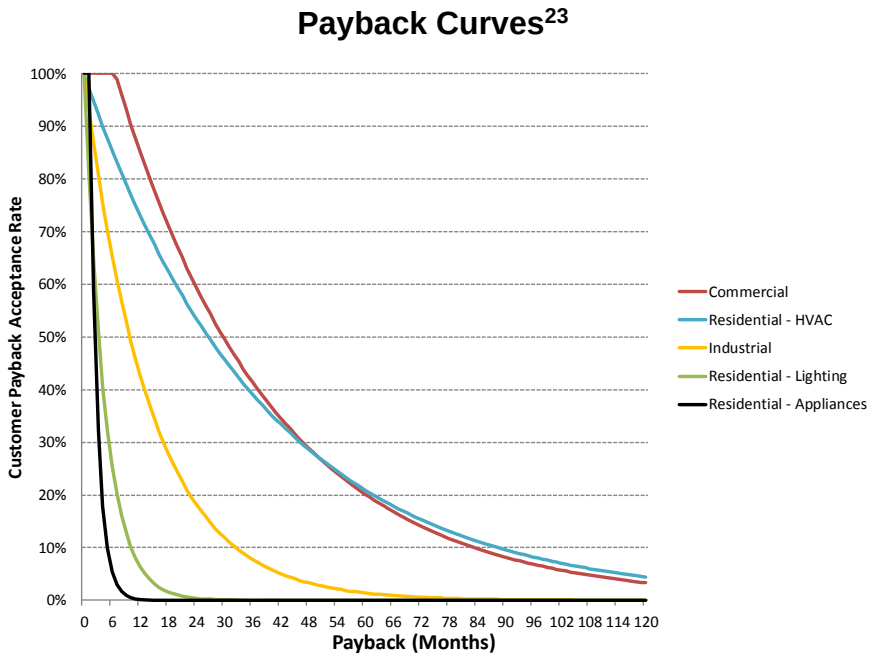
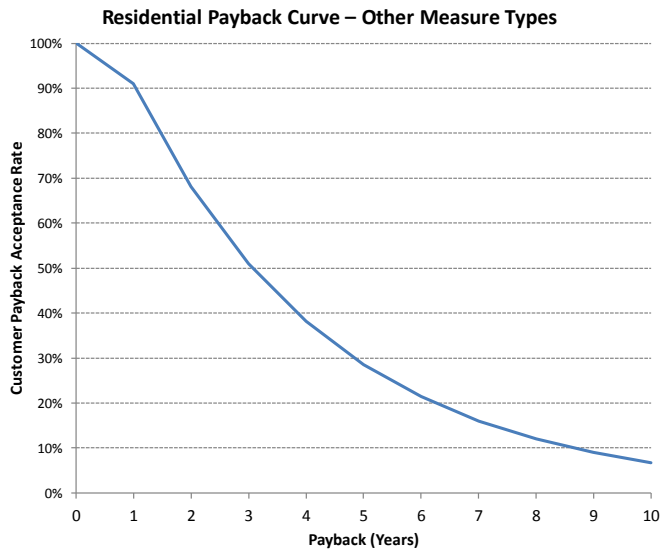
C. Payback Curves





Payback Acceptance Data Sources:

1. Commercial. ICF survey of 231 non-residential customers on decision making criteria for selecting efficient HVAC units. Conducted in 2013 for a confidential utility.

[23] To collect the data used to develop the payback curves in the first graph, customers were asked about payback acceptance in months. To collect the data used to develop the "Residential Payback Curve - Other," the survey asked customers about payback acceptance in years.

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2. Residential HVAC. ICF survey of 300 residential customers on decision making criteria for selecting efficient HVAC units. Conducted in 2013 for a confidential utility.
3. Industrial. U.S. Department of Energy, Industrial Assessment Center (IAC) data on industrial efficient measure implementation in Louisiana. Data accessed in 2014.
4. Residential Lighting. ICF survey of 300 residential customers on decision making criteria for selecting efficient lighting. Conducted in 2013 for a confidential utility.
5. Residential Appliance. ICF survey of 300 residential customers on decision making criteria for selecting efficient appliances. Conducted in 2013 for a confidential utility.
6. Residential - Other Measure Types. Based upon national survey of residential customers by the Shelton Group (2006).

Notes:

- The above payback acceptance curves plot months or years of simple payback against customer stated payback acceptance rates, with the exception of the industrial curve where actual payback from implemented efficiency measures was utilized to develop the curve. As stated in the body of this report, payback acceptance curves were not used in forecasting participation for all measures - they were used only for measures where payback is a valid proxy for financial acceptance.
- The table below shows which Participation Approach (see Approach section of main report for descriptions of Approach A and Approach B) was used by measure group by program, the payback curve used, where applicable, and net-to-gross ratios.

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MEASURE DESCRIPTION											MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Efficient Measure Definition	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
1	Residential	Mobile	Heat Pump	HVAC	Packaged ASHP	SEER 15	per 3 ton unit	ROB	18	18	$524.0	576	0.44	0	0	0.00	0
2	Residential	Mobile	Heat Pump	HVAC	Split ASHP - SEER 15	SEER 15	per 3 ton unit	ROB	18	18	$524.0	1,528	1.31	0	0	0.00	0
3	Residential	All Not Multifamily	Heat Pump	HVAC	Packaged ASHP	SEER 15	per 3 ton unit	ROB	18	18	$524.0	900	0.77	0	0	0.00	0
4	Residential	All Not Multifamily	Heat Pump	HVAC	Packaged ASHP	SEER 16	per 3 ton unit	ROB	18	18	$1,047.9	1,148	0.83	0	0	0.00	0
5	Residential	All Not Multifamily	Heat Pump	HVAC	Packaged DFHP	SEER 15	per 3 ton unit	ROB	18	18	$289.9	809	0.58	0	0	0.00	0
6	Residential	All Not Multifamily	Heat Pump	HVAC	Packaged DFHP	SEER 16	per 3 ton unit	ROB	18	18	$555.7	809	0.58	0	0	0.00	0
7	Residential	All Not Multifamily	AC	HVAC	Packaged A/C	SEER 15	per 3 ton unit	ROB	18	18	$425.8	299	0.25	0	0	0.00	0
8	Residential	All Not Multifamily	AC	HVAC	Packaged A/C	SEER 16	per 3 ton unit	ROB	18	18	$713.1	464	0.39	0	0	0.00	0
9	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 15	per 3 ton unit	ROB	18	18	$524.0	859	0.72	0	0	0.00	0
10	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 16	per 3 ton unit	ROB	18	18	$1,047.9	1,147	0.83	0	0	0.00	0
11	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 17	per 3 ton unit	ROB	18	18	$1,571.9	1,393	1.08	0	0	0.00	0
12	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 18	per 3 ton unit	ROB	18	18	$2,095.8	1,521	1.24	0	0	0.00	0
13	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 19	per 3 ton unit	ROB	18	18	$2,619.8	1,623	1.37	0	0	0.00	0
14	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 20	per 3 ton unit	ROB	18	18	$3,143.7	1,554	1.35	0	0	0.00	0
15	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 21	per 3 ton unit	ROB	18	18	$3,667.7	2,141	1.79	0	0	0.00	0
16	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 22	per 1 ton unit	ROB	18	18	$1,397.2	690	0.59	0	0	0.00	0
17	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 23	per 1 ton unit	ROB	18	18	$1,571.9	669	0.57	0	0	0.00	0
18	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 25	per 1 ton unit	ROB	18	18	$1,921.2	690	0.58	0	0	0.00	0
19	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 26	per 1 ton unit	ROB	18	18	$2,095.8	719	0.59	0	0	0.00	0
20	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 27	per 1 ton unit	ROB	18	18	$2,270.5	1,501	0.46	0	0	0.00	0
21	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 30	per 1 ton unit	ROB	18	18	$2,794.4	1,403	0.59	0	0	0.00	0
22	Residential	All Not Multifamily	Heat Pump	HVAC	Split ASHP	SEER 38	per 1 ton unit	ROB	18	18	$3,206.6	1,599	0.34	0	0	0.00	0
23	Residential	All Not Multifamily	Heat Pump	HVAC	Split DFHP	SEER 15	per 3 ton unit	ROB	18	18	$289.9	576	0.44	0	0	0.00	0
24	Residential	All Not Multifamily	Heat Pump	HVAC	Split DFHP	SEER 16	per 3 ton unit	ROB	18	18	$555.7	1,293	0.93	0	0	0.00	0
25	Residential	All Not Multifamily	Heat Pump	HVAC	Split DFHP	SEER 17	per 3 ton unit	ROB	18	18	$833.6	1,398	1.09	0	0	0.00	0
26	Residential	All Not Multifamily	Heat Pump	HVAC	Split DFHP	SEER 18	per 3 ton unit	ROB	18	18	$1,189.1	1,198	1.01	0	0	0.00	0
27	Residential	All Not Multifamily	Heat Pump	HVAC	Split DFHP	SEER 19	per 3 ton unit	ROB	18	18	$1,546.1	2,386	1.90	0	0	0.00	0
28	Residential	All Not Multifamily	Heat Pump	HVAC	Split DFHP	SEER 20	per 3 ton unit	ROB	18	18	$1,903.1	2,534	2.04	0	0	0.00	0
29	Residential	All Not Multifamily	AC	HVAC	Split A/C	Seer 15	per 3 ton unit	ROB	18	18	$425.8	334	0.28	0	0	0.00	0
30	Residential	All Not Multifamily	AC	HVAC	Split A/C	Seer 16	per 3 ton unit	ROB	18	18	$713.1	484	0.40	0	0	0.00	0
31	Residential	All Not Multifamily	AC	HVAC	Split A/C	Seer 17	per 3 ton unit	ROB	18	18	$999.8	566	0.47	0	0	0.00	0
32	Residential	All Not Multifamily	AC	HVAC	Split A/C	Seer 18	per 3 ton unit	ROB	18	18	$1,286.5	604	0.49	0	0	0.00	0
33	Residential	All Not Multifamily	AC	HVAC	Split A/C	Seer 19	per 3 ton unit	ROB	18	18	$1,574.6	707	0.56	0	0	0.00	0
34	Residential	All Not Multifamily	AC	HVAC	Split A/C	Seer 20	per 3 ton unit	ROB	18	18	$1,861.3	910	0.70	0	0	0.00	0
35	Residential	All Not Multifamily	AC	HVAC	Split A/C	Seer 21	per 3 ton unit	ROB	18	18	$2,148.0	886	0.69	0	0	0.00	0
36	Residential	All Not Multifamily	AC	HVAC	Duct Work Replacement AC	Duct Work Replacement	per system	RET	20	20	$2,500.0	1,040	0.48	25	0	0.00	0
37	Residential	All Not Multifamily	AC	HVAC	Duct Insulation AC	Duct Insulation	per system	RET	20	20	$673.3	361	0.17	9	0	0.00	0
38	Residential	All Not Multifamily	AC	HVAC	Duct Sealing AC	Duct Sealing	per system	RET	18	18	$554.0	706	0.33	17	0	0.00	0
39	Residential	All Not Multifamily	Heat Pump	HVAC	Duct Sealing HP	Duct Sealing	per system	RET	18	18	$519.6	1,106	0.31	0	0	0.00	0
40	Residential	All Not Multifamily	Heat Pump	HVAC	Duct Work Replacement HP	Duct Work Replacement	per system	RET	20	20	$2,500.0	1,841	0.48	0	0	0.00	0
41	Residential	All Not Multifamily	Heat Pump	HVAC	Duct Insulation HP	Duct Insulation	per system	RET	20	20	$672.6	761	0.17	0	0	0.00	0
42	Residential	All Not Multifamily	All	Appliances	Refrigerator Recycling	Refrigerator Recycling	refrigerator	RET	9	9	$50.0	1,028	0.12	0	0	0.00	0
43	Residential	All Not Multifamily	All	Appliances	Freezer Recycling	Freezer Recycling	freezer	RET	9	9	$50.0	680	0.08	0	0	0.00	0
44	Residential	All Not Multifamily	All	Lighting	5 LEDs Kit	5 LEDs Kit	per kit	RET	1	5	$55.9	285	0.02	0	0	0.00	0
45	Residential	All Not Multifamily	Electric Water Heater	Hot Water	Faucet Aerators	Low Flow Faucet Aerators	per aerator	RET	5	5	$2.0	225	0.01	0	0	0.00	0
46	Residential	Low Income All	All	Lighting	LED Lighting Misc (Low Income)	NEEP Weighted Average	Per lamp	RET	1	19	$11.2	57	0.01	0	0	0.00	0
47	Residential	Low Income All	Heat Pump	HVAC	HVAC Filter	Filter - Electric Heat & Cool (Low Income)	Per participant	RET	1	1	$4.5	64	0.02	0	0	0.00	0
48	Residential	Low Income All	AC/Gas Heat	HVAC	HVAC Filter	Filter - Electric Cooling Only (Low Income)	Per participant	RET	1	1	$4.5	32	0.02	0	0	0.00	0
49	Residential	Low Income All	Electric Resistance Heat/	HVAC	HVAC Filter	Filter - Electric Heat Only (Low Income)	Per participant	RET	1	1	$4.5	32	0.00	0	0	0.00	0
50	Residential	Low Income All	Electric Water Heater	Hot Water	Faucet Aerator	Kitchen Faucet Aerator (Low Income)	Per Aerator	RET	10	10	$9.5	225	0.01	0	0	0.00	0
51	Residential	Low Income All	Electric Water Heater	Hot Water	Pipe Insulation	Pipe Wrap (Low Income)	per system	RET	5	5	$5.0	69	0.01	0	0	0.00	0
52	Residential	Low Income All	All	Consumer Electronics	Advanced Smart-Strip	Advanced Smart-Strip (Low Income)	Per strip	RET	5	5	$17.0	103	0.01	0	0	0.00	0
53	Residential	Low Income All	Electric Water Heater	Hot Water	Water Heater Blanket	Water Heater Blanket (Low Income)	Per blanket	RET	5	5	$25.0	361	0.04	0	0	0.00	0
54	Residential	Low Income All	All	Shell	AC Winterization Kit	AC Winterization kit - large (Low Income)	Per kit	RET	18	18	$4.0	47	0.00	0	0	0.00	0
55	Residential	Low Income All	All	Shell	AC Winterization Kit	AC Winterization kit - medium (Low Income)	Per kit	RET	18	18	$8.0	34	0.00	0	0	0.00	0
56	Residential	Low Income All	All	Shell	AC Winterization Kit	AC Winterization kit - small (Low Income)	Per kit	RET	18	18	$10.0	23	0.00	0	0	0.00	0
57	Residential	Low Income All	Electric Water Heater	Hot Water	Water Heater Temperature Adjustment	Water Heater Temperature Adjustment (Low Income)	Per WH	RET	5	5	$1.0	114	0.01	0	0	0.00	0
58	Residential	Low Income Mobile	All	Other	Digital Switch Plate Wall Thermometer	Digital Switch Plate Wall Thermometer (Low Income)	Thermometers	RET	5	5	$10.0	18	0.00	0	0	0.00	0
59	Residential	Low Income Mobile	All	Shell	Air Sealing	Air Sealing > 30% Leakage Reduction (Low Income)	Participants	RET	13	13	$190.1	286	0.07	7	0	0.00	0
60	Residential	Low Income Mobile	All	Shell	Air Sealing	Air Sealing > 40% Leakage Reduction (Low Income)	Participants	RET	13	13	$190.1	381	0.10	9	0	0.00	0
61	Residential	Low Income Mobile	All	HVAC	Duct Sealing	Duct Sealing with > 10% Reduction (Low Income)	Participants	RET	18	18	$341.9	592	0.22	14	0	0.00	0
62	Residential	Low Income Mobile	All	Shell	Attic Plug & Fill Insulation	Attic Plug & Fill Insulation (R-30) (Low Income)	Square Feet	RET	20	20	$1.0	2	0.00	0	0	0.00	0
63	Residential	Low Income Mobile	All	Shell	Belly Board Repair	Belly Board Repair (Low Income)	Square Feet	RET	25	25	$0.6	1	0.00	0	0	0.00	0
64	Residential	Low Income Mobile	All	HVAC	Programmable Communicating Thermostat	Programmable Communicating Thermostat (Low Income)	Thermostats	RET	10	10	$42.7	645	0.00	0	0	0.00	0
65	Residential	Low Income Mobile	All	Shell	Reflective Roof Coating	Reflective Roof Coating (Low Income)	Square Feet	RET	10	10	$0.1	1	0.00	0	0	0.00	0
66	Residential	Low Income Mobile	All	Shell	Belly Board Insulation	Belly Board Insulation (R-19) (Low Income)	Per square foot	RET	25	25	$0.6	1	0.00	0	0	0.00	0
67	Residential	All	All	Lighting	LED Lighting Misc	Online Marketplace Weighted Average	per bulb	RET	1	19	$11.2	57	0.01	0	0	0.00	0
68	Residential	All Not Multifamily	AC/Gas Heat	Shell	Attic Knee Wall Insulation	R 19	sqft	RET	20	20	$0.6	1	0.00	0	0	0.00	0
69	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Attic Knee Wall Insulation	R 19	sqft	RET	20	20	$0.6	2	0.00	0	0	0.00	0
70	Residential	All Not Multifamily	Heat Pump	Shell	Attic Knee Wall Insulation	R 19	sqft	RET	20	20	$0.6	1	0.00	0	0	0.00	0
71	Residential	All Not Multifamily	AC/Gas Heat	Shell	Attic Knee Wall Insulation	R 30	sqft	RET	20	20	$1.0	1	0.00	0	0	0.00	0
72	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Attic Knee Wall Insulation	R 30	sqft	RET	20	20	$1.0	2	0.00	0	0	0.00	0
73	Residential	All Not Multifamily	Heat Pump	Shell	Attic Knee Wall Insulation	R 30	sqft	RET	20	20	$1.0	1	0.00	0	0	0.00	0
74	Residential	All Not Multifamily	AC/Gas Heat	Shell	Ceiling Insulation	R 38	sqft	RET	20	20	$1.2	0	0.00	0	0	0.00	0
75	Residential	All Not Multifamily	AC/Electric Resistance he	Shell	Ceiling Insulation	R 38	sqft	RET	20.0	20	$1.2	2	0.00	0	0	0.00	0
76	Residential	All Not Multifamily	Heat Pump	Shell	Ceiling Insulation	R 38	sqft	RET	20.0	20	$1.2	1	0.00	0	0	0.00	0
77	Residential	All Not Multifamily	AC/Gas Heat	Shell	Ceiling Insulation	R 49	sqft	RET	20.0	20	$1.6	0	0.00	0	0	0.00	0
78	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Ceiling Insulation	R 49	sqft	RET	20.0	20	$1.6	2	0.00	0	0	0.00	0
79	Residential	All Not Multifamily	Heat Pump	Shell	Ceiling Insulation	R 49	sqft	RET	20.0	20	$1.6	1	0.00	0	0	0.00	0
80	Residential	All Not Multifamily	AC/Gas Heat	Shell	Wall Insulation	R-13	sqft	RET	20.0	20	$0.4	0	0.00	0	0	0.00	0
81	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Wall Insulation	R-13	sqft	RET	20.0	20	$0.4	2	0.00	0	0	0.00	0
82	Residential	All Not Multifamily	Heat Pump	Shell	Wall Insulation	R-13	sqft	RET	20.0	20	$0.4	1	0.00	0	0	0.00	0
83	Residential	All Not Multifamily	AC/Gas Heat	Shell	Wall Insulation	R-23	sqft	RET	20.0	20	$0.7	0	0.00	0	0	0.00	0
84	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Wall Insulation	R-23	sqft	RET	20.0	20	$0.7	3	0.00	0	0	0.00	0
85	Residential	All Not Multifamily	Heat Pump	Shell	Wall Insulation	R-23	sqft	RET	20.0	20	$0.7	1	0.00	0	0	0.00	0
86	Residential	All Not Multifamily	AC/Gas Heat	Shell	Floor Insulation	Floor Insulation (R-19)	sqft	RET	20.0	20	$0.9	0	0.00	0	0	0.00	0
87	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Floor Insulation	Floor Insulation (R-19)	sqft	RET	20.0	20	$0.9	0	0.00	0	0	0.00	0
88	Residential	All Not Multifamily	Heat Pump	Shell	Floor Insulation	Floor Insulation (R-19)	sqft	RET	20.0	20	$0.9	0	0.00	0	0	0.00	0
89	Residential	All Not Multifamily	AC/Gas Heat	Shell	Crawlspace Encapsulation	Crawlspace Encapsulation (R-19)	sqft	RET	20.0	20	$0.9	0	0.00	0	0	0.00	0
90	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Crawlspace Encapsulation	Crawlspace Encapsulation (R-19)	sqft	RET	20.0	20	$0.9	2	0.00	0	0	0.00	0
91	Residential	All Not Multifamily	Heat Pump	Shell	Crawlspace Encapsulation	Crawlspace Encapsulation (R-19)	sqft	RET	20.0	20	$0.9	0	0.00	0	0	0.00	0
92	Residential	All Not Multifamily	AC/Gas Heat	Shell	Roof Deck Insulation	R-19	sqft	RET	20.0	20	$0.6	0	0.00	0	0	0.00	0
93	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Roof Deck Insulation	R-19	sqft	RET	20.0	20	$0.6	2	0.00	0	0	0.00	0
94	Residential	All Not Multifamily	Heat Pump	Shell	Roof Deck Insulation	R-19	sqft	RET	20.0	20	$0.6	1	0.00	0	0	0.00	0
95	Residential	All Not Multifamily	AC/Gas Heat	Shell	Roof Deck Insulation	R-38	sqft	RET	20.0	20	$1.2	1	0.00	0	0	0.00	0
96	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Roof Deck Insulation	R-38	sqft	RET	20.0	20	$1.2	2	0.00	0	0	0.00	0
97	Residential	All Not Multifamily	Heat Pump	Shell	Roof Deck Insulation	R-38	sqft	RET	20.0	20	$1.2	1	0.00	0	0	0.00	0
98	Residential	All Not Multifamily	AC/Gas Heat	Shell	Radiant Barriers	Celing insulation > R-19w/radiant barrier	sqft	RET	25.0	25	$0.2	0	0.00	0	0	0.00	0
99	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Radiant Barriers	Celing insulation > R-19w/radiant barrier	sqft	RET	25.0	25	$0.2	0	0.00	0	0	0.00	0
100	Residential	All Not Multifamily	Heat Pump	Shell	Radiant Barriers	Celing insulation > R-19w/radiant barrier	sqft	RET	25.0	25	$0.2	0	0.00	0	0	0.00	0
101	Residential	All Not Multifamily	AC/Gas Heat	Shell	ENERGY STAR Windows	Energy Star Southern Climate Zone Windows (U = 0.4, SHGC = 0.25) - S	sqft	ROB	20.0	20	$17.2	3	0.00	0	0	0.00	0
102	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	ENERGY STAR Windows	Energy Star Southern Climate Zone Windows (U = 0.4, SHGC = 0.25) - S	sqft	ROB	20.0	20	$33.9	5	0.00	0	0	0.00	0
103	Residential	All Not Multifamily	Heat Pump	Shell	ENERGY STAR Windows	Energy Star Southern Climate Zone Windows (U = 0.4, SHGC = 0.25) - S	sqft	ROB	20.0	20	$22.9	4	0.00	0	0	0.00	0
104	Residential	All Not Multifamily	AC/Gas Heat	Shell	ENERGY STAR Windows	Energy Star Southern Climate Zone Windows (U = 0.4, SHGC = 0.25) - E	sqft	ROB	20.0	20	$11.0	2	0.00	0	0	0.00	0
105	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	ENERGY STAR Windows	Energy Star Southern Climate Zone Windows (U = 0.4, SHGC = 0.25) - E	sqft	ROB	20.0	20	$25.3	4	0.00	0	0	0.00	0
106	Residential	All Not Multifamily	Heat Pump	Shell	ENERGY STAR Windows	Energy Star Southern Climate Zone Windows (U = 0.4, SHGC = 0.25) - E	sqft	ROB	20.0	20	$16.2	3	0.00	0	0	0.00	0
107	Residential	All Not Multifamily	AC/Gas Heat	Shell	Window Film - Single Pane	Window Film - SHG <0.50	sqft	RET	10.0	10	$4.2	2	0.00	0	0	0.10	0
108	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Window Film - Single Pane	Window Film - SHG <0.50	sqft	RET	10.0	10	$0.0	0	0.00	0	0	0.00	0
109	Residential	All Not Multifamily	Heat Pump	Shell	Window Film - Single Pane	Window Film - SHG <0.50	sqft	RET	10.0	10	$0.7	1	0.00	0	0	0.00	0
110	Residential	All Not Multifamily	AC/Gas Heat	Shell	Window Film - Double Pane	Window Film - SHG <0.50	sqft	RET	10.0	10	$1.4	1	0.00	0	0	0.03	0
111	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Window Film - Double Pane	Window Film - SHG <0.50	sqft	RET	10.0	10	$0.0	0	0.00	0	0	0.00	0
112	Residential	All Not Multifamily	Heat Pump	Shell	Window Film - Double Pane	Window Film - SHG <0.50	sqft	RET	10.0	10	$0.2	0	0.00	0	0	0.00	0
113	Residential	All Not Multifamily	AC/Gas Heat	Shell	Attic Encapsulation_R19	R-19	sqft	RET	25.0	25	$0.6	0	0.00	0	0	0.00	0
114	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Attic Encapsulation_R19	R-19	sqft	RET	25.0	25	$0.6	2	0.00	0	0	0.00	0
115	Residential	All Not Multifamily	Heat Pump	Shell	Attic Encapsulation_R19	R-19	sqft	RET	25.0	25	$0.6	1	0.00	0	0	0.00	0
116	Residential	All Not Multifamily	AC/Gas Heat	Shell	Attic Encapsulation_R38	R-38	sqft	RET	25.0	25	$1.2	0	0.00	0	0	0.00	0
117	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Attic Encapsulation_R38	R-38	sqft	RET	25.0	25	$1.2	2	0.00	0	0	0.00	0
118	Residential	All Not Multifamily	Heat Pump	Shell	Attic Encapsulation_R38	R-38	sqft	RET	25.0	25	$1.2	1	0.00	0	0	0.00	0
119	Residential	All Not Multifamily	AC/Gas Heat	Shell	Solar Screens	Solar Screens	sqft	RET	10.0	10	$8.3	4	0.00	0	0	0.00	0
120	Residential	All Not Multifamily	AC/Electric Resistance H	Shell	Solar Screens	Solar Screens	sqft	RET	10.0	10	$8.3	0	0.00	0	0	0.00	0
121	Residential	All Not Multifamily	Heat Pump	Shell	Solar Screens	Solar Screens	sqft	RET	10.0	10	$8.3	1	0.00	0	0	0.00	0
122	Residential	All Not Multifamily	Gas Heating	Lighting	Linear Fluorescents	25 W Indoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	17	0.00	0	0	0.17	0
123	Residential	All Not Multifamily	AC/Electric Resistance H	Lighting	Linear Fluorescents	25 W Indoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	13	0.00	0	0	0.00	0
124	Residential	All Not Multifamily	Heat Pump	Lighting	Linear Fluorescents	25 W Indoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	15	0.00	0	0	0.00	0
125	Residential	All Not Multifamily	Gas Heating	Lighting	Linear Fluorescents	25 W Outdoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	17	0.00	0	0	0.17	0

Horii Cross Exhibit No. 2
PROPRIETARY AND CONFIDENTIAL
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MEASURE DESCRIPTION											MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Efficient Measure Definition	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
126	Residential	All Not Multifamily	AC/Electric Resistance H	Lighting	Linear Fluorescents	25 W Outdoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	13	0.00	0	0	0.00	0
127	Residential	All Not Multifamily	Heat Pump	Lighting	Linear Fluorescents	25 W Outdoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	15	0.00	0	0	0.00	0
128	Residential	All Not Multifamily	All	Hot Water	Low-Flow Showerheads	1.75 GPM Showerhead	showerhead	RET	10.0	10	$7.0	166	0.02	0	0	0.00	0
129	Residential	All Not Multifamily	Electric Water Heater	Hot Water	Water Heater Replacement—Solar Water Heating	3.0 EF Solar Hot Water Heater	heater	RET	15.0	15	$915.0	2,262	0.42	0	0	0.00	0
130	Residential	All Not Multifamily	All	Lighting	Occupancy Sensor - Wall-Mounted	Occupancy Sensor - Wall-Mounted	Per Wall Sensor	ROB	10.0	10	$25.0	8	0.00	0	0	0.00	0
131	Residential	All Not Multifamily	All	Shell	Attic Access Covers	Attic Access Covers	Per Home	RET	20.0	20	$80.0	785	0.09	0	0	0.00	0
132	Residential	All Not Multifamily	Gas Heat (No AC)	Hot Water	Heat Pump Water Heater (0.23 UEF)(Gas Heat - Conditioned Space)	Heat Pump Water Heater (0.23 UEF)(Gas Heat - Conditioned Space)	Per Unit	ROB	13.0	13	$850.0	1,985	0.24	0	0	0.00	0
133	Residential	All Not Multifamily	AC/Electric Resistance H	Hot Water	Heat Pump Water Heater (0.23 UEF)(Elec Resist - Conditioned Space)	Heat Pump Water Heater (0.23 UEF)(Elec Resist - Conditioned Space)	Per Unit	ROB	13.0	13	$850.0	1,424	0.24	0	0	0.00	0
134	Residential	All Not Multifamily	Heat Pump	Hot Water	Heat Pump Water Heater (0.23 UEF)(Heat Pump - Conditioned Space)	Heat Pump Water Heater (0.23 UEF)(Heat Pump - Conditioned Space)	Per Unit	ROB	13.0	13	$850.0	1,741	0.24	0	0	0.00	0
135	Residential	All Not Multifamily	All	Hot Water	Heat Pump Water Heater (0.23 UEF)(Unconditioned Space)	Heat Pump Water Heater (0.23 UEF)(Unconditioned Space)	Per Unit	ROB	13.0	13	$850.0	1,825	0.20	0	0	0.00	0
136	Residential	All Not Multifamily	Heat Pump	HVAC	Programmable Communicating Thermostat	Smart Thermostats	Per Thermostat	ROB	7.5	8	$125.0	645	0.00	0	0	0.00	0
137	Residential	All Not Multifamily	AC/Gas Heat	HVAC	Programmable Communicating Thermostat	Smart Thermostats	Per Thermostat	ROB	7.5	8	$125.0	108	0.00	4	0	0.00	0
138	Residential	All Not Multifamily	All	Consumer Electronics	Advanced Power Strips	Advanced Smart-Strip	Per strip	ROB	10.0	5	$17.0	103	0.01	0	0	0.00	0
139	Residential	All Not Multifamily	Heat Pump	HVAC	Ductless Heat Pump	SEER 21.17; HSPF 10.43	Per home	ROB	18.0	18	$1,757.8	2,094	0.13	0	0	0.00	0
140	Residential	All Not Multifamily	AC	HVAC	Central Air Conditioner Tune-Up	System functioning at the manufacture specified EER	Per Home	RET	10.0	10	$175.0	855	0.30	0	0	0.00	0
141	Residential	All Not Multifamily	Heat Pump	HVAC	Central Heat Pump Tune-Up	System functioning at the manufacture specified EER	Per Home	RET	10.0	10	$175.0	1,243	0.30	0	0	0.00	0
142	Residential	All Not Multifamily	All	Other	Home Energy Reports	Receiving Home Energy Reports	per home	RET	1.0	1	$0.0	64	0.02	0	0	0.00	0
143	Residential	All Not Multifamily	All	HVAC	ECM Fan Motors	ECM Fan Motor	Per Unit	RET	15.0	15	$197.0	200	0.00	0	0	0.00	0
144	Residential	All Not Multifamily	All	HVAC	ECM Fan Motors	ECM Fan Motor	Per Unit	ROB	15.0	15	$97.0	200	0.00	0	0	0.00	0
145	Residential	All Not Multifamily	All	HVAC	Aeroseal Duct Sealing	Aeroseal Duct Sealing on duct system	Per Home	RET	10.0	10	$2,400.0	1,589	0.74	0	0	0.00	0
146	Residential	Low Income All	All	Other	Home Energy Reports	Receiving Home Energy Reports	per home	RET	1	1	$0.0	64	0.02	0	0	0.00	0
147	Residential	Multifamily Common Area	All	Appliances	Ice Machine - CEE Tier II	Ice Machine - CEE Tier II	Per Machine	ROB	10	10	$909.0	927	0.11	0	0	0.00	0
148	Residential	Multifamily Common Area	All	Appliances	Vending Machine Controls - non-refrigerated	Vending Machine Controls - non-refrigerated	Per Machine	ROB	5	5	$141.0	387	0.01	0	0	0.00	0
149	Residential	Multifamily Common Area	All	Appliances	Vending Machine Controls - refrigerated	Vending Machine Controls - refrigerated	Per Machine	ROB	5	5	$141.0	1,349	0.33	0	0	0.00	0
150	Residential	Multifamily Common Area	Heat Pump	HVAC	ASHP - SEER 15-15.99 - Min HSPF=8.6	ASHP - SEER 15-15.99 - Min HSPF=8.6	per 3 ton unit	ROB	19	19	$1,028.0	1,559	0.36	0	0	0.00	0
151	Residential	Multifamily Common Area	Heat Pump	HVAC	ASHP - SEER 16-16.99 - Min HSPF=8.6	ASHP - SEER 16-16.99 - Min HSPF=8.6	per 3 ton unit	ROB	19	19	$1,806.0	4,250	1.01	0	0	0.00	0
152	Residential	Multifamily Common Area	AC	HVAC	CAC - SEER 15-15.99	CAC - SEER 15-15.99	per 3 ton unit	ROB	19	19	$1,540.0	1,087	0.56	0	0	0.00	0
153	Residential	Multifamily Common Area	AC	HVAC	CAC - SEER 16-16.99	CAC - SEER 16-16.99	per 3 ton unit	ROB	19	19	$2,310.0	1,285	0.63	0	0	0.00	0
154	Residential	Multifamily Common Area	All	Lighting	Occupancy Sensor - Ceiling/Wall Mount	Occupancy Sensor - Ceiling/Wall Mount	Per Sensor	ROB	8	8	$155.9	307	0.23	0	0	0.00	0
155	Residential	Multifamily Common Area	All	Lighting	Occupancy Sensor - Fixture Mounted	Occupancy Sensor - Fixture Mounted	Per Sensor	ROB	8	8	$155.9	252	0.19	0	0	0.00	0
156	Residential	Multifamily Common Area	All	Lighting	Exterior LED Parking Lot Gas Canopy, Area, Flood, Wallpack or retrofit kit(repl 150w and lowe	Exterior LED Parking Lot Gas Canopy, Area, Flood, Wallpack or retrofit k	Per Kit	ROB	15	15	$198.0	458	0.10	0	0	0.00	0
157	Residential	Multifamily Common Area	All	Lighting	Exterior LED Parking Lot Gas Canopy, Area, Flood, Wallpack or retrofit kit(repl 151-250w)	Exterior LED Parking Lot Gas Canopy, Area, Flood, Wallpack or retrofit k	Per Kit	ROB	15	15	$189.0	868	0.17	0	0	0.00	0
158	Residential	Multifamily Common Area	All	Lighting	Exterior LED Parking Lot Gas Canopy, Area, Flood, Wallpack or retrofit kit(repl 251w-400w)	Exterior LED Parking Lot Gas Canopy, Area, Flood, Wallpack or retrofit k	Per Kit	ROB	15	15	$437.0	1,305	0.27	0	0	0.00	0
159	Residential	Multifamily Common Area	All	Lighting	Exterior LED Parking Lot Gas Canopy, Area, Flood, Wallpack or retrofit kit(repl 401w and high	Exterior LED Parking Lot Gas Canopy, Area, Flood, Wallpack or retrofit k	Per Kit	ROB	15	15	$585.0	3,382	0.72	0	0	0.00	0
160	Residential	Multifamily Common Area	All	Lighting	LED Exit Signs	LED Exit Signs	Per Sign	ROB	15	15	$52.5	251	0.03	0	0	0.00	0
161	Residential	Multifamily Common Area	All	Lighting	Delamping T12 or T8 sys w HPT8, RWT8, T5 or T5HO Lp & Bal removing 2 lamps	Delamping T12 or T8 sys w HPT8, RWT8, T5 or T5HO Lp & Bal removing	Per 2 lamps	ROB	11	11	$28.0	417	0.09	0	0	0.00	0
162	Residential	Multifamily Common Area	All	Lighting	Delamping T12 or T8 sys w HPT8, RWT8, T5 or T5HO Lp & Bal removing 1 lamps	Delamping T12 or T8 sys w HPT8, RWT8, T5 or T5HO Lp & Bal removin	Per lamp	ROB	11	11	$14.0	205	0.04	0	0	0.00	0
163	Residential	Multifamily Common Area	All	Lighting	Interior LED Recessed, Surface, Track, Pendant downlight fixtures, or retrofit kits	Interior LED Recessed, Surface, Track, Pendant downlight fixtures, or ret	Per Fixture	ROB	15	15	$27.0	288	0.07	0	0	0.00	0
164	Residential	Multifamily Common Area	All	Lighting	Interior LED Troffer, Panel fixtures or retrofit kits (replacing a 2L fixture)	Interior LED Troffer, Panel fixtures or retrofit kits (replacing a 2L fixture)	Per Fixture	ROB	15	15	$101.0	198	0.04	0	0	0.00	0
165	Residential	Multifamily Common Area	All	Lighting	Interior LED Troffer, Panel fixtures or retrofit kits (replacing a 3-4L fixture)	Interior LED Troffer, Panel fixtures or retrofit kits (replacing a 3-4L fixture	Per Fixture	ROB	15	15	$125.0	348	0.07	0	0	0.00	0
166	Residential	Multifamily Common Area	All	Lighting	LED Linear Tube Replacement/Retrofits (one for one lamp replacement)	LED Linear Tube Replacement/Retrofits (one for one lamp replacement)	Per Lamp	ROB	15	15	$10.0	123	0.02	0	0	0.00	0
167	Residential	Multifamily Common Area	All	Lighting	LED screw-in lamps, MR lamps & retrofit trim kits	LED screw-in lamps, MR lamps & retrofit trim kits	Per lamp	ROB	15	15	$10.0	233	0.04	0	0	0.00	0
168	Residential	Multifamily Common Area	All	Lighting	New HPT8, RWT8, T5 or T5HO fixture	New HPT8, RWT8, T5 or T5HO fixture	Per Fixture	ROB	15	15	$100.0	202	0.06	0	0	0.00	0
169	Residential	Multifamily Common Area	All	Consumer Electronics	Smart Power Strips	Smart Power Strips	Per Strip	ROB	10	10	$40.0	57	0.00	0	0	0.00	0
170	Residential	Multifamily Common Area	AC	HVAC	Electronically Commutated Motor (ECM)	Electronically Commutated Motor (ECM)	Per Motor	ROB	15	15	$168.0	207	0.01	0	0	0.00	0
171	Residential	Multifamily Common Area	All	Other	VFD Pool Pumps, ENERGY STAR	VFD Pool Pumps, ENERGY STAR	Per 2.5 HP Pump	ROB	10	10	$425.0	1,428	0.40	0	0	0.00	0
172	Residential	Multifamily Common Area	All	Shell	ENERGY STAR Windows/Doors	ENERGY STAR Windows/Doors	Per sqft	ROB	10	10	$5.4	7	0.00	0	0	0.00	0
173	Residential	Multifamily Common Area	Electric Water Heater	Hot Water	1.5 GPM Showerhead	1.5 GPM Showerhead	Per Showerhead	ROB	10	10	$34.2	279	0.03	0	0	0.00	0
174	Residential	Multifamily Common Area	Electric Water Heater	Hot Water	Faucet Aerator (Electric)	Faucet Aerator (Electric)	Per Aerator	ROB	10	10	$14.0	140	0.01	0	0	0.00	0
175	Residential	Multifamily Common Area	AC	HVAC	Air Conditioning Tune-Ups	Air Conditioning Tune-Ups	Per Tune-Up	ROB	5	5	$175.0	1,100	0.35	0	0	0.00	0
176	Residential	Multifamily Common Area	Heat Pump	HVAC	Heat Pump Tune-Ups	Heat Pump Tune-Ups	Per Tune-Up	ROB	5	5	$200.0	1,500	0.47	0	0	0.00	0
177	Residential	All Not Multifamily	All	Shell	Air Sealing	Air Sealing > 30% Leakage Reduction	Participants	RET	13	13	$190.1	286	0.07	7	0	0.00	0
178	Residential	All Not Multifamily	All	Shell	Attic Plug & Fill Insulation	Attic Plug & Fill Insulation (R-30)	Square Feet	RET	20	20	$1.0	2	0.00	0	0	0.00	0
179	Residential	All Not Multifamily	All	Shell	Reflective Roof Coating	Reflective Roof Coating	Square Feet	RET	10	10	$0.1	1	0.00	0	0	0.00	0
180	Residential	All Not Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 15 - Retrofit from Electric Resistance Heat	ASHP SEER 15	Per 3 Ton Unit	RET	18	18	$2,390.6	10,098	0.72	0	0	0.00	0
181	Residential	All Not Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 16 - Retrofit from Electric Resistance Heat	ASHP SEER 16	Per 3 Ton Unit	RET	18	18	$2,824.7	10,457	0.83	0	0	0.00	0
182	Residential	All Not Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 17 - Retrofit from Electric Resistance Heat	ASHP SEER 17	Per 3 Ton Unit	RET	18	18	$3,362.2	10,736	1.08	0	0	0.00	0
183	Residential	All Not Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 18 - Retrofit from Electric Resistance Heat	ASHP SEER 18	Per 3 Ton Unit	RET	18	18	$3,886.2	10,837	1.24	0	0	0.00	0
184	Residential	All Not Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 19 - Retrofit from Electric Resistance Heat	ASHP SEER 19	Per 3 Ton Unit	RET	18	18	$4,411.6	11,000	1.37	0	0	0.00	0
185	Residential	All Not Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 20 - Retrofit from Electric Resistance Heat	ASHP SEER 20	Per 3 Ton Unit	RET	18	18	$4,935.6	11,264	1.35	0	0	0.00	0
186	Residential	All Not Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 21 - Retrofit from Electric Resistance Heat	ASHP SEER 21	Per 3 Ton Unit	RET	18	18	$5,459.5	11,299	1.79	0	0	0.00	0
187	Residential	Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 15 - Retrofit from Electric Resistance Heat	ASHP SEER 15	Per 3 Ton Unit	RET	18	18	$2,390.6	10,098	0.72	0	0	0.00	0
188	Residential	Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 16 - Retrofit from Electric Resistance Heat	ASHP SEER 16	Per 3 Ton Unit	RET	18	18	$2,824.7	10,457	0.83	0	0	0.00	0
189	Residential	Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 17 - Retrofit from Electric Resistance Heat	ASHP SEER 17	Per 3 Ton Unit	RET	18	18	$3,362.2	10,736	1.08	0	0	0.00	0
190	Residential	Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 18 - Retrofit from Electric Resistance Heat	ASHP SEER 18	Per 3 Ton Unit	RET	18	18	$3,886.2	10,837	1.24	0	0	0.00	0
191	Residential	Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 19 - Retrofit from Electric Resistance Heat	ASHP SEER 19	Per 3 Ton Unit	RET	18	18	$4,411.6	11,000	1.37	0	0	0.00	0
192	Residential	Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 20 - Retrofit from Electric Resistance Heat	ASHP SEER 20	Per 3 Ton Unit	RET	18	18	$4,935.6	11,264	1.35	0	0	0.00	0
193	Residential	Multifamily	Electric Resistance Heat	HVAC	Split ASHP - SEER 21 - Retrofit from Electric Resistance Heat	ASHP SEER 21	Per 3 Ton Unit	RET	18	18	$5,459.5	11,299	1.79	0	0	0.00	0
194	Residential	Multifamily	Heat Pump	HVAC	Packaged ASHP	SEER 15	per 3 ton unit	ROB	18	18	$524.0	900	0.77	0	0	0.00	0
195	Residential	Multifamily	Heat Pump	HVAC	Packaged ASHP	SEER 16	per 3 ton unit	ROB	18	18	$1,047.9	1,148	0.83	0	0	0.00	0
196	Residential	Multifamily	Heat Pump	HVAC	Packaged DFHP	SEER 15	per 3 ton unit	ROB	18	18	$289.9	809	0.58	0	0	0.00	0
197	Residential	Multifamily	Heat Pump	HVAC	Packaged DFHP	SEER 16	per 3 ton unit	ROB	18	18	$555.7	809	0.58	0	0	0.00	0
198	Residential	Multifamily	AC	HVAC	Packaged A/C	SEER 15	per 3 ton unit	ROB	18	18	$425.8	299	0.25	0	0	0.00	0
199	Residential	Multifamily	AC	HVAC	Packaged A/C	SEER 16	per 3 ton unit	ROB	18	18	$713.1	464	0.39	0	0	0.00	0
200	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 15	per 3 ton unit	ROB	18	18	$524.0	859	0.72	0	0	0.00	0
201	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 16	per 3 ton unit	ROB	18	18	$1,047.9	1,147	0.83	0	0	0.00	0
202	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 17	per 3 ton unit	ROB	18	18	$1,571.9	1,393	1.08	0	0	0.00	0
203	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 18	per 3 ton unit	ROB	18	18	$2,095.8	1,521	1.24	0	0	0.00	0
204	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 19	per 3 ton unit	ROB	18	18	$2,619.8	1,623	1.37	0	0	0.00	0
205	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 20	per 3 ton unit	ROB	18	18	$3,143.7	1,554	1.35	0	0	0.00	0
206	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 21	per 3 ton unit	ROB	18	18	$3,667.7	2,141	1.79	0	0	0.00	0
207	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 22	per 1 ton unit	ROB	18	18	$1,397.2	690	0.59	0	0	0.00	0
208	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 23	per 1 ton unit	ROB	18	18	$1,571.9	669	0.57	0	0	0.00	0
209	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 25	per 1 ton unit	ROB	18	18	$1,921.2	690	0.58	0	0	0.00	0
210	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 26	per 1 ton unit	ROB	18	18	$2,095.8	719	0.59	0	0	0.00	0
211	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 27	per 1 ton unit	ROB	18	18	$2,270.5	1,501	0.46	0	0	0.00	0
212	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 30	per 1 ton unit	ROB	18	18	$2,794.4	1,403	0.59	0	0	0.00	0
213	Residential	Multifamily	Heat Pump	HVAC	Split ASHP	SEER 38	per 1 ton unit	ROB	18	18	$3,206.6	1,599	0.34	0	0	0.00	0
214	Residential	Multifamily	Heat Pump	HVAC	Split DFHP	SEER 15	per 3 ton unit	ROB	18	18	$289.9	576	0.44	0	0	0.00	0
215	Residential	Multifamily	Heat Pump	HVAC	Split DFHP	SEER 16	per 3 ton unit	ROB	18	18	$555.7	1,293	0.93	0	0	0.00	0
216	Residential	Multifamily	Heat Pump	HVAC	Split DFHP	SEER 17	per 3 ton unit	ROB	18	18	$833.6	1,398	1.09	0	0	0.00	0
217	Residential	Multifamily	Heat Pump	HVAC	Split DFHP	SEER 18	per 3 ton unit	ROB	18	18	$1,189.1	1,198	1.01	0	0	0.00	0
218	Residential	Multifamily	Heat Pump	HVAC	Split DFHP	SEER 19	per 3 ton unit	ROB	18	18	$1,546.1	2,386	1.90	0	0	0.00	0
219	Residential	Multifamily	Heat Pump	HVAC	Split DFHP	SEER 20	per 3 ton unit	ROB	18	18	$1,903.1	2,534	2.04	0	0	0.00	0
220	Residential	Multifamily	AC	HVAC	Split A/C	Seer 15	per 3 ton unit	ROB	18	18	$425.8	334	0.28	0	0	0.00	0
221	Residential	Multifamily	AC	HVAC	Split A/C	Seer 16	per 3 ton unit	ROB	18	18	$713.1	484	0.40	0	0	0.00	0
222	Residential	Multifamily	AC	HVAC	Split A/C	Seer 17	per 3 ton unit	ROB	18	18	$999.8	566	0.47	0	0	0.00	0
223	Residential	Multifamily	AC	HVAC	Split A/C	Seer 18	per 3 ton unit	ROB	18	18	$1,286.5	604	0.49	0	0	0.00	0
224	Residential	Multifamily	AC	HVAC	Split A/C	Seer 19	per 3 ton unit	ROB	18	18	$1,574.6	707	0.56	0	0	0.00	0
225	Residential	Multifamily	AC	HVAC	Split A/C	Seer 20	per 3 ton unit	ROB	18	18	$1,861.3	910	0.70	0	0	0.00	0
226	Residential	Multifamily	AC	HVAC	Split A/C	Seer 21	per 3 ton unit	ROB	18	18	$2,148.0	886	0.69	0	0	0.00	0
227	Residential	Multifamily	AC	HVAC	Duct Work Replacement AC	Duct Work Replacement	per system	RET	20	20	$202.4	1,040	0.48	25	0	0.00	0
228	Residential	Multifamily	AC	HVAC	Duct Insulation AC	Duct Insulation	per system	RET	20	20	$673.3	361	0.17	9	0	0.00	0
229	Residential	Multifamily	AC	HVAC	Duct Sealing AC	Duct Sealing	per system	RET	18	18	$554.0	706	0.33	17	0	0.00	0
230	Residential	Multifamily	Heat Pump	HVAC	Duct Sealing HP	Duct Sealing	per system	RET	18	18	$519.6	1,106	0.31	0	0	0.00	0
231	Residential	Multifamily	Heat Pump	HVAC	Duct Work Replacement HP	Duct Work Replacement	per system	RET	20	20	$174.1	1,841	0.48	0	0	0.00	0
232	Residential	Multifamily	Heat Pump	HVAC	Duct Insulation HP	Duct Insulation	per system	RET	20	20	$672.6	761	0.17	0	0	0.00	0
233	Residential	Multifamily	All	Appliances	Refrigerator Recycling	Refrigerator Recycling	refrigerator	RET	9	9	$50.0	1,028	0.12	0	0	0.00	0
234	Residential	Multifamily	All	Appliances	Freezer Recycling	Freezer Recycling	freezer	RET	9	9	$50.0	680	0.08	0	0	0.00	0
235	Residential	Multifamily	All	Lighting	10 LEDs DI	10 LEDs Kit DI	per unit	RET	1	5	$111.7	570	0.04	0	0	0.00	0
236	Residential	Multifamily	Electric Water Heater	Hot Water	Faucet Aerators	Low Flow Faucet Aerators	per aerator	RET	5	5	$2.0	225	0.01	0	0	0.00	0
237	Residential	Low Income All	All	Lighting	LED Lighting Misc	Online Marketplace Weighted Average	per bulb	RET	1	19	$11.2	57	0.01	0	0	0.00	0
238	Residential	Multifamily	Gas Heating	Lighting	Linear Fluorescents	25 W Indoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	17	0.00	0	0	0.17	0
239	Residential	Multifamily	AC/Electric Resistance H	Lighting	Linear Fluorescents	25 W Indoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	13	0.00	0	0	0.00	0
240	Residential	Multifamily	Heat Pump	Lighting	Linear Fluorescents	25 W Indoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	15	0.00	0	0	0.00	0
241	Residential	Multifamily	Gas Heating	Lighting	Linear Fluorescents	25 W Outdoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	17	0.00	0	0	0.17	0
242	Residential	Multifamily	AC/Electric Resistance H	Lighting	Linear Fluorescents	25 W Outdoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	13	0.00	0	0	0.00	0
243	Residential	Multifamily	Heat Pump	Lighting	Linear Fluorescents	25 W Outdoor Linear Fluorescents	lamp	ROB	7.5	15	$6.6	15	0.00	0	0	0.00	0
244	Residential	Multifamily	All	Hot Water	Low-Flow Showerheads	1.75 GPM Showerhead	showerhead	RET	10	10	$7.0	166	0.02	0	0	0.00	0
245	Residential	Multifamily	Electric Water Heater	Hot Water	Water Heater Replacement—Solar Water Heating	3.0 EF Solar Hot Water Heater	heater	RET	15	15	$915.0	2,262	0.42	0	0	0.00	0
246	Residential	Multifamily	All	Lighting	Occupancy Sensor - Wall-Mounted	Occupancy Sensor - Wall-Mounted	Per Wall Sensor	ROB	10	10	$25.0	8	0.00	0	0	0.00	0
247	Residential	Multifamily	Gas Heat (No AC)	Hot Water	Heat Pump Water Heater (0.23 UEF)(Gas Heat - Conditioned Space)	Heat Pump Water Heater (0.23 UEF)(Gas Heat - Conditioned Space)	Per Unit	ROB	13	13	$850.0	1,985	0.24	0	0	0.00	0
248	Residential	Multifamily	AC/Electric Resistance H	Hot Water	Heat Pump Water Heater (0.23 UEF)(Elec Resist - Conditioned Space)	Heat Pump Water Heater (0.23 UEF)(Elec Resist - Conditioned Space)	Per Unit	ROB	13	13	$850.0	1,424	0.24	0	0	0.00	0
249	Residential	Multifamily	Heat Pump	Hot Water	Heat Pump Water Heater (0.23 UEF)(Heat Pump - Conditioned Space)	Heat Pump Water Heater (0.23 UEF)(Heat Pump - Conditioned Space)	Per Unit	ROB	13	13	$850.0	1,741	0.24	0	0	0.00	0
250	Residential	Multifamily	All	Hot Water	Heat Pump Water Heater (0.23 UEF)(Unconditioned Space)	Heat Pump Water Heater (0.23 UEF)(Unconditioned Space)	Per Unit	ROB	13	13	$850.0	1,825	0.20	0	0	0.00	0

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MEASURE DESCRIPTION											MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Efficient Measure Definition	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
251	Residential	Multifamily	Heat Pump	HVAC	Programmable Communicating Thermostat	Smart Thermostats	Per Thermostat	ROB	7.5	7.5	$125.0	108	0.03	0	0	0.00	0
252	Residential	Multifamily	AC/Gas Heat	HVAC	Programmable Communicating Thermostat	Smart Thermostats	Per Thermostat	ROB	7.5	7.5	$125.0	19	0.00	4	0	0.00	0
253	Residential	Multifamily	All	Consumer Electronics	Advanced Power Strips	Advanced Smart-Strip	Per strip	ROB	10	5	$17.0	103	0.01	0	0	0.00	0
254	Residential	Multifamily	Heat Pump	HVAC	Ductless Heat Pump	SEER 21.17; HSPF 10.43	Per home	ROB	18	18	$1,757.8	2,094	0.13	0	0	0.00	0
255	Residential	Multifamily	AC	HVAC	Central Air Conditioner Tune-Up	System functioning at the manufacture specified EER	Per Home	RET	10	10	$175.0	855	0.30	0	0	0.00	0
256	Residential	Multifamily	Heat Pump	HVAC	Central Heat Pump Tune-Up	System functioning at the manufacture specified EER	Per Home	RET	10	10	$175.0	1,243	0.30	0	0	0.00	0
257	Residential	Multifamily	All	Other	Home Energy Reports	Receiving Home Energy Reports	per home	RET	1	1	$0.0	64	0.02	0	0	0.00	0
258	Residential	Multifamily	All	HVAC	Aeroseal Duct Sealing	Aeroseal Duct Sealing on duct system	Per Home	RET	10	10	$2,400.0	1,589	0.74	0	0	0.00	0
259	Residential	All Not Multifamily	Electric Water Heater	Hot Water	Low-Flow Showerheads	1.75 GPM Showerhead	showerhead	ROB	10	10	$7.0	166	0.02	0	0	0.00	0
260	Residential	Multifamily	Electric Water Heater	Hot Water	Low-Flow Showerheads	1.75 GPM Showerhead	showerhead	ROB	10	10	$7.0	166	0.02	0	0	0.00	0
261	Residential	All Not Multifamily	Electric Water Heater	Hot Water	Faucet Aerators	Low Flow Faucet Aerators	per aerator	ROB	5	5	$2.0	225	0.01	0	0	0.00	0
262	Residential	Multifamily	Electric Water Heater	Hot Water	Faucet Aerators	Low Flow Faucet Aerators	per aerator	ROB	5	5	$2.0	225	0.01	0	0	0.00	0
263	Residential	All Not Multifamily	All	Lighting	Connected LED Lighting	Connected version of 9W LED	per bulb	ROB	15	15	$11.0	6	0.00	0	0	0.00	0
264	Residential	Multifamily	All	Lighting	Connected LED Lighting	Connected version of 9W LED	per bulb	ROB	15	15	$11.0	6	0.00	0	0	0.00	0

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Measure Description		Measure Selection			Applicability								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
1	Packaged ASHP	1.20	1	1	50,427	1.0	48%	100%	100%	49%	100%	6%	664
2	Split ASHP - SEER 15	3.40	1	1	50,427	1.0	48%	100%	100%	51%	100%	6%	681
3	Packaged ASHP	2.00	1	1	395,280	1.0	48%	100%	100%	8%	61%	6%	508
4	Packaged ASHP	1.15	1	1	395,280	1.0	48%	100%	100%	7%	61%	6%	476
5	Packaged DFHP	2.95	1	1	395,280	1.0	48%	100%	100%	8%	61%	6%	523
6	Packaged DFHP	1.54	1	1	395,280	1.0	48%	100%	100%	8%	61%	6%	515
7	Packaged A/C	0.81	0	0									
8	Packaged A/C	0.75	0	0									
9	Split ASHP	1.89	1	1	395,280	1.0	48%	100%	100%	8%	61%	6%	508
10	Split ASHP	1.17	1	1	395,280	1.0	48%	100%	100%	7%	61%	6%	476
11	Split ASHP	1.00	1	1	395,280	1.0	48%	100%	100%	7%	61%	6%	451
12	Split ASHP	0.85	0	0									
13	Split ASHP	0.74	0	0									
14	Split ASHP	0.60	0	0									
15	Split ASHP	0.70	0	0									
16	Split ASHP	0.60	0	0									
17	Split ASHP	0.52	0	0									
18	Split ASHP	0.43	0	0									
19	Split ASHP	0.41	0	0									
20	Split ASHP	0.49	0	0									
21	Split ASHP	0.42	0	0									
22	Split ASHP	0.32	0	0									
23	Split DFHP	2.17	1	1	395,280	1.0	48%	100%	100%	8%	61%	6%	523
24	Split DFHP	2.54	1	1	395,280	1.0	48%	100%	100%	8%	61%	6%	518
25	Split DFHP	1.92	1	1	395,280	1.0	48%	100%	100%	8%	61%	6%	499
26	Split DFHP	1.21	1	1	395,280	1.0	48%	100%	100%	7%	61%	6%	475
27	Split DFHP	1.82	1	1	395,280	1.0	48%	100%	100%	8%	61%	6%	484
28	Split DFHP	1.58	1	1	395,280	1.0	48%	100%	100%	7%	61%	6%	473
29	Split A/C	0.91	0	1	395,280	1.5	90%	100%	100%	52%	88%	6%	13,495
30	Split A/C	0.80	0	1	395,280	1.5	90%	100%	100%	48%	88%	6%	12,593
31	Split A/C	0.66	0	0									
32	Split A/C	0.54	0	0									
33	Split A/C	0.52	0	0									
34	Split A/C	0.56	0	0									
35	Split A/C	0.47	0	0									
36	Duct Work Replacement A	0.42	0	0									
37	Duct Insulation AC	0.54	0	0									
38	Duct Sealing AC	1.22	1	1	395,280	1.0	90%	100%	100%	100%	78%	100%	276,379
39	Duct Sealing HP	1.46	1	1	395,280	1.0	48%	100%	100%	100%	78%	100%	147,402
40	Duct Work Replacement H	0.52	0	0									
41	Duct Insulation HP	0.76	0	0									
42	Refrigerator Recycling	6.99	1	1	395,280	1.0	100%	31%	100%	100%	100%	100%	122,537
43	Freezer Recycling	4.62	1	1	395,280	1.0	100%	4%	100%	100%	100%	100%	13,835
44	5 LEDs Kit	3.03	1	1	395,280	1.0	100%	100%	100%	100%	60%	100%	237,168
45	Faucet Aerators	32.25	1	1	395,280	3.0	69%	100%	100%	100%	78%	100%	637,797
46	LED Lighting Misc (Low In	9.09	1	1	145,144	20.2	100%	100%	100%	100%	60%	100%	1,759,142
47	HVAC Filter	0.80	0	1	145,144	1.0	48%	100%	100%	100%	100%	100%	69,669
48	HVAC Filter	0.52	0	1	145,144	1.0	31%	100%	100%	100%	100%	100%	44,414
49	HVAC Filter	0.28	0	1	145,144	1.0	2%	100%	100%	100%	100%	100%	2,467
50	Faucet Aerator	11.86	1	1	145,144	2.0	69%	100%	100%	100%	78%	100%	156,130
51	Pipe Insulation	2.89	1	1	145,144	1.0	69%	100%	100%	100%	78%	100%	78,065
52	Advanced Smart-strip	1.28	1	1	145,144	1.2	100%	52%	100%	100%	83%	100%	75,173
53	Water Heater Blanket	3.04	1	1	145,144	1.0	69%	98%	100%	100%	89%	100%	87,304
54	AC Winterization Kit	5.22	1	1	145,144	1.0	100%	100%	100%	33%	96%	100%	46,459
55	AC Winterization Kit	1.91	1	1	145,144	1.0	100%	100%	100%	33%	96%	100%	46,459
56	AC Winterization Kit	1.03	1	1	145,144	1.0	100%	100%	100%	33%	96%	100%	46,459
57	Water Heater Temperature	23.97	1	1	145,144	1.0	69%	100%	100%	100%	78%	100%	78,065
58	Digital Switch Plate Wall T	0.31	0	1	31,754	1.0	100%	100%	100%	100%	100%	100%	31,754
59	Air Sealing	0.96	0	1	31,754	1.0	100%	100%	100%	50%	78%	100%	12,335
60	Air Sealing	1.28	1	1	31,754	1.0	100%	100%	100%	50%	78%	100%	12,335
61	Duct Sealing	1.51	1	1	31,754	1.0	100%	100%	100%	100%	78%	100%	24,670
62	Attic Plug & Fill Insulation	1.12	1	1	31,754	879.7	100%	100%	100%	100%	78%	100%	21,701,857
63	Belly Board Repair	1.94	1	1	31,754	1282.0	100%	100%	100%	100%	78%	100%	31,626,468
64	Programmable Communic	4.57	1	1	31,754	1.0	100%	100%	100%	100%	87%	100%	27,626
65	Reflective Roof Coating	3.28	1	1	31,754	1211.3	100%	100%	100%	100%	78%	100%	29,881,662
66	Belly Board Insulation	1.88	1	1	31,754	1282.0	100%	100%	100%	100%	78%	100%	31,626,468
67	LED Lighting Misc	9.09	1	1	481,543	31.2	100%	100%	100%	100%	60%	100%	9,014,490
68	Attic Knee Wall Insulation	2.21	1	1	395,280	271.0	31%	100%	100%	51%	32%	100%	5,311,208
69	Attic Knee Wall Insulation	2.71	1	1	395,280	271.0	17%	100%	100%	50%	32%	100%	2,918,449
70	Attic Knee Wall Insulation	2.07	1	1	395,280	271.0	48%	100%	100%	50%	32%	100%	8,244,145
71	Attic Knee Wall Insulation	1.48	1	1	395,280	271.0	31%	100%	100%	49%	32%	100%	5,195,207
72	Attic Knee Wall Insulation	1.81	1	1	395,280	271.0	17%	100%	100%	50%	32%	100%	2,918,449
73	Attic Knee Wall Insulation	1.39	1	1	395,280	271.0	48%	100%	100%	50%	32%	100%	8,236,507
74	Ceiling Insulation	0.92	0	1	395,280	1147.7	31%	100%	100%	51%	32%	100%	22,557,385
75	Ceiling Insulation	1.13	1	1	395,280	1147.7	17%	100%	100%	50%	32%	100%	12,402,096
76	Ceiling Insulation	0.87	0	1	395,280	1147.7	48%	100%	100%	50%	32%	100%	35,153,384
77	Ceiling Insulation	0.76	0	1	395,280	1147.7	31%	100%	100%	49%	32%	100%	21,933,944
78	Ceiling Insulation	0.93	0	1	395,280	1147.7	17%	100%	100%	50%	32%	100%	12,315,310
79	Ceiling Insulation	0.72	0	1	395,280	1147.7	48%	100%	100%	50%	32%	100%	34,636,937
80	Wall Insulation	2.24	1	1	395,280	2046.2	31%	100%	100%	51%	32%	100%	40,303,136
81	Wall Insulation	3.30	1	1	395,280	2046.2	17%	100%	100%	50%	32%	100%	22,164,318
82	Wall Insulation	2.05	1	1	395,280	2046.2	48%	100%	100%	50%	32%	100%	62,214,459
83	Wall Insulation	1.71	1	1	395,280	2046.2	31%	100%	100%	49%	32%	100%	39,020,299
84	Wall Insulation	2.46	1	1	395,280	2046.2	17%	100%	100%	50%	32%	100%	21,904,257
85	Wall Insulation	1.46	1	1	395,280	2046.2	48%	100%	100%	50%	32%	100%	62,214,459
86	Floor Insulation	0.08	0	0									
87	Floor Insulation	0.18	0	0									
88	Floor Insulation	0.05	0	0									
89	Crawlspace Encapsulation	0.19	0	0									
90	Crawlspace Encapsulation	0.85	0	0									
91	Crawlspace Encapsulation	0.25	0	0									
92	Roof Deck Insulation	2.10	1	1	395,280	1794.1	31%	100%	100%	51%	32%	100%	35,483,123
93	Roof Deck Insulation	2.53	1	1	395,280	1794.1	17%	100%	100%	50%	32%	100%	19,319,952
94	Roof Deck Insulation	1.93	1	1	395,280	1794.1	48%	100%	100%	51%	32%	100%	55,142,667
95	Roof Deck Insulation	1.20	1	1	395,280	1794.1	31%	100%	100%	49%	32%	100%	34,068,705
96	Roof Deck Insulation	1.38	1	1	395,280	1794.1	17%	100%	100%	50%	32%	100%	19,319,952
97	Roof Deck Insulation	1.09	1	1	395,280	1794.1	48%	100%	100%	49%	32%	100%	53,958,241
98	Radiant Barriers	1.06	1	1	395,280	1147.7	31%	100%	100%	100%	32%	100%	44,491,329
99	Radiant Barriers	1.14	1	1	395,280	1147.7	17%	100%	100%	100%	32%	100%	24,717,405
100	Radiant Barriers	1.04	1	1	395,280	1147.7	48%	100%	100%	100%	32%	100%	69,790,321
101	ENERGY STAR Windows	0.30	0	0									
102	ENERGY STAR Windows	0.17	0	0									

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Measure Description		Measure Selection			Applicability								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
103	ENERGY STAR Windows	0.22	0	0									
104	ENERGY STAR Windows	0.40	0	0									
105	ENERGY STAR Windows	0.19	0	0									
106	ENERGY STAR Windows	0.24	0	0									
107	Window Film - Single Pane	0.33	0	0									
108	Window Film - Single Pane	8.27	1	1	395,280	150.0	17%	100%	51%	50%	83%	100%	2,122,182
109	Window Film - Single Pane	1.63	1	1	395,280	150.0	48%	100%	51%	50%	83%	100%	5,970,565
110	Window Film - Double Par	0.26	0	0									
111	Window Film - Double Par	4.43	1	1	395,280	150.0	17%	100%	48%	50%	83%	100%	1,994,203
112	Window Film - Double Par	1.50	1	1	395,280	150.0	48%	100%	48%	50%	83%	100%	5,650,876
113	Attic Encapsulation_R19	0.98	0	1	395,280	1794.1	31%	100%	100%	51%	32%	100%	35,700,200
114	Attic Encapsulation_R19	2.12	1	1	395,280	1794.1	17%	100%	100%	50%	32%	100%	19,319,952
115	Attic Encapsulation_R19	1.41	1	1	395,280	1794.1	48%	100%	100%	51%	32%	100%	55,188,937
116	Attic Encapsulation_R38	0.60	0	1	395,280	1794.1	31%	100%	100%	49%	32%	100%	33,851,628
117	Attic Encapsulation_R38	1.28	1	1	395,280	1794.1	17%	100%	100%	50%	32%	100%	19,319,952
118	Attic Encapsulation_R38	0.86	0	1	395,280	1794.1	48%	100%	100%	49%	32%	100%	53,911,971
119	Solar Screens	0.36	0	0									
120	Solar Screens	0.20	0	0									
121	Solar Screens	0.26	0	0									
122	Linear Fluorescents	3.05	1	1	395,280	4.0	34%	39%	100%	100%	95%	7%	13,278
123	Linear Fluorescents	3.15	1	1	395,280	4.0	17%	39%	100%	100%	95%	7%	6,639
124	Linear Fluorescents	3.27	1	1	395,280	4.0	48%	39%	100%	100%	95%	7%	18,746
125	Linear Fluorescents	2.79	1	1	395,280	4.0	34%	0%	100%	100%	100%	7%	-
126	Linear Fluorescents	2.85	1	1	395,280	4.0	17%	0%	100%	100%	100%	7%	-
127	Linear Fluorescents	2.98	1	1	395,280	4.0	48%	0%	100%	100%	100%	7%	-
128	Low-Flow Showerheads	52.62	1	1	395,280	1.9	100%	100%	100%	100%	78%	100%	568,112
129	Water Heater Replacemen	1.33	1	1	395,280	1.0	69%	100%	100%	100%	100%	100%	281,680
130	Occupancy Sensor - Wall-	0.15	0	0									
131	Attic Access Covers	5.67	1	1	395,280	1.0	100%	100%	100%	100%	32%	100%	126,687
132	Heat Pump Water Heater (	1.04	1	1	395,280	1.0	3%	100%	100%	100%	99%	8%	1,054
133	Heat Pump Water Heater (	0.80	0	1	395,280	1.0	17%	100%	100%	100%	99%	8%	5,271
134	Heat Pump Water Heater (	0.94	0	1	395,280	1.0	48%	100%	100%	100%	99%	8%	14,882
135	Heat Pump Water Heater (	0.94	0	1	395,280	1.0	100%	100%	100%	100%	99%	8%	31,005
136	Programmable Communic	1.18	1	1	395,280	1.0	48%	100%	100%	100%	79%	13%	19,909
137	Programmable Communic	0.27	0	1	395,280	1.0	31%	100%	100%	100%	79%	13%	12,692
138	Advanced Power Strips	1.28	1	1	395,280	1.3	100%	61%	100%	100%	80%	20%	50,539
139	Ductless Heat Pump	0.62	0	0									
140	Central Air Conditioner Tu	2.47	1	1	395,280	1.2	90%	100%	100%	100%	100%	100%	412,672
141	Central Heat Pump Tune-U	3.15	1	1	395,280	1.0	48%	100%	100%	100%	100%	100%	189,734
142	Home Energy Reports	10,468.03	1	1	395,280	1.0	100%	100%	100%	100%	98%	100%	387,374
143	ECM Fan Motors	0.41	0	0									
144	ECM Fan Motors	0.82	0	0									
145	Aeroseal Duct Sealing	0.38	0	0									
146	Home Energy Reports	10,468.03	1	1	145,144	1.0	100%	100%	100%	100%	98%	100%	142,241
147	Ice Machine - CEE Tier II	0.38	0	1	12,686	1.0	100%	12%	100%	100%	57%	10%	85
148	Vending Machine Controls	0.50	0	1	12,686	1.0	100%	22%	100%	100%	23%	20%	128
149	Vending Machine Controls	2.42	1	1	12,686	1.0	100%	22%	100%	100%	23%	20%	128
150	ASHP - SEER 15-15.99 - M	1.00	1	1	12,686	1.0	48%	34%	100%	50%	38%	5%	21
151	ASHP - SEER 16-16.99 - M	1.63	1	1	12,686	1.0	48%	34%	100%	50%	38%	5%	21
152	CAC - SEER 15-15.99	0.64	0	1	12,686	1.0	90%	83%	100%	50%	38%	5%	95
153	CAC - SEER 16-16.99	0.50	0	1	12,686	1.0	90%	83%	100%	50%	38%	5%	95
154	Occupancy Sensor - Ceilin	1.22	1	1	12,686	12.0	100%	100%	100%	50%	81%	13%	7,707
155	Occupancy Sensor - Fixtu	1.00	1	1	12,686	12.0	100%	100%	100%	50%	81%	13%	7,707
156	Exterior LED Parking Lot (	1.31	1	1	12,686	2.2	100%	59%	100%	25%	59%	7%	162
157	Exterior LED Parking Lot (	2.51	1	1	12,686	2.2	100%	59%	100%	25%	59%	7%	162
158	Exterior LED Parking Lot (	1.66	1	1	12,686	2.2	100%	59%	100%	25%	59%	7%	162
159	Exterior LED Parking Lot (	3.24	1	1	12,686	2.2	100%	59%	100%	25%	59%	7%	162
160	LED Exit Signs	2.34	1	1	12,686	6.7	100%	10000%	100%	100%	58%	7%	330,610
161	Delamping T12 or T8 sys v	6.80	1	1	12,686	302.1	100%	100%	100%	50%	93%	9%	162,006
162	Delamping T12 or T8 sys v	6.50	1	1	12,686	302.1	100%	100%	100%	50%	93%	9%	162,006
163	Interior LED Recessed, Su	6.22	1	1	12,686	21.4	100%	100%	100%	100%	59%	7%	10,691
164	Interior LED Troffer, Panel	1.08	1	1	12,686	302.1	100%	91%	100%	100%	79%	7%	183,955
165	Interior LED Troffer, Panel	1.54	1	1	12,686	302.1	100%	91%	100%	100%	79%	7%	183,955
166	LED Linear Tube Replace	6.43	1	1	12,686	302.1	100%	91%	100%	100%	83%	7%	192,695
167	LED screw-in lamps, MR l	12.33	1	1	12,686	21.4	100%	100%	100%	100%	59%	7%	10,691
168	New HPT8, RWT8, T5 or T	1.26	1	1	12,686	302.1	100%	91%	100%	100%	93%	7%	216,224
169	Smart Power Strips	0.43	0	1	12,686	0.3	100%	100%	100%	100%	93%	10%	366
170	Electronically Commutated	0.54	0	1	12,686	1.0	90%	100%	100%	100%	82%	7%	621
171	VFD Pool Pumps, ENERG	1.56	1	1	12,686	0.8	100%	0%	100%	100%	100%	10%	1
172	ENERGY STAR Windows/	0.75	0	1	12,686	429.8	100%	100%	100%	100%	49%	10%	266,090
173	1.5 GPM Showerhead	2.97	1	1	12,686	2.0	69%	100%	100%	100%	78%	10%	1,365
174	Faucet Aerator (Electric)	3.44	1	1	12,686	4.0	69%	100%	100%	100%	23%	10%	822
175	Air Conditioning Tune-Ups	1.74	1	1	12,686	1.0	90%	89%	100%	100%	100%	20%	2,024
176	Heat Pump Tune-Ups	2.07	1	1	12,686	1.0	48%	52%	100%	100%	100%	20%	633
177	Air Sealing	0.96	0	1	395,280	1.0	100%	100%	100%	100%	78%	100%	307,088
178	Attic Plug & Fill Insulation	1.12	1	1	395,280	1147.7	100%	100%	100%	100%	78%	100%	352,438,956
179	Reflective Roof Coating	3.28	1	1	395,280	1794.1	100%	100%	100%	100%	78%	100%	550,956,202
180	Split ASHP - SEER 15 - R	2.14	1	1	395,280	1.0	17%	100%	100%	15%	100%	100%	9,798
181	Split ASHP - SEER 16 - R	1.90	1	1	395,280	1.0	17%	100%	100%	15%	100%	100%	9,750
182	Split ASHP - SEER 17 - R	1.69	1	1	395,280	1.0	17%	100%	100%	14%	100%	100%	9,668
183	Split ASHP - SEER 18 - R	1.51	1	1	395,280	1.0	17%	100%	100%	14%	100%	100%	9,600
184	Split ASHP - SEER 19 - R	1.37	1	1	395,280	1.0	17%	100%	100%	14%	100%	100%	9,521
185	Split ASHP - SEER 20 - R	1.25	1	1	395,280	1.0	17%	100%	100%	14%	100%	100%	9,471
186	Split ASHP - SEER 21 - R	1.20	1	1	395,280	1.0	17%	100%	100%	14%	100%	100%	9,390
187	Split ASHP - SEER 15 - R	2.14	1	1	86,264	1.0	17%	100%	100%	15%	100%	100%	2,138
188	Split ASHP - SEER 16 - R	1.90	1	1	86,264	1.0	17%	100%	100%	15%	100%	100%	2,128
189	Split ASHP - SEER 17 - R	1.69	1	1	86,264	1.0	17%	100%	100%	14%	100%	100%	2,110
190	Split ASHP - SEER 18 - R	1.51	1	1	86,264	1.0	17%	100%	100%	14%	100%	100%	2,095
191	Split ASHP - SEER 19 - R	1.37	1	1	86,264	1.0	17%	100%	100%	14%	100%	100%	2,078
192	Split ASHP - SEER 20 - R	1.25	1	1	86,264	1.0	17%	100%	100%	14%	100%	100%	2,067
193	Split ASHP - SEER 21 - R	1.20	1	1	86,264	1.0	17%	100%	100%	14%	100%	100%	2,049
194	Packaged ASHP	2.00	1	1	86,264	1.0	48%	100%	100%	8%	61%	6%	111
195	Packaged ASHP	1.15	1	1	86,264	1.0	48%	100%	100%	7%	61%	6%	102
196	Packaged DFHP	2.95	1	1	86,264	1.0	48%	100%	100%	8%	61%	6%	114
197	Packaged DFHP	1.54	1	1	86,264	1.0	48%	100%	100%	8%	61%	6%	113
198	Packaged A/C	0.81	0	0									
199	Packaged A/C	0.75	0	0									
200	Split ASHP	1.89	1	1	86,264	1.0	48%	100%	100%	8%	61%	6%	111
201	Split ASHP	1.17	1	1	86,264	1.0	48%	100%	100%	7%	61%	6%	104
202	Split ASHP	1.00	1	1	86,264	1.0	48%	100%	100%	7%	61%	6%	98
203	Split ASHP	0.85	0	0									
204	Split ASHP	0.74	0	0									

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Measure Description		Measure Selection			Applicability								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
205	Split ASHP	0.60	0	0									
206	Split ASHP	0.70	0	0									
207	Split ASHP	0.60	0	0									
208	Split ASHP	0.52	0	0									
209	Split ASHP	0.43	0	0									
210	Split ASHP	0.41	0	0									
211	Split ASHP	0.49	0	0									
212	Split ASHP	0.42	0	0									
213	Split ASHP	0.32	0	0									
214	Split DFHP	2.17	1	1	86,264	1.0	48%	100%	100%	8%	61%	6%	114
215	Split DFHP	2.54	1	1	86,264	1.0	48%	100%	100%	8%	61%	6%	113
216	Split DFHP	1.92	1	1	86,264	1.0	48%	100%	100%	8%	61%	6%	109
217	Split DFHP	1.21	1	1	86,264	1.0	48%	100%	100%	7%	61%	6%	104
218	Split DFHP	1.82	1	1	86,264	1.0	48%	100%	100%	8%	61%	6%	106
219	Split DFHP	1.58	1	1	86,264	1.0	48%	100%	100%	7%	61%	6%	103
220	Split A/C	0.91	0	1	86,264	1.5	90%	100%	100%	52%	88%	6%	2,945
221	Split A/C	0.80	0	1	86,264	1.5	90%	100%	100%	48%	88%	6%	2,748
222	Split A/C	0.66	0	0									
223	Split A/C	0.54	0	0									
224	Split A/C	0.52	0	0									
225	Split A/C	0.56	0	0									
226	Split A/C	0.47	0	0									
227	Duct Work Replacement A	5.21	1	1	86,264	1.0	90%	100%	100%	100%	78%	100%	60,315
228	Duct Insulation_AC	0.54	0	0									
229	Duct Sealing AC	1.22	1	1	86,264	1.0	90%	100%	100%	100%	78%	100%	60,315
230	Duct Sealing HP	1.46	1	1	86,264	1.0	48%	100%	100%	100%	78%	100%	32,168
231	Duct Work Replacement H	7.44	1	1	86,264	1.0	48%	100%	100%	100%	78%	100%	32,168
232	Duct Insulation_HP	0.76	0	0									
233	Refrigerator Recycling	6.99	1	1	86,264	1.0	100%	31%	100%	100%	100%	100%	26,742
234	Freezer Recycling	4.62	1	1	86,264	1.0	100%	4%	100%	100%	100%	100%	3,019
235	10 LEDs DI	3.03	1	1	86,264	1.0	100%	100%	100%	100%	60%	100%	51,758
236	Faucet Aerators	32.25	1	1	86,264	2.0	69%	100%	100%	100%	78%	100%	46,397
237	LED Lighting Misc	9.09	1	1	145,144	31.2	100%	100%	100%	100%	60%	100%	2,717,091
238	Linear Fluorescents	3.05	1	1	86,264	4.0	34%	39%	100%	100%	95%	7%	2,898
239	Linear Fluorescents	3.15	1	1	86,264	4.0	17%	39%	100%	100%	95%	7%	1,449
240	Linear Fluorescents	3.27	1	1	86,264	4.0	48%	39%	100%	100%	95%	7%	4,091
241	Linear Fluorescents	2.79	1	1	86,264	4.0	34%	0%	100%	100%	100%	7%	-
242	Linear Fluorescents	2.85	1	1	86,264	4.0	17%	0%	100%	100%	100%	7%	-
243	Linear Fluorescents	2.98	1	1	86,264	4.0	48%	0%	100%	100%	100%	7%	-
244	Low-Flow Showerheads	52.62	1	1	86,264	1.0	100%	100%	100%	100%	78%	100%	67,017
245	Water Heater Replacemen	1.33	1	1	86,264	1.0	69%	100%	100%	100%	100%	100%	61,472
246	Occupancy Sensor - Wall-	0.15	0	0									
247	Heat Pump Water Heater (	1.04	1	1	86,264	1.0	3%	100%	100%	100%	99%	8%	230
248	Heat Pump Water Heater (	0.80	0	1	86,264	1.0	17%	100%	100%	100%	99%	8%	1,150
249	Heat Pump Water Heater (	0.94	0	1	86,264	1.0	48%	100%	100%	100%	99%	8%	3,248
250	Heat Pump Water Heater (	0.94	0	1	86,264	1.0	100%	100%	100%	100%	99%	8%	6,766
251	Programmable Communic	0.29	0	1	86,264	1.0	48%	100%	100%	100%	87%	13%	4,803
252	Programmable Communic	0.12	0	1	86,264	1.0	31%	100%	100%	100%	87%	13%	3,062
253	Advanced Power Strips	1.28	1	1	86,264	1.3	100%	61%	100%	100%	80%	20%	11,029
254	Ductless Heat Pump	0.62	0	0									
255	Central Air Conditioner Tu	2.47	1	1	86,264	1.2	90%	100%	100%	100%	100%	100%	90,059
256	Central Heat Pump Tune-U	3.15	1	1	86,264	1.0	48%	100%	100%	100%	100%	100%	41,407
257	Home Energy Reports	10,468.03	1	1	86,264	1.0	100%	100%	100%	100%	98%	100%	84,538
258	Aeroseal Duct Sealing	0.38	0	0									
259	Low-Flow Showerheads	52.62	1	1	395,280	1.9	69%	100%	100%	100%	78%	10%	39,331
260	Low-Flow Showerheads	52.62	1	1	86,264	1.9	69%	100%	100%	100%	78%	10%	8,583
261	Faucet Aerators	32.25	1	1	395,280	2.0	69%	100%	100%	100%	78%	20%	85,040
262	Faucet Aerators	32.25	1	1	86,264	2.0	69%	100%	100%	100%	78%	20%	9,279
263	Connected LED Lighting	0.22	0	1	395,280	31.2	100%	100%	100%	100%	60%	7%	493,309
264	Connected LED Lighting	0.22	0	1	86,264	31.2	100%	100%	100%	100%	60%	7%	107,657

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MEASURE DESCRIPTION										MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
1	Non-Residential	Small Commercial	Retail/Service	Envelope	Cool Roofs	per sq. ft.	RET	15.0	15.0	$1.5	0	0.00	0	0	0.00	0
2	Non-Residential	Large Commercial	Retail/Service	Envelope	Cool Roofs	per sq. ft.	RET	15.0	15.0	$1.5	0	0.00	0	0	0.00	0
3	Non-Residential	All	Restaurant	Envelope	Cool Roofs	per sq. ft.	RET	15.0	15.0	$1.5	0	0.00	0	0	0.00	0
4	Non-Residential	All	School (K-12)	Envelope	Cool Roofs	per sq. ft.	RET	15.0	15.0	$1.5	0	0.00	0	0	0.00	0
5	Non-Residential	All	College/University	Envelope	Cool Roofs	per sq. ft.	RET	15.0	15.0	$1.5	0	0.00	0	0	0.00	0
6	Non-Residential	All	Office	Envelope	Cool Roofs	per sq. ft.	RET	15.0	15.0	$1.5	0	0.00	0	0	0.00	0
7	Non-Residential	All	All	Envelope	Cool Roofs	per sq. ft.	RET	15.0	15.0	$1.5	0	0.00	0	0	0.00	0
8	Non-Residential	Large Commercial	All	Envelope	Commercial Door Air Infiltration-1/8 inches	per linear foot	RET	11.0	11.0	$9.5	10	0.00	1	0	0.00	0
9	Non-Residential	Large Commercial	All	Envelope	Commercial Door Air Infiltration-1/4 inches	per linear foot	RET	11.0	11.0	$9.5	19	0.00	2	0	0.00	0
10	Non-Residential	Large Commercial	All	Envelope	Commercial Door Air Infiltration-1/2 inches	per linear foot	RET	11.0	11.0	$9.5	39	0.01	4	0	0.00	0
11	Non-Residential	Large Commercial	All	Envelope	Commercial Door Air Infiltration-3/4 inches	per linear foot	RET	11.0	11.0	$9.5	58	0.01	6	0	0.00	0
12	Non-Residential	Small Commercial	All	Envelope	Air Infiltration Improvements	per CFM	RET	11.0	11.0	$1.1	0	0.00	0	0	0.00	0
13	Non-Residential	Small Commercial	General Commercial	Envelope	Roof Deck Insulation	per sq. ft.	RET	20.0	20.0	$1.4	0	0.00	0	0	0.00	0
14	Non-Residential	Small Commercial	General Commercial	Envelope	Wall Insulation	per sq. ft.	RET	20.0	20.0	$0.5	1	0.00	0	0	0.00	0
15	Non-Residential	Small Commercial	General Commercial	Envelope	Window Awnings for East Facing Windows	per linear foot	RET	10.0	10.0	$106.9	4	0.00	0	0	0.00	0
16	Non-Residential	Small Commercial	General Commercial	Envelope	Window Film for East Facing Windows	per sq. ft.	RET	10.0	10.0	$1.5	4	0.00	0	0	0.00	0
17	Non-Residential	Small Commercial	General Commercial	Envelope	Window Awnings for West Facing Windows	per linear foot	RET	10.0	10.0	$106.9	4	0.00	0	0	0.00	0
18	Non-Residential	Small Commercial	General Commercial	Envelope	Window Film for West Facing Windows	per sq. ft.	RET	10.0	10.0	$1.5	4	0.00	0	0	0.00	0
19	Non-Residential	All	w/ Food Service	Food Service Equipment	High-Efficiency Electric Combination Oven	per oven	ROB	12.0	12.0	$1,333.0	18432	4.20	0	0	0.00	0
20	Non-Residential	All	w/ Food Service	Food Service Equipment	High-Efficiency Electric Convection Oven	per oven	ROB	12.0	12.0	$533.0	2262	0.50	0	0	0.00	0
21	Non-Residential	All	w/ Food Service	Food Service Equipment	ENERGY STAR Dishwasher, Elec Heat, High Temp	per washer	ROB	15.0	15.0	$1,124.0	11358	1.73	0	0	0.00	0
22	Non-Residential	All	w/ Food Service	Food Service Equipment	ENERGY STAR Dishwasher, Elec Heat, Low Temp	per washer	ROB	16.0	16.0	$255.0	12783	1.95	0	0	0.00	0
23	Non-Residential	All	w/ Food Service	Food Service Equipment	High-Efficiency Electric Fryer	per fryer	ROB	12.0	12.0	$400.0	1789	0.40	0	0	0.00	0
24	Non-Residential	All	w/ Food Service	Food Service Equipment	Electric Griddle	per machine	ROB	12.0	12.0	$400.0	1637	0.40	0	0	0.00	0
25	Non-Residential	All	w/ Food Service	Food Service Equipment	3/4 Size Insulated Hot Holding Cabinet	per cabinet	ROB	12.0	12.0	$533.0	2832	0.52	0	0	0.00	0
26	Non-Residential	All	w/ Food Service	Food Service Equipment	Full Size Insulated Hot Holding Cabinet	per cabinet	ROB	12.0	12.0	$667.0	5278	0.96	0	0	0.00	0
27	Non-Residential	All	w/ Food Service	Food Service Equipment	Half Size Insulated Hot Holding Cabinet	per cabinet	ROB	12.0	12.0	$400.0	1788	0.33	0	0	0.00	0
28	Non-Residential	All	w/ Food Service	Food Service Equipment	Low-Flow Pre-Rinse Spray Valves	per spray valve	RET	5.0	5.0	$93.0	7634	0.00	335	0	0.00	0
29	Non-Residential	All	w/ Food Service	Food Service Equipment	Steam Cooker, 3 Pan	per cooker	ROB	12.0	12.0	$1,333.0	11188	2.55	0	0	0.00	0
30	Non-Residential	All	w/ Food Service	Food Service Equipment	Steam Cooker, 4 Pan	per cooker	ROB	12.0	12.0	$1,333.0	12459	2.55	0	0	0.00	0
31	Non-Residential	All	w/ Food Service	Food Service Equipment	Steam Cooker, 5 Pan	per cooker	ROB	12.0	12.0	$1,333.0	13831	2.55	0	0	0.00	0
32	Non-Residential	All	w/ Food Service	Food Service Equipment	Steam Cooker, 6 Pan	per cooker	ROB	12.0	12.0	$1,333.0	15170	2.55	0	0	0.00	0
33	Non-Residential	Large Commercial	All	HVAC	Air Cooled Chiller, Single Speed w/ Condenser; < 150 tons, greater than 10.2EER & 13.34 IPLV	per ton	ROB	20.0	20.0	$142.5	449	0.06	0	0	0.00	0
34	Non-Residential	Large Commercial	All	HVAC	Air Cooled Chiller, Single Speed w/ Condenser; ≥ 150 tons, greater than 10.2EER & 13.6 IPLV	per ton	ROB	20.0	20.0	$142.5	449	0.06	0	0	0.00	0
35	Non-Residential	Large Commercial	All	HVAC	Air Cooled Chiller, VFD w/ Condenser; < 150 tons	per ton	ROB	20.0	20.0	$142.5	461	0.06	0	0	0.00	0
36	Non-Residential	Large Commercial	All	HVAC	Air Cooled Chiller, VFD w/ Condenser; ≥ 150 tons	per ton	ROB	20.0	20.0	$142.5	461	0.06	0	0	0.00	0
37	Non-Residential	All	All	HVAC	Electronically Commutated Motors for HVAC Applications - SP Replacement	per motor	RET	15.0	15.0	$226.0	490	0.10	0	0	0.00	0
38	Non-Residential	All	All	HVAC	Electronically Commutated Motors for HVAC Applications - PSC Replacement	per motor	RET	15.0	15.0	$226.0	170	0.03	0	0	0.00	0
39	Non-Residential	All	College/University	HVAC	Economizer Repair; AC/-	per ton	RET	5.0	5.0	$108.0	211	0.01	0	0	0.00	0
40	Non-Residential	All	Grocery	HVAC	Economizer Repair; AC/-	per ton	RET	5.0	5.0	$108.0	12	0.00	0	0	0.00	0
41	Non-Residential	All	Hotel/Motel	HVAC	Economizer Repair; AC/-	per ton	RET	5.0	5.0	$108.0	396	0.02	0	0	0.00	0
42	Non-Residential	All	Medical	HVAC	Economizer Repair; AC/-	per ton	RET	5.0	5.0	$108.0	381	0.04	0	0	0.00	0
43	Non-Residential	All	Office	HVAC	Economizer Repair; AC/-	per ton	RET	5.0	5.0	$108.0	157	0.03	0	0	0.00	0
44	Non-Residential	All	Restaurant	HVAC	Economizer Repair; AC/-	per ton	RET	5.0	5.0	$108.0	91	0.00	0	0	0.00	0
45	Non-Residential	All	Retail/Service	HVAC	Economizer Repair; AC/-	per ton	RET	5.0	5.0	$108.0	98	0.01	0	0	0.00	0
46	Non-Residential	All	School (K-12)	HVAC	Economizer Repair; AC/-	per ton	RET	5.0	5.0	$108.0	79	0.02	0	0	0.00	0
47	Non-Residential	All	Warehouse	HVAC	Economizer Repair; AC/-	per ton	RET	5.0	5.0	$108.0	123	0.00	0	0	0.01	0
48	Non-Residential	All	College/University	HVAC	Economizer Repair; AC/Gas	per ton	RET	5.0	5.0	$108.0	211	0.01	3	0	0.00	0
49	Non-Residential	All	Grocery	HVAC	Economizer Repair; AC/Gas	per ton	RET	5.0	5.0	$108.0	12	0.00	0	0	0.00	0
50	Non-Residential	All	Hotel/Motel	HVAC	Economizer Repair; AC/Gas	per ton	RET	5.0	5.0	$108.0	396	0.02	8	0	0.00	0
51	Non-Residential	All	Medical	HVAC	Economizer Repair; AC/Gas	per ton	RET	5.0	5.0	$108.0	381	0.04	18	0	0.00	0
52	Non-Residential	All	Office	HVAC	Economizer Repair; AC/Gas	per ton	RET	5.0	5.0	$108.0	157	0.03	6	0	0.00	0
53	Non-Residential	All	Restaurant	HVAC	Economizer Repair; AC/Gas	per ton	RET	5.0	5.0	$108.0	91	0.00	1	0	0.00	0
54	Non-Residential	All	Retail/Service	HVAC	Economizer Repair; AC/Gas	per ton	RET	5.0	5.0	$108.0	98	0.01	1	0	0.00	0
55	Non-Residential	All	School (K-12)	HVAC	Economizer Repair; AC/Gas	per ton	RET	5.0	5.0	$108.0	79	0.02	5	0	0.00	0
56	Non-Residential	All	Warehouse	HVAC	Economizer Repair; AC/Gas	per ton	RET	5.0	5.0	$108.0	123	0.00	4	0	0.01	0
57	Non-Residential	All	College/University	HVAC	Economizer Repair; HP	per ton	RET	5.0	5.0	$108.0	401	0.04	0	0	0.00	0
58	Non-Residential	All	Grocery	HVAC	Economizer Repair; HP	per ton	RET	5.0	5.0	$108.0	24	0.00	0	0	0.00	0
59	Non-Residential	All	Hotel/Motel	HVAC	Economizer Repair; HP	per ton	RET	5.0	5.0	$108.0	592	0.04	0	0	0.00	0
60	Non-Residential	All	Medical	HVAC	Economizer Repair; HP	per ton	RET	5.0	5.0	$108.0	790	0.06	0	0	0.00	0

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Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
61	Non-Residential	All	Office	HVAC	Economizer Repair; HP	per ton	RET	5.0	5.0	$108.0	320	0.05	0	0	0.00	0
62	Non-Residential	All	Restaurant	HVAC	Economizer Repair; HP	per ton	RET	5.0	5.0	$108.0	165	0.01	0	0	0.00	0
63	Non-Residential	All	Retail/Service	HVAC	Economizer Repair; HP	per ton	RET	5.0	5.0	$108.0	225	0.02	0	0	0.00	0
64	Non-Residential	All	School (K-12)	HVAC	Economizer Repair; HP	per ton	RET	5.0	5.0	$108.0	162	0.02	0	0	0.00	0
65	Non-Residential	All	Warehouse	HVAC	Economizer Repair; HP	per ton	RET	5.0	5.0	$108.0	187	0.01	0	0	0.00	0
66	Non-Residential	All	All	HVAC	Air-Source Heat Pump, Tier 1; < 5.4 tons, greater than 14.0 SEER & 11.6 EER	per ton	ROB	15.0	15.0	$67.0	90	0.05	0	0	0.00	0
67	Non-Residential	All	All	HVAC	Air-Source Heat Pump, Tier 1; ≥ 5.4 tons & < 20 tons, greater than 11.5 SEER & 11.7 EER	per ton	ROB	15.0	15.0	$67.0	162	0.90	0	0	0.00	0
68	Non-Residential	All	All	HVAC	Air-Source Heat Pump, Tier 1; ≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.3 EER	per ton	ROB	15.0	15.0	$67.0	90	0.05	0	0	0.00	0
69	Non-Residential	All	All	HVAC	Air-Source Heat Pump, Tier 1; ≥ 63.3 tons, greater than 10.2 SEER & 10.3 EER	per ton	ROB	15.0	15.0	$67.0	72	0.04	0	0	0.00	0
70	Non-Residential	All	All	HVAC	Air-Source Heat Pump, Tier 2; < 5.4 tons, greater than 15.0 SEER & 12.0 EER	per ton	ROB	15.0	15.0	$100.0	180	0.10	0	0	0.00	0
71	Non-Residential	All	All	HVAC	Air-Source Heat Pump, Tier 2; ≥ 5.4 tons & < 20 tons, greater than 12.0 SEER & 12.2 EER	per ton	ROB	15.0	15.0	$100.0	252	1.40	0	0	0.00	0
72	Non-Residential	All	All	HVAC	Air-Source Heat Pump, Tier 2; ≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.6 EER	per ton	ROB	15.0	15.0	$100.0	181	0.10	0	0	0.00	0
73	Non-Residential	All	All	HVAC	Air-Source Heat Pump, Tier 2; ≥ 63.3 tons, greater than 9.7 SEER & 9.8 EER	per ton	ROB	15.0	15.0	$100.0	145	0.08	0	0	0.00	0
74	Non-Residential	All	College/University	HVAC	Commercial Kitchen Demand Hood Controls	per hp	RET	15.0	15.0	$1,000.0	1265	0.35	173	0	0.00	0
75	Non-Residential	All	Hotel/Motel	HVAC	Commercial Kitchen Demand Hood Controls	per hp	RET	15.0	15.0	$1,000.0	3370	0.35	414	0	0.00	0
76	Non-Residential	All	Restaurant	HVAC	Commercial Kitchen Demand Hood Controls	per hp	RET	15.0	15.0	$1,000.0	2527	0.35	279	0	0.00	0
77	Non-Residential	All	School (K-12)	HVAC	Commercial Kitchen Demand Hood Controls	per hp	RET	15.0	15.0	$1,000.0	923	0.00	173	0	0.00	0
78	Non-Residential	All	Hotel/Motel	HVAC	Occupancy-Based PTAC/PTHP Controls	per sq. ft.	RET	15.0	15.0	$0.7	1	0.00	0	0	0.00	0
79	Non-Residential	All	Hotel/Motel	HVAC	Occupancy-Based PTAC/PTHP Controls	per sq. ft.	ROB	15.0	15.0	$0.7	1	0.00	0	0	0.00	0
80	Non-Residential	All	Hotel/Motel	HVAC	Occupancy-Based PTAC/PTHP Controls	per sq. ft.	NEW	15.0	15.0	$0.7	1	0.00	0	0	0.00	0
81	Non-Residential	All	All	HVAC	Packaged Terminal AC; < 0.75 tons, greater than 14.0 EER	per ton	ROB	15.0	15.0	$50.9	222	0.11	0	0	0.00	0
82	Non-Residential	All	All	HVAC	Packaged Terminal AC; ≥ 0.75 tons & < 1.00 ton, greater than 14.0 EER	per ton	ROB	15.0	15.0	$50.9	230	0.10	0	0	0.00	0
83	Non-Residential	All	All	HVAC	Packaged Terminal AC; ≥ 1.00 ton, greater than 14.0 EER	per ton	ROB	15.0	15.0	$110.5	185	0.09	0	0	0.00	0
84	Non-Residential	All	All	HVAC	Packaged Terminal HP; < 0.75 tons, greater than 11.8 EER	per ton	ROB	15.0	15.0	$145.4	243	0.12	0	0	0.00	0
85	Non-Residential	All	All	HVAC	Packaged Terminal HP; ≥ 0.75 tons & < 1.0, greater than 11.0 EER	per ton	ROB	15.0	15.0	$145.4	243	0.11	0	0	0.00	0
86	Non-Residential	All	All	HVAC	Packaged Terminal HP; ≥ 1.0, greater than 10.3 EER	per ton	ROB	15.0	15.0	$137.9	221	0.11	0	0	0.00	0
87	Non-Residential	Small Commercial	General Commercial	HVAC	Small Business Duct Efficiency Improvements - AC/Gas	per system	RET	18.0	18.0	$263.7	1209	1.72	58	0	0.00	0
88	Non-Residential	Small Commercial	General Commercial	HVAC	Small Business Duct Efficiency Improvements - AC/ER	per system	RET	18.0	18.0	$466.8	2141	1.97	0	0	0.00	0
89	Non-Residential	Small Commercial	General Commercial	HVAC	Small Business Duct Efficiency Improvements - HP	per system	RET	18.0	18.0	$288.9	2672	1.97	0	0	0.00	0
90	Non-Residential	Small Commercial	All	HVAC	Small Business AC Tune-up; < 5.4 tons	per ton	RET	10.0	10.0	$35.0	91	0.05	0	0	0.00	0
91	Non-Residential	Small Commercial	All	HVAC	Small Business AC Tune-up; ≥ 5.4 tons & < 11.25 tons	per ton	RET	10.0	10.0	$35.0	97	0.05	0	0	0.00	0
92	Non-Residential	Small Commercial	All	HVAC	Small Business AC Tune-up; ≥ 11.25 tons	per ton	RET	10.0	10.0	$35.0	106	0.06	0	0	0.00	0
93	Non-Residential	Small Commercial	All	HVAC	Small Business HP Tune-up; < 5.4 tons	per ton	RET	10.0	10.0	$35.0	340	0.05	0	0	0.00	0
94	Non-Residential	Small Commercial	All	HVAC	Small Business HP Tune-up; ≥ 5.4 tons & < 11.25 tons	per ton	RET	10.0	10.0	$35.0	281	0.05	0	0	0.00	0
95	Non-Residential	Small Commercial	All	HVAC	Small Business HP Tune-up; ≥ 11.25 tons	per ton	RET	10.0	10.0	$35.0	297	0.06	0	0	0.00	0
96	Non-Residential	Small Commercial	All	HVAC	Small Business Smart T-stats , AC & ER Heat	per sq. ft.	RET	11.0	11.0	$0.0	1	0.00	0	0	0.00	0
97	Non-Residential	Small Commercial	All	HVAC	Small Business Smart T-stats, AC & Gas Heat	per sq. ft.	RET	11.0	11.0	$0.0	0	0.00	0	0	0.00	0
98	Non-Residential	Small Commercial	All	HVAC	Small Business Smart T-stats, HP	per sq. ft.	RET	11.0	11.0	$0.0	0	0.00	0	0	0.00	0
99	Non-Residential	All	All	HVAC	Split System, Tier 1; < 5.4 tons, greater than 14.0 SEER & 12.0 EER	per ton	ROB	15.0	15.0	$72.4	86	0.06	0	0	0.00	0
100	Non-Residential	All	All	HVAC	Split System, Tier 1; ≥ 5.4 tons & < 20 tons, greater than 11.5 SEER & 11.7 EER	per ton	ROB	15.0	15.0	$138.7	39	0.03	0	0	0.00	0
101	Non-Residential	All	All	HVAC	Split System, Tier 1; ≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.3 EER	per ton	ROB	15.0	15.0	$53.9	70	0.05	0	0	0.00	0
102	Non-Residential	All	All	HVAC	Split System, Tier 1; ≥ 63.3 tons, greater than 10.2 SEER & 10.3 EER	per ton	ROB	15.0	15.0	$52.3	78	0.05	0	0	0.00	0
103	Non-Residential	All	All	HVAC	Split System, Tier 2; < 5.4 tons, greater than 15.0 SEER & 12.5 EER	per ton	ROB	15.0	15.0	$144.7	132	0.11	0	0	0.00	0
104	Non-Residential	All	All	HVAC	Split System, Tier 2; ≥ 5.4 tons & < 20 tons, greater than 12.0 SEER & 12.2 EER	per ton	ROB	15.0	15.0	$277.5	105	0.07	0	0	0.00	0
105	Non-Residential	All	All	HVAC	Split System, Tier 2; ≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.6 EER	per ton	ROB	15.0	15.0	$55.5	139	0.09	0	0	0.00	0
106	Non-Residential	All	All	HVAC	Split System, Tier 2; ≥ 63.3 tons, greater than 9.7 SEER & 9.8 EER	per ton	ROB	15.0	15.0	$55.5	81	0.09	0	0	0.00	0
107	Non-Residential	All	All	HVAC	Unitary AC, Tier 1; < 5.4 tons, greater than 14.0 SEER & 11.6 EER	per ton	ROB	15.0	15.0	$72.4	86	0.06	0	0	0.00	0
108	Non-Residential	All	All	HVAC	Unitary AC, Tier 1; ≥ 5.4 tons & < 20 tons, greater than 11.5 SEER & 11.7 EER	per ton	ROB	15.0	15.0	$138.7	39	0.03	0	0	0.00	0
109	Non-Residential	All	All	HVAC	Unitary AC, Tier 1; ≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.3 EER	per ton	ROB	15.0	15.0	$53.9	70	0.05	0	0	0.00	0
110	Non-Residential	All	All	HVAC	Unitary AC, Tier 1; ≥ 63.3 tons, greater than 10.2 SEER & 10.3 EER	per ton	ROB	15.0	15.0	$52.3	78	0.05	0	0	0.00	0
111	Non-Residential	All	All	HVAC	Unitary AC, Tier 2; < 5.4 tons, greater than 15.0 SEER & 12.0 EER	per ton	ROB	15.0	15.0	$144.7	172	0.11	0	0	0.00	0
112	Non-Residential	All	All	HVAC	Unitary AC, Tier 2; ≥ 5.4 tons & < 20 tons, greater than 12.0 SEER & 12.2 EER	per ton	ROB	15.0	15.0	$277.5	105	0.07	0	0	0.00	0
113	Non-Residential	All	All	HVAC	Unitary AC, Tier 2; ≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.6 EER	per ton	ROB	15.0	15.0	$55.5	139	0.09	0	0	0.00	0
114	Non-Residential	All	All	HVAC	Unitary AC, Tier 2; ≥ 63.3 tons, greater than 9.7 SEER & 9.8 EER	per ton	ROB	15.0	15.0	$55.5	81	0.05	0	0	0.00	0
115	Non-Residential	Agricultural	General Livestock	HVAC	Ventilation Fan, Retrofit; 36-47"	per building	RET	10.0	10.0	$4,050.0	4515	0.89	0	0	0.00	0
116	Non-Residential	Agricultural	General Livestock	HVAC	Ventilation Fan, Retrofit; 48-61"	per building	RET	10.0	10.0	$13,500.0	23684	4.67	0	0	0.00	0
117	Non-Residential	All	Medical	HVAC	VFD Fan	per hp	ROB	10.0	10.0	$152.5	1218	0.12	0	0	0.00	0
118	Non-Residential	All	Office	HVAC	VFD Fan	per hp	ROB	10.0	10.0	$152.5	408	0.12	0	0	0.00	0
119	Non-Residential	All	Restaurant	HVAC	VFD Fan	per hp	ROB	10.0	10.0	$152.5	825	0.12	0	0	0.00	0
120	Non-Residential	All	Retail/Service	HVAC	VFD Fan	per hp	ROB	10.0	10.0	$152.5	609	0.12	0	0	0.00	0

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Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
121	Non-Residential	All	School (K-12)	HVAC	VFD Fan	per hp	ROB	10.0	10.0	$152.5	391	0.12	0	0	0.00	0
122	Non-Residential	All	Warehouse	HVAC	VFD Fan	per hp	ROB	10.0	10.0	$152.5	571	0.12	0	0	0.00	0
123	Non-Residential	All	Medical	HVAC	VFD Pump, Chilled Water	per hp	ROB	10.0	10.0	$152.5	1976	0.21	0	0	0.00	0
124	Non-Residential	All	Office	HVAC	VFD Pump, Chilled Water	per hp	ROB	10.0	10.0	$152.5	662	0.21	0	0	0.00	0
125	Non-Residential	All	Restaurant	HVAC	VFD Pump, Chilled Water	per hp	ROB	10.0	10.0	$152.5	1338	0.21	0	0	0.00	0
126	Non-Residential	All	Retail/Service	HVAC	VFD Pump, Chilled Water	per hp	ROB	10.0	10.0	$152.5	989	0.21	0	0	0.00	0
127	Non-Residential	All	School (K-12)	HVAC	VFD Pump, Chilled Water	per hp	ROB	10.0	10.0	$152.5	634	0.21	0	0	0.00	0
128	Non-Residential	All	Warehouse	HVAC	VFD Pump, Chilled Water	per hp	ROB	10.0	10.0	$152.5	927	0.21	0	0	0.00	0
129	Non-Residential	All	Medical	HVAC	VFD Pump, Hot Water	per hp	ROB	10.0	10.0	$152.5	2038	0.00	0	0	0.00	0
130	Non-Residential	All	Office	HVAC	VFD Pump, Hot Water	per hp	ROB	10.0	10.0	$152.5	683	0.00	0	0	0.00	0
131	Non-Residential	All	Restaurant	HVAC	VFD Pump, Hot Water	per hp	ROB	10.0	10.0	$152.5	1381	0.00	0	0	0.00	0
132	Non-Residential	All	Retail/Service	HVAC	VFD Pump, Hot Water	per hp	ROB	10.0	10.0	$152.5	1020	0.00	0	0	0.00	0
133	Non-Residential	All	School (K-12)	HVAC	VFD Pump, Hot Water	per hp	ROB	10.0	10.0	$152.5	654	0.00	0	0	0.00	0
134	Non-Residential	All	Warehouse	HVAC	VFD Pump, Hot Water	per hp	ROB	10.0	10.0	$152.5	956	0.00	0	0	0.00	0
135	Non-Residential	All	College/University	HVAC	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	per ton	ROB	15.0	15.0	$22.7	107	0.05	0	0	0.00	0
136	Non-Residential	All	Grocery	HVAC	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	per ton	ROB	15.0	15.0	$21.4	101	0.05	0	0	0.00	0
137	Non-Residential	All	Hotel/Motel	HVAC	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	per ton	ROB	15.0	15.0	$20.7	98	0.02	0	0	0.00	0
138	Non-Residential	All	School (K-12)	HVAC	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	per ton	ROB	15.0	15.0	$19.6	93	0.05	0	0	0.00	0
139	Non-Residential	All	Medical	HVAC	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	per ton	ROB	15.0	15.0	$22.4	106	0.05	0	0	0.00	0
140	Non-Residential	All	Office	HVAC	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	per ton	ROB	15.0	15.0	$23.7	112	0.05	0	0	0.00	0
141	Non-Residential	All	Restaurant	HVAC	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	per ton	ROB	15.0	15.0	$26.9	127	0.05	0	0	0.00	0
142	Non-Residential	All	Retail/Service	HVAC	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	per ton	ROB	15.0	15.0	$20.4	96	0.05	0	0	0.00	0
143	Non-Residential	Large Commercial	All	HVAC	Water Cooled Centrifugal Chiller, Single Speed; < 300 tons, greater than 0.59 kW/ton & 0.56 IPLV	per ton	ROB	20.0	20.0	$411.0	188	0.09	0	0	0.00	0
144	Non-Residential	Large Commercial	All	HVAC	Water Cooled Centrifugal Chiller, Single Speed; ≥ 300 & < 600 tons, greater than 0.56 kW/ton & 0.53 IPLV	per ton	ROB	20.0	20.0	$125.8	62	0.04	0	0	0.00	0
145	Non-Residential	Large Commercial	All	HVAC	Water Cooled Centrifugal Chiller, Single Speed; ≥ 600 tons, greater than 0.55 kW/ton & 0.52 IPLV	per ton	ROB	20.0	20.0	$27.3	43	0.02	0	0	0.00	0
146	Non-Residential	Large Commercial	All	HVAC	Water Cooled Chiller, Single Speed; < 150 tons, greater than 0.71 kW/ton & 0.56 IPLV	per ton	ROB	20.0	20.0	$388.0	199	0.06	0	0	0.00	0
147	Non-Residential	Large Commercial	All	HVAC	Water Cooled Chiller, Single Speed; ≥ 150 & < 300 tons, greater than 0.58 kW/ton & 0.47 IPLV	per ton	ROB	20.0	20.0	$129.1	271	0.11	0	0	0.00	0
148	Non-Residential	Large Commercial	All	HVAC	Water Cooled Chiller, Single Speed; ≥ 300 tons, greater than 0.56 kW/ton & 0.47 IPLV	per ton	ROB	20.0	20.0	$27.2	209	0.06	0	0	0.00	0
149	Non-Residential	Large Commercial	All	HVAC	Water Cooled Centrifugal Chiller, VFD; < 300 tons, greater than 0.59 kW/ton & 0.42 IPLV	per ton	ROB	20.0	20.0	$200.6	233	0.05	0	0	0.00	0
150	Non-Residential	Large Commercial	All	HVAC	Water Cooled Centrifugal Chiller, VFD; ≥ 300 & < 600 tons, greater than 0.58 kW/ton & 0.38 IPLV	per ton	ROB	20.0	20.0	$156.7	322	0.09	0	0	0.00	0
151	Non-Residential	Large Commercial	All	HVAC	Water Cooled Centrifugal Chiller, VFD; ≥ 600 tons, greater than 0.57 kW/ton & 0.38 IPLV	per ton	ROB	20.0	20.0	$125.4	226	0.05	0	0	0.00	0
152	Non-Residential	Large Commercial	All	HVAC	Water Cooled Chiller, VFD; < 150 tons, greater than 0.73 kW/ton & 0.54 IPLV	per ton	ROB	20.0	20.0	$180.8	428	0.09	0	0	0.00	0
153	Non-Residential	Large Commercial	All	HVAC	Water Cooled Chiller, VFD; ≥ 150 & < 300 tons, greater than 0.61 kW/ton & 0.44 IPLV	per ton	ROB	20.0	20.0	$126.5	301	0.04	0	0	0.00	0
154	Non-Residential	Large Commercial	All	HVAC	Water Cooled Chiller, VFD; ≥ 300 tons, greater than 0.58 kW/ton & 0.44 IPLV	per ton	ROB	20.0	20.0	$95.2	291	0.00	0	0	0.00	0
155	Non-Residential	Agricultural	Poultry	Lighting	LED Tube 4' 2 lamp Egg collection	per building	RET	2.0	15.0	$88.2	190	0.05	0	0	0.00	0
156	Non-Residential	Agricultural	Poultry	Lighting	LED Tube 8' 2 lamp Egg collection	per building	RET	2.0	15.0	$176.5	207	0.06	0	0	0.00	0
157	Non-Residential	Agricultural	Poultry	Lighting	LED Tube 8' 2 lamp Egg storage (24hr)	per building	RET	2.0	15.0	$176.5	611	0.06	0	0	0.00	0
158	Non-Residential	Large Commercial	College/University	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	109	0.03	0	0	0.00	0
159	Non-Residential	Large Commercial	Grocery	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	177	0.04	0	0	0.00	0
160	Non-Residential	Large Commercial	Hotel/Motel	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	148	0.02	0	0	0.00	0
161	Non-Residential	Large Commercial	Medical	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	136	0.03	0	0	0.00	0
162	Non-Residential	Large Commercial	Miscellaneous	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	149	0.03	0	0	0.00	0
163	Non-Residential	Large Commercial	Office	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	114	0.03	0	0	0.00	0
164	Non-Residential	Large Commercial	Restaurant	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	161	0.03	0	0	0.00	0
165	Non-Residential	Large Commercial	Retail/Service	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	130	0.03	0	0	0.00	0
166	Non-Residential	Large Commercial	School (K-12)	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	85	0.02	0	0	0.00	0
167	Non-Residential	Large Commercial	Warehouse	Lighting	LED Pin-based Replacement Lamps	per bulb	RET	2.0	11.0	$21.3	112	0.03	0	0	0.00	0
168	Non-Residential	Large Commercial	College/University	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	109	0.03	0	0	0.00	0
169	Non-Residential	Large Commercial	Grocery	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	177	0.04	0	0	0.00	0
170	Non-Residential	Large Commercial	Hotel/Motel	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	148	0.02	0	0	0.00	0
171	Non-Residential	Large Commercial	Medical	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	136	0.03	0	0	0.00	0
172	Non-Residential	Large Commercial	Miscellaneous	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	149	0.03	0	0	0.00	0
173	Non-Residential	Large Commercial	Office	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	114	0.03	0	0	0.00	0
174	Non-Residential	Large Commercial	Restaurant	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	161	0.03	0	0	0.00	0
175	Non-Residential	Large Commercial	Retail/Service	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	130	0.03	0	0	0.00	0
176	Non-Residential	Large Commercial	School (K-12)	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	85	0.02	0	0	0.00	0
177	Non-Residential	Large Commercial	Warehouse	Lighting	LED Screw-Base Replacement for HID Lamps	per bulb	RET	2.0	11.0	$21.3	112	0.03	0	0	0.00	0
178	Non-Residential	Small Commercial	Medical	Lighting	Small Business LED Screw-ins	per bulb	ROB	3.0	9.0	$29.2	114	0.04	0	0	0.00	0
179	Non-Residential	Small Commercial	Miscellaneous	Lighting	Small Business LED Screw-ins	per bulb	ROB	3.0	9.0	$28.7	112	0.03	0	0	0.00	0
180	Non-Residential	Small Commercial	Office	Lighting	Small Business LED Screw-ins	per bulb	ROB	3.0	9.0	$20.8	81	0.03	0	0	0.00	0

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Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
181	Non-Residential	Small Commercial	Restaurant	Lighting	Small Business LED Screw-ins	per bulb	ROB	3.0	9.0	$31.0	121	0.04	0	0	0.00	0
182	Non-Residential	Small Commercial	Retail/Service	Lighting	Small Business LED Screw-ins	per bulb	ROB	3.0	9.0	$23.3	91	0.04	0	0	0.00	0
183	Non-Residential	Small Commercial	School (K-12)	Lighting	Small Business LED Screw-ins	per bulb	ROB	3.0	9.0	$23.3	91	0.03	0	0	0.00	0
184	Non-Residential	Small Commercial	Warehouse	Lighting	Small Business LED Screw-ins	per bulb	ROB	3.0	9.0	$27.5	107	0.03	0	0	0.00	0
185	Non-Residential	Large Commercial	College/University	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	307	0.07	0	0	0.00	0
186	Non-Residential	Large Commercial	Grocery	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	498	0.10	0	0	0.00	0
187	Non-Residential	Large Commercial	Hotel/Motel	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	416	0.06	0	0	0.00	0
188	Non-Residential	Large Commercial	Medical	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	383	0.08	0	0	0.00	0
189	Non-Residential	Large Commercial	Miscellaneous	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	419	0.08	0	0	0.00	0
190	Non-Residential	Large Commercial	Office	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	321	0.08	0	0	0.00	0
191	Non-Residential	Large Commercial	Restaurant	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	453	0.08	0	0	0.00	0
192	Non-Residential	Large Commercial	Retail/Service	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	364	0.10	0	0	0.00	0
193	Non-Residential	Large Commercial	School (K-12)	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	238	0.05	0	0	0.00	0
194	Non-Residential	Large Commercial	Warehouse	Lighting	T-LED Replacement Lamps/Tubes	per bulb	RET	2.0	11.0	$148.3	313	0.08	0	0	0.00	0
195	Non-Residential	Large Commercial	College/University	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	1279	0.30	0	0	0.00	0
196	Non-Residential	Large Commercial	Grocery	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	2075	0.41	0	0	0.00	0
197	Non-Residential	Large Commercial	Hotel/Motel	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	1732	0.23	0	0	0.00	0
198	Non-Residential	Large Commercial	Medical	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	1596	0.34	0	0	0.00	0
199	Non-Residential	Large Commercial	Miscellaneous	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	1747	0.32	0	0	0.00	0
200	Non-Residential	Large Commercial	Office	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	1336	0.33	0	0	0.00	0
201	Non-Residential	Large Commercial	Restaurant	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	1888	0.35	0	0	0.00	0
202	Non-Residential	Large Commercial	Retail/Service	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	1516	0.40	0	0	0.00	0
203	Non-Residential	Large Commercial	School (K-12)	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	993	0.20	0	0	0.00	0
204	Non-Residential	Large Commercial	Warehouse	Lighting	LED Exterior Fixtures	per fixture	RET	2.0	11.0	$707.5	1305	0.35	0	0	0.00	0
205	Non-Residential	Small Commercial	Grocery	Lighting	Small Business LED Exterior Lights	per bulb	ROB	4.0	13.0	$339.7	731	0.03	0	0	0.00	0
206	Non-Residential	Small Commercial	Medical	Lighting	Small Business LED Exterior Lights	per bulb	ROB	4.0	13.0	$420.9	906	0.00	0	0	0.00	0
207	Non-Residential	Small Commercial	Miscellaneous	Lighting	Small Business LED Exterior Lights	per bulb	ROB	4.0	13.0	$329.1	708	0.08	0	0	0.00	0
208	Non-Residential	Small Commercial	Office	Lighting	Small Business LED Exterior Lights	per bulb	ROB	4.0	13.0	$326.7	703	0.03	0	0	0.00	0
209	Non-Residential	Small Commercial	Restaurant	Lighting	Small Business LED Exterior Lights	per bulb	ROB	4.0	13.0	$320.8	690	0.01	0	0	0.00	0
210	Non-Residential	Small Commercial	Retail/Service	Lighting	Small Business LED Exterior Lights	per bulb	ROB	4.0	13.0	$396.9	854	0.11	0	0	0.00	0
211	Non-Residential	Small Commercial	School (K-12)	Lighting	Small Business LED Exterior Lights	per bulb	ROB	4.0	13.0	$256.7	552	0.00	0	0	0.00	0
212	Non-Residential	Small Commercial	Warehouse	Lighting	Small Business LED Exterior Lights	per bulb	ROB	4.0	13.0	$275.7	593	0.04	0	0	0.00	0
213	Non-Residential	Large Commercial	College/University	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	109	0.03	0	0	0.00	0
214	Non-Residential	Large Commercial	Grocery	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	177	0.04	0	0	0.00	0
215	Non-Residential	Large Commercial	Hotel/Motel	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	148	0.02	0	0	0.00	0
216	Non-Residential	Large Commercial	Medical	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	136	0.03	0	0	0.00	0
217	Non-Residential	Large Commercial	Miscellaneous	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	149	0.03	0	0	0.00	0
218	Non-Residential	Large Commercial	Office	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	114	0.03	0	0	0.00	0
219	Non-Residential	Large Commercial	Restaurant	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	161	0.03	0	0	0.00	0
220	Non-Residential	Large Commercial	Retail/Service	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	130	0.03	0	0	0.00	0
221	Non-Residential	Large Commercial	School (K-12)	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	85	0.02	0	0	0.00	0
222	Non-Residential	Large Commercial	Warehouse	Lighting	LED Downlight or Pendant Fixture	per fixture	RET	2.0	11.0	$12.7	112	0.03	0	0	0.00	0
223	Non-Residential	Large Commercial	College/University	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	1212	0.28	0	0	0.00	0
224	Non-Residential	Large Commercial	Grocery	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	1966	0.39	0	0	0.00	0
225	Non-Residential	Large Commercial	Hotel/Motel	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	1640	0.22	0	0	0.00	0
226	Non-Residential	Large Commercial	Medical	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	1512	0.32	0	0	0.00	0
227	Non-Residential	Large Commercial	Miscellaneous	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	1655	0.31	0	0	0.00	0
228	Non-Residential	Large Commercial	Office	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	1266	0.32	0	0	0.00	0
229	Non-Residential	Large Commercial	Restaurant	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	1788	0.33	0	0	0.00	0
230	Non-Residential	Large Commercial	Retail/Service	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	1436	0.38	0	0	0.00	0
231	Non-Residential	Large Commercial	School (K-12)	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	941	0.19	0	0	0.00	0
232	Non-Residential	Large Commercial	Warehouse	Lighting	LED High-Bay Fixture	per fixture	RET	2.0	11.0	$317.3	1236	0.33	0	0	0.00	0
233	Non-Residential	Large Commercial	College/University	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	245	0.06	0	0	0.00	0
234	Non-Residential	Large Commercial	Grocery	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	397	0.08	0	0	0.00	0
235	Non-Residential	Large Commercial	Hotel/Motel	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	331	0.04	0	0	0.00	0
236	Non-Residential	Large Commercial	Medical	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	305	0.06	0	0	0.00	0
237	Non-Residential	Large Commercial	Miscellaneous	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	334	0.06	0	0	0.00	0
238	Non-Residential	Large Commercial	Office	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	256	0.06	0	0	0.00	0
239	Non-Residential	Large Commercial	Restaurant	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	361	0.07	0	0	0.00	0
240	Non-Residential	Large Commercial	Retail/Service	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	290	0.08	0	0	0.00	0

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ACCEPTED
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PROCEEDINGS
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Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
241	Non-Residential	Large Commercial	School (K-12)	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	190	0.04	0	0	0.00	0
242	Non-Residential	Large Commercial	Warehouse	Lighting	LED Troffer or Panel Fixture	per fixture	RET	2.0	11.0	$125.0	250	0.07	0	0	0.00	0
243	Non-Residential	Municipal Lighting	All	Lighting	4,800 Lumens LED Open Type	per fixture	RET	4.0	20.0	$484.0	292	0.00	0	0	0.00	0
244	Non-Residential	Municipal Lighting	All	Lighting	4,800 Lumens LED Open Type	per fixture	RET	4.0	20.0	$484.0	532	0.00	0	0	0.00	0
245	Non-Residential	Municipal Lighting	All	Lighting	ATB0 grey 108w	per fixture	RET	4.0	20.0	$629.0	824	0.00	0	0	0.00	0
246	Non-Residential	Municipal Lighting	All	Lighting	ATB0 grey 108w	per fixture	RET	4.0	20.0	$629.0	804	0.00	0	0	0.00	0
247	Non-Residential	Municipal Lighting	All	Lighting	ATB0 grey 72w	per fixture	RET	4.0	20.0	$573.0	204	0.00	0	0	0.00	0
248	Non-Residential	Municipal Lighting	All	Lighting	ATB0 grey 72w	per fixture	RET	4.0	20.0	$573.0	556	0.00	0	0	0.00	0
249	Non-Residential	Municipal Lighting	All	Lighting	ATB0 grey 72w	per fixture	RET	4.0	20.0	$573.0	204	0.00	0	0	0.00	0
250	Non-Residential	Municipal Lighting	All	Lighting	ATB2 grey 216w	per fixture	RET	4.0	20.0	$908.0	656	0.00	0	0	0.00	0
251	Non-Residential	Municipal Lighting	All	Lighting	ATB2 grey 216w	per fixture	RET	4.0	20.0	$908.0	884	0.00	0	0	0.00	0
252	Non-Residential	Municipal Lighting	All	Lighting	ATB2 grey 216w	per fixture	RET	4.0	20.0	$908.0	1084	0.00	0	0	0.00	0
253	Non-Residential	Municipal Lighting	All	Lighting	ATB2 grey 216w	per fixture	RET	4.0	20.0	$908.0	1024	0.00	0	0	0.00	0
254	Non-Residential	Large Commercial	College/University	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	126	0.08	0	0	0.00	0
255	Non-Residential	Large Commercial	Grocery	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	205	0.11	0	0	0.00	0
256	Non-Residential	Large Commercial	Hotel/Motel	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	171	0.05	0	0	0.00	0
257	Non-Residential	Large Commercial	Medical	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	158	0.09	0	0	0.00	0
258	Non-Residential	Large Commercial	Miscellaneous	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	172	0.09	0	0	0.00	0
259	Non-Residential	Large Commercial	Office	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	132	0.09	0	0	0.00	0
260	Non-Residential	Large Commercial	Restaurant	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	186	0.09	0	0	0.00	0
261	Non-Residential	Large Commercial	Retail/Service	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	150	0.11	0	0	0.00	0
262	Non-Residential	Large Commercial	School (K-12)	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	98	0.05	0	0	0.00	0
263	Non-Residential	Large Commercial	Warehouse	Lighting	Daylight Control/Harvesting (On/Off)	per control	RET	8.0	8.0	$50.0	129	0.09	0	0	0.00	0
264	Non-Residential	Large Commercial	School (K-12)	Lighting	Daylight Harvesting (Dimming)	per control	RET	8.0	8.0	$50.0	47	0.02	0	0	0.00	0
265	Non-Residential	Large Commercial	College/University	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	126	0.08	0	0	0.00	0
266	Non-Residential	Large Commercial	Grocery	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	205	0.11	0	0	0.00	0
267	Non-Residential	Large Commercial	Hotel/Motel	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	171	0.05	0	0	0.00	0
268	Non-Residential	Large Commercial	Medical	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	158	0.09	0	0	0.00	0
269	Non-Residential	Large Commercial	Miscellaneous	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	172	0.09	0	0	0.00	0
270	Non-Residential	Large Commercial	Office	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	132	0.09	0	0	0.00	0
271	Non-Residential	Large Commercial	Restaurant	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	186	0.09	0	0	0.00	0
272	Non-Residential	Large Commercial	Retail/Service	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	150	0.11	0	0	0.00	0
273	Non-Residential	Large Commercial	School (K-12)	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	98	0.05	0	0	0.00	0
274	Non-Residential	Large Commercial	Warehouse	Lighting	Occupancy Sensor: Ceiling/Wall Mount (Remote)	per control	RET	8.0	8.0	$125.0	129	0.09	0	0	0.00	0
275	Non-Residential	Large Commercial	College/University	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	42	0.03	0	0	0.00	0
276	Non-Residential	Large Commercial	Grocery	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	69	0.04	0	0	0.00	0
277	Non-Residential	Large Commercial	Hotel/Motel	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	57	0.02	0	0	0.00	0
278	Non-Residential	Large Commercial	Medical	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	53	0.03	0	0	0.00	0
279	Non-Residential	Large Commercial	Miscellaneous	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	58	0.03	0	0	0.00	0
280	Non-Residential	Large Commercial	Office	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	44	0.03	0	0	0.00	0
281	Non-Residential	Large Commercial	Restaurant	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	63	0.03	0	0	0.00	0
282	Non-Residential	Large Commercial	Retail/Service	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	50	0.04	0	0	0.00	0
283	Non-Residential	Large Commercial	School (K-12)	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	33	0.02	0	0	0.00	0
284	Non-Residential	Large Commercial	Warehouse	Lighting	Occupancy Sensor: Fixture Mounted (High Bay)	per control	RET	8.0	8.0	$67.0	43	0.03	0	0	0.00	0
285	Non-Residential	Large Commercial	College/University	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	42	0.03	0	0	0.00	0
286	Non-Residential	Large Commercial	Grocery	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	69	0.04	0	0	0.00	0
287	Non-Residential	Large Commercial	Hotel/Motel	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	57	0.02	0	0	0.00	0
288	Non-Residential	Large Commercial	Medical	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	53	0.03	0	0	0.00	0
289	Non-Residential	Large Commercial	Miscellaneous	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	58	0.03	0	0	0.00	0
290	Non-Residential	Large Commercial	Office	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	44	0.03	0	0	0.00	0
291	Non-Residential	Large Commercial	Restaurant	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	63	0.03	0	0	0.00	0
292	Non-Residential	Large Commercial	Retail/Service	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	50	0.04	0	0	0.00	0
293	Non-Residential	Large Commercial	School (K-12)	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	33	0.02	0	0	0.00	0
294	Non-Residential	Large Commercial	Warehouse	Lighting	Occupancy Sensor: Wall Switch Replacement	per control	RET	8.0	8.0	$55.0	43	0.03	0	0	0.00	0
295	Non-Residential	Small Commercial	Warehouse	Lighting	Small Business Occupancy Sensor	per control	RET	8.0	8.0	$217.7	163	0.00	0	0	0.00	0
296	Non-Residential	Large Commercial	College/University	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$370,731.1	88711	20.95	0	0	0.00	0
297	Non-Residential	Large Commercial	Grocery	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$79,108.2	42601	7.18	0	0	0.00	0
298	Non-Residential	Large Commercial	Hotel/Motel	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$145,313.0	53708	5.26	0	0	0.00	0
299	Non-Residential	Large Commercial	Medical	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$248,133.5	88110	15.45	0	0	0.00	0
300	Non-Residential	Large Commercial	Miscellaneous	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$249,630.4	81592	15.27	0	0	0.00	0

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Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
301	Non-Residential	Large Commercial	Office	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$199,222.9	68083	17.18	0	0	0.00	0
302	Non-Residential	Large Commercial	Restaurant	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$7,031.8	2945	0.60	0	0	0.00	0
303	Non-Residential	Large Commercial	Retail/Service	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$43,605.6	14689	3.91	0	0	0.00	0
304	Non-Residential	Large Commercial	School (K-12)	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$130,018.8	24154	5.01	0	0	0.00	0
305	Non-Residential	Large Commercial	Warehouse	Lighting	Lighting Density Reduction, Building Method	per building	NEW	2.0	11.0	$91,493.1	14893	4.00	0	0	0.00	0
306	Non-Residential	Large Commercial	Retail/Service	Lighting	Lighting Density Reduction, Space Method	per building	NEW	2.0	11.0	$83,180.8	20380	5.36	0	0	0.00	0
307	Non-Residential	Large Commercial	Warehouse	Lighting	Lighting Density Reduction, Space Method	per building	NEW	2.0	11.0	$413,229.8	280471	43.87	0	0	0.00	0
308	Non-Residential	Agricultural	General Livestock	Lighting	Outdoor Lighting	per building	RET	2.0	15.0	$346.0	531	0.00	0	0	0.00	0
309	Non-Residential	Agricultural	Poultry	Lighting	A19 LED Poultry	per building	RET	2.0	15.0	$2,442.4	44142	6.43	0	0	0.00	0
310	Non-Residential	Small Commercial	Medical	Lighting	Small Business Abandoned Fluorescent	per bulb	ROB	5.5	5.5	$23.0	299	0.14	0	0	0.00	0
311	Non-Residential	Small Commercial	Miscellaneous	Lighting	Small Business Abandoned Fluorescent	per bulb	ROB	5.5	5.5	$23.0	675	0.17	0	0	0.00	0
312	Non-Residential	Small Commercial	Office	Lighting	Small Business Abandoned Fluorescent	per bulb	ROB	5.5	5.5	$23.0	356	0.15	0	0	0.00	0
313	Non-Residential	Small Commercial	Retail/Service	Lighting	Small Business Abandoned Fluorescent	per bulb	ROB	5.5	5.5	$23.0	553	0.24	0	0	0.00	0
314	Non-Residential	Small Commercial	Warehouse	Lighting	Small Business Abandoned Fluorescent	per bulb	ROB	5.5	5.5	$23.0	360	0.12	0	0	0.00	0
315	Non-Residential	Small Commercial	Warehouse	Lighting	Small Business Abandoned HID	per bulb	ROB	5.5	5.5	$23.0	946	0.31	0	0	0.00	0
316	Non-Residential	Large Commercial	College/University	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.01	0	0	0.00	0
317	Non-Residential	Large Commercial	Grocery	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.02	0	0	0.00	0
318	Non-Residential	Large Commercial	Hotel/Motel	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.01	0	0	0.00	0
319	Non-Residential	Large Commercial	Medical	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.02	0	0	0.00	0
320	Non-Residential	Large Commercial	Miscellaneous	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.02	0	0	0.00	0
321	Non-Residential	Large Commercial	Office	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.02	0	0	0.00	0
322	Non-Residential	Large Commercial	Restaurant	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.02	0	0	0.00	0
323	Non-Residential	Large Commercial	Retail/Service	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.02	0	0	0.00	0
324	Non-Residential	Large Commercial	School (K-12)	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.01	0	0	0.00	0
325	Non-Residential	Large Commercial	Warehouse	Lighting	LED Exit Signs	per sign	RET	11.0	11.0	$25.0	151	0.02	0	0	0.00	0
326	Non-Residential	Small Commercial	Office	Lighting	Small Business LED Exit Signs	per sign	RET	16.0	16.0	$77.1	130	0.01	0	0	0.00	0
327	Non-Residential	Small Commercial	Restaurant	Lighting	Small Business LED Exit Signs	per sign	RET	16.0	16.0	$91.3	154	0.01	0	0	0.00	0
328	Non-Residential	Small Commercial	Retail/Service	Lighting	Small Business LED Exit Signs	per sign	RET	16.0	16.0	$82.0	139	0.02	0	0	0.00	0
329	Non-Residential	Small Commercial	School (K-12)	Lighting	Small Business LED Exit Signs	per sign	RET	16.0	16.0	$63.7	108	0.01	0	0	0.00	0
330	Non-Residential	Small Commercial	Warehouse	Lighting	Small Business LED Exit Signs	per sign	RET	16.0	16.0	$87.2	148	0.01	0	0	0.00	0
331	Non-Residential	All	School (K-12)	Lighting	Solar Light Tubes	per light tube	RET	10.0	10.0	$500.0	266	0.05	5	0	0.00	0
332	Non-Residential	All	College/University	Lighting	Solar Light Tubes	per light tube	RET	10.0	10.0	$500.0	343	0.08	7	0	0.00	0
333	Non-Residential	All	Restaurant	Lighting	Solar Light Tubes	per light tube	RET	10.0	10.0	$500.0	661	0.10	13	0	0.00	0
334	Non-Residential	All	Medical	Lighting	Solar Light Tubes	per light tube	RET	10.0	10.0	$500.0	549	0.09	3	0	0.00	0
335	Non-Residential	All	Hotel/Motel	Lighting	Solar Light Tubes	per light tube	RET	10.0	10.0	$500.0	635	0.09	12	0	0.00	0
336	Non-Residential	All	Office	Lighting	Solar Light Tubes	per light tube	RET	10.0	10.0	$500.0	358	0.09	8	0	0.00	0
337	Non-Residential	All	Retail/Service	Lighting	Solar Light Tubes	per light tube	RET	10.0	10.0	$500.0	461	0.10	8	0	0.00	0
338	Non-Residential	All	Warehouse	Lighting	Solar Light Tubes	per light tube	RET	10.0	10.0	$500.0	437	0.10	6	0	0.00	0
339	Non-Residential	All	Miscellaneous	Lighting	Solar Light Tubes	per light tube	RET	10.0	10.0	$500.0	417	0.08	9	0	0.00	0
340	Non-Residential	Agricultural	Swine	Lighting	A19 LED Swine	per building	RET	2.0	15.0	$4,304.0	63624	5.59	0	0	0.00	0
341	Non-Residential	All	All	Miscellaneous	Power Strip with Occupancy Sensor	per strip	RET	8.0	8.0	$50.0	24	0.00	0	0	0.00	0
342	Non-Residential	All	Office	Miscellaneous	Computer Power Management - Monitor	per monitor	RET	4.0	4.0	$12.5	159	0.01	0	0	0.00	0
343	Non-Residential	All	Office	Miscellaneous	Computer Power Management - Desktop	per desktop	RET	4.0	4.0	$12.5	338	0.02	0	0	0.00	0
344	Non-Residential	All	Office	Miscellaneous	Computer Power Management - Laptop	per laptop	RET	4.0	4.0	$12.5	97	0.01	0	0	0.00	0
345	Non-Residential	All	Miscellaneous	Miscellaneous	Compressed Air Controller, Pressure/Flow Controller; >15 HP	per hp	RET	6.7	6.7	$316.0	385	0.13	0	0	0.00	0
346	Non-Residential	All	Miscellaneous	Miscellaneous	Compressed Air Controller, Pressure/Flow Controller; ≤ 15 HP	per hp	RET	6.7	6.7	$439.1	465	0.16	0	0	0.00	0
347	Non-Residential	All	Miscellaneous	Miscellaneous	VFD Air Compressors; > 15 HP	per hp	ROB	6.7	6.7	$222.3	385	0.13	0	0	0.00	0
348	Non-Residential	All	Miscellaneous	Miscellaneous	VFD Air Compressors; ≤ 15 HP	per hp	ROB	6.7	6.7	$364.7	465	0.16	0	0	0.00	0
349	Non-Residential	All	All	Miscellaneous	Commercial Clothes Dryer Moisture Sensor	per machine	RET	14.0	14.0	$600.0	577	0.11	541	0	0.00	0
350	Non-Residential	All	All	Miscellaneous	Clothes Washers - Electric Water Heater	per washer	ROB	7.0	7.0	$250.0	87	0.12	0	0	0.00	0
351	Non-Residential	All	All	Miscellaneous	Clothes Washers - Heat Pump Water Heater	per washer	ROB	7.0	7.0	$250.0	87	0.12	0	0	0.00	0
352	Non-Residential	All	All	Miscellaneous	Clothes Washers - Non-Electric Water Heater	per washer	ROB	7.0	7.0	$250.0	87	0.12	0	0	0.00	0
353	Non-Residential	Large Commercial	All	Miscellaneous	Large Commercial Building 10% better than applicable code	per building	NEW	15.0	15.0	$36,768.0	132429	13.60	0	0	0.00	0
354	Non-Residential	Small Commercial	All	Miscellaneous	Small Commercial Building 10% better than applicable code	per building	NEW	15.0	15.0	$1,479.0	5574	0.44	0	0	0.00	0
355	Non-Residential	All	All	Miscellaneous	Large Commercial Building Retro-Commissioning	per building	RET	10.0	10.0	$32,679.7	185710	15.84	0	0	0.00	0
356	Non-Residential	All	All	Miscellaneous	Small Commercial Building Retro-Commissioning	per building	RET	12.0	12.0	$15,686.3	67642	5.00	0	0	0.00	0
357	Non-Residential	All	Hotel/Motel	Miscellaneous	Energy Management System	per building	RET	10.0	10.0	$106,222.0	449122	0.00	0	0	0.00	0
358	Non-Residential	All	Office	Miscellaneous	Energy Management System	per building	RET	10.0	10.0	$104,712.0	373968	50.00	0	0	0.00	0
359	Non-Residential	All	Retail/Service	Miscellaneous	Energy Management System	per building	RET	10.0	10.0	$5,566.0	19878	0.00	0	0	0.00	0
360	Non-Residential	Agricultural	Irrigation	Miscellaneous	EndSuction Pump 0.75 HP	per customer	ROB	15.0	15.0	$485.9	714	0.09	0	0	0.00	0

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Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
361	Non-Residential	Agricultural	Irrigation	Miscellaneous	EndSuction Pump 2 HP	per customer	ROB	15.0	15.0	$590.5	1903	0.24	0	0	0.00	0
362	Non-Residential	Agricultural	Irrigation	Miscellaneous	Pump Tune-up 60 HP	per customer	RET	5.0	5.0	$38,400.0	122073	18.56	0	0	0.00	0
363	Non-Residential	Agricultural	Irrigation	Miscellaneous	Submersible Boost Pump 1 HP	per customer	ROB	15.0	15.0	$956.3	1167	0.15	0	0	0.00	0
364	Non-Residential	Agricultural	Irrigation	Miscellaneous	Submersible Boost Pump 5 HP	per customer	ROB	15.0	15.0	$1,851.7	5837	0.74	0	0	0.00	0
365	Non-Residential	All	Medical	Miscellaneous	Pump Tune-up < 40 HP	per hp	RET	8.0	8.0	$130.0	500	0.03	0	0	0.00	0
366	Non-Residential	All	Office	Miscellaneous	Pump Tune-up < 40 HP	per hp	RET	8.0	8.0	$130.0	167	0.03	0	0	0.00	0
367	Non-Residential	All	School (K-12)	Miscellaneous	Pump Tune-up < 40 HP	per hp	RET	8.0	8.0	$130.0	160	0.03	0	0	0.00	0
368	Non-Residential	Agricultural	Irrigation	Miscellaneous	Low Pressure Irrigation System	per customer	RET	10.0	10.0	$10,000.0	95305	30.56	0	0	0.00	0
369	Non-Residential	All	All	Miscellaneous	ENERGY STAR Pool Pump	per pump	ROB	10.0	10.0	$485.4	3729	1.12	0	0	0.00	0
370	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Door Gaskets for Walk-in and Reach-in Freezers	per linear foot	RET	4.0	4.0	$9.6	115	0.01	0	0	0.00	0
371	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Door Gaskets for Walk-in and Reach-in Coolers	per linear foot	RET	4.0	4.0	$9.6	15	0.00	0	0	0.00	0
372	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Anti-Sweat Heater Controls - Cooler Doors	per door	RET	12.0	12.0	$250.0	689	0.06	0	0	0.00	0
373	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Zero Energy Doors, Cooler	per door	RET	12.0	12.0	$290.0	1320	0.15	0	0	0.00	0
374	Non-Residential	Small Commercial	Grocery	Refrigeration	Small Business Cooler Door Heater Controls	per controller	RET	16.0	16.0	$1,808.7	7724	0.66	0	0	0.00	0
375	Non-Residential	Small Commercial	Restaurant	Refrigeration	Small Business Cooler Door Heater Controls	per controller	RET	16.0	16.0	$1,187.0	2498	0.21	0	0	0.00	0
376	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Anti-Sweat Heater Controls - Freezer Doors	per door	RET	12.0	12.0	$250.0	1206	0.10	0	0	0.00	0
377	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Zero Energy Doors, Freezer	per door	RET	12.0	12.0	$290.0	2919	0.33	0	0	0.00	0
378	Non-Residential	Small Commercial	Grocery	Refrigeration	Small Business Freezer Door Heater Controls	per controller	RET	16.0	16.0	$1,327.5	1660	0.14	0	0	0.00	0
379	Non-Residential	Small Commercial	Restaurant	Refrigeration	Small Business Freezer Door Heater Controls	per controller	RET	16.0	16.0	$871.2	537	0.05	0	0	0.00	0
380	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Electronically Commutated Motors for All Refrigeration	per motor	RET	10.0	10.0	$226.0	477	0.04	0	0	0.00	0
381	Non-Residential	Small Commercial	Grocery	Refrigeration	Small Business Other Controls & EC Motors - Large	per motor	RET	10.0	10.0	$1,205.0	1184	0.00	0	0	0.00	0
382	Non-Residential	Small Commercial	Restaurant	Refrigeration	Small Business Other Controls & EC Motors - Large	per motor	RET	10.0	10.0	$1,205.0	1069	0.00	0	0	0.00	0
383	Non-Residential	Small Commercial	Grocery	Refrigeration	Small Business Other Controls & EC Motors - Medium	per motor	RET	10.0	10.0	$335.8	935	0.00	0	0	0.00	0
384	Non-Residential	Small Commercial	Restaurant	Refrigeration	Small Business Other Controls & EC Motors - Medium	per motor	RET	10.0	10.0	$335.8	1548	0.00	0	0	0.00	0
385	Non-Residential	Small Commercial	Grocery	Refrigeration	Small Business Other Controls & EC Motors - Small	per motor	RET	10.0	10.0	$304.9	591	0.07	0	0	0.00	0
386	Non-Residential	Small Commercial	Restaurant	Refrigeration	Small Business Other Controls & EC Motors - Small	per motor	RET	10.0	10.0	$304.9	553	0.07	0	0	0.00	0
387	Non-Residential	Small Commercial	Grocery	Refrigeration	Small Business Evaporative/Compressor Controls	per building	RET	16.0	16.0	$3,136.0	5945	0.21	0	0	0.00	0
388	Non-Residential	Small Commercial	Restaurant	Refrigeration	Small Business Evaporative/Compressor Controls	per building	RET	16.0	16.0	$2,992.1	3192	0.08	0	0	0.00	0
389	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Batch Ice Machine, Ice Making Head	per machine	ROB	12.0	12.0	$1,812.0	2278	0.37	0	0	0.00	0
390	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Batch Ice Machine, Self-Contained	per machine	ROB	12.0	12.0	$981.0	255	0.04	0	0	0.00	0
391	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Batch Ice Machine, Split System	per machine	ROB	12.0	12.0	$1,485.0	1064	0.06	0	0	0.00	0
392	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Continuous Ice Machine, Ice Making Head	per machine	ROB	12.0	12.0	$1,812.0	5548	0.37	0	0	0.00	0
393	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Continuous Ice Machine, Self-Contained	per machine	ROB	12.0	12.0	$981.0	1212	0.04	0	0	0.00	0
394	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Continuous Ice Machine, Split System	per machine	ROB	12.0	12.0	$1,485.0	2249	0.06	0	0	0.00	0
395	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	LED Refrigeration Case Lighting	per door	RET	10.0	10.0	$356.0	374	0.05	0	0	0.00	0
396	Non-Residential	Small Commercial	Grocery	Refrigeration	Small Business LED Case Lights	per door	RET	10.0	10.0	$316.2	686	0.09	0	0	0.00	0
397	Non-Residential	Small Commercial	Restaurant	Refrigeration	Small Business LED Case Lights	per door	RET	10.0	10.0	$207.5	368	0.03	0	0	0.00	0
398	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	LED Refrigeration Case Lighting Controls	per door	RET	10.0	10.0	$20.0	260	0.15	0	0	0.00	0
399	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Refrigeration Night Covers - Coolers	per foot	RET	10.0	10.0	$42.0	126	0.00	0	0	0.00	0
400	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Refrigeration Night Covers - Freezers	per foot	RET	10.0	10.0	$42.0	169	0.00	0	0	0.00	0
401	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Glass Door Reach-in Freezer; < 15 cubic feet	per freezer	ROB	12.0	12.0	$66.7	1602	0.18	0	0	0.00	0
402	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Glass Door Reach-in Freezer; ≥ 15 & < 30 cubic feet	per freezer	ROB	12.0	12.0	$113.3	3185	0.36	0	0	0.00	0
403	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Glass Door Reach-in Freezer; ≥ 30 & < 50 cubic feet	per freezer	ROB	12.0	12.0	$153.3	5147	0.59	0	0	0.00	0
404	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Glass Door Reach-in Freezer; ≥ 50 cubic feet	per freezer	ROB	12.0	12.0	$180.0	7450	0.85	0	0	0.00	0
405	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Reach-in Freezer; < 15 cubic feet	per freezer	ROB	12.0	12.0	$66.7	485	0.06	0	0	0.00	0
406	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Reach-in Freezer; ≥ 15 & < 30 cubic feet	per freezer	ROB	12.0	12.0	$100.0	1343	0.15	0	0	0.00	0
407	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Reach-in Freezer; ≥ 30 & < 50 cubic feet	per freezer	ROB	12.0	12.0	$133.3	2402	0.27	0	0	0.00	0
408	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Reach-in Freezer; ≥ 50 cubic feet	per freezer	ROB	12.0	12.0	$166.7	4183	0.48	0	0	0.00	0
409	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Glass Door Reach-in Refrigerator; < 15 cubic feet	per fridge	ROB	12.0	12.0	$73.3	725	0.08	0	0	0.00	0
410	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Glass Door Reach-in Refrigerator; ≥ 15 & < 30 cubic feet	per fridge	ROB	12.0	12.0	$73.3	672	0.08	0	0	0.00	0
411	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Glass Door Reach-in Refrigerator; ≥ 30 & < 50 cubic feet	per fridge	ROB	12.0	12.0	$73.3	734	0.08	0	0	0.00	0
412	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Glass Door Reach-in Refrigerator; ≥ 50 cubic feet	per fridge	ROB	12.0	12.0	$100.0	945	0.11	0	0	0.00	0
413	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Reach-in Refrigerator; < 15 cubic feet	per fridge	ROB	12.0	12.0	$26.7	453	0.05	0	0	0.00	0
414	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Reach-in Refrigerator; ≥ 15 & < 30 cubic feet	per fridge	ROB	12.0	12.0	$40.0	628	0.07	0	0	0.00	0
415	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Reach-in Refrigerator; ≥ 30 & < 50 cubic feet	per fridge	ROB	12.0	12.0	$66.7	982	0.11	0	0	0.00	0
416	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Reach-in Refrigerator; ≥ 50 cubic feet	per fridge	ROB	12.0	12.0	$133.3	1486	0.17	0	0	0.00	0
417	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Automatic Door Closer for Walk-In Coolers	per door	RET	8.0	8.0	$156.0	1625	0.22	0	0	0.00	0
418	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Automatic Door Closer for Walk-In Freezers	per door	RET	8.0	8.0	$156.0	1625	0.22	0	0	0.00	0
419	Non-Residential	Large Commercial	Warehouse	Refrigeration	High Speed Doors for Cold Storage Facilities	per sq. ft.	RET	12.0	12.0	$150.0	968	0.11	0	0	0.00	0
420	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Zero Energy Doors, Refrigerator	per door	RET	12.0	12.0	$290.0	1400	0.16	0	0	0.00	0

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Measure ID	Sector	Sub-Sector	Building Type	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost	Annual kWh Savings	Annual kW Coincident Peak Savings	Annual Gas Savings (Therms)	Annual kWh Increases	Annual kW Coincident Peak Increases	Annual Gas Therms Increase
421	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Strip Curtains for Walk-in Coolers	per sq. ft.	RET	4.0	4.0	$9.0	85	0.01	0	0	0.00	0
422	Non-Residential	Large Commercial	w/ Food Service	Refrigeration	Strip Curtains for Walk-in Freezers	per sq. ft.	RET	4.0	4.0	$9.0	454	0.05	0	0	0.00	0
423	Non-Residential	Large Commercial	All	Refrigeration	Vending Machine Controls - Non-Refrigerated	per controller	RET	5.0	5.0	$80.0	387	0.00	0	0	0.00	0
424	Non-Residential	Large Commercial	All	Refrigeration	Vending Machine Controls - Refrigerated	per controller	RET	5.0	5.0	$216.0	1612	0.00	0	0	0.00	0
425	Non-Residential	All	All	Service Hot Water	Low Flow Faucet Aerators - Electric Water Heater	per aerator	RET	10.0	10.0	$8.0	309	0.00	0	0	0.00	0
426	Non-Residential	All	All	Service Hot Water	Low Flow Faucet Aerators - Non-Electric Water Heater	per aerator	RET	10.0	10.0	$8.0	0	0.00	17	0	0.00	0
427	Non-Residential	All	All	Service Hot Water	Low Flow Showerheads - Electric Water Heater	per aerator	RET	10.0	10.0	$25.0	949	0.00	0	0	0.00	0
428	Non-Residential	All	All	Service Hot Water	Low Flow Showerheads - Non-Electric Water Heater	per aerator	RET	10.0	10.0	$25.0	0	0.00	52	0	0.00	0
429	Non-Residential	Small Commercial	Office	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	58	0.01	0	0	0.00	0
430	Non-Residential	Large Commercial	Office	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	485	0.08	0	0	0.00	0
431	Non-Residential	Small Commercial	Restaurant	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	3382	0.39	0	0	0.00	0
432	Non-Residential	Large Commercial	Restaurant	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	10050	1.15	0	0	0.00	0
433	Non-Residential	All	Retail/Service	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	37	0.00	0	0	0.00	0
434	Non-Residential	All	Grocery	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	49	0.01	0	0	0.00	0
435	Non-Residential	All	Warehouse	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	88	0.01	0	0	0.00	0
436	Non-Residential	Small Commercial	School (K-12)	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	98	0.02	0	0	0.00	0
437	Non-Residential	Large Commercial	School (K-12)	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	293	0.06	0	0	0.00	0
438	Non-Residential	All	Medical	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	960	0.11	0	0	0.00	0
439	Non-Residential	Small Commercial	Hotel/Motel	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	7975	0.91	0	0	0.00	0
440	Non-Residential	Large Commercial	Hotel/Motel	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	2456	0.28	0	0	0.00	0
441	Non-Residential	All	Miscellaneous	Service Hot Water	Electric Storage Water Heater; ≥ 20 gal & ≤ 55 gal	per heater	ROB	15.0	15.0	$719.9	15	0.00	0	0	0.00	0
442	Non-Residential	Small Commercial	Office	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	194	0.03	0	0	0.00	0
443	Non-Residential	Large Commercial	Office	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	1621	0.27	0	0	0.00	0
444	Non-Residential	Small Commercial	Restaurant	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	11301	1.29	0	0	0.00	0
445	Non-Residential	Large Commercial	Restaurant	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	33581	3.83	0	0	0.00	0
446	Non-Residential	All	Retail/Service	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	123	0.01	0	0	0.00	0
447	Non-Residential	All	Grocery	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	163	0.02	0	0	0.00	0
448	Non-Residential	All	Warehouse	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	293	0.05	0	0	0.00	0
449	Non-Residential	Small Commercial	School (K-12)	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	326	0.07	0	0	0.00	0
450	Non-Residential	Large Commercial	School (K-12)	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	979	0.20	0	0	0.00	0
451	Non-Residential	All	Medical	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	3206	0.37	0	0	0.00	0
452	Non-Residential	Small Commercial	Hotel/Motel	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	26647	3.04	0	0	0.00	0
453	Non-Residential	Large Commercial	Hotel/Motel	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	8207	0.94	0	0	0.00	0
454	Non-Residential	All	Miscellaneous	Service Hot Water	Electric Storage Water Heater; ≥ 55 gal & ≤ 120 gal	per heater	ROB	15.0	15.0	$1,028.4	50	0.01	0	0	0.00	0
455	Non-Residential	All	All	Service Hot Water	Electric Tankless Water Heater; 10 GPM	per heater	ROB	5.0	5.0	$1,050.0	7905	0.90	0	0	0.00	0
456	Non-Residential	All	All	Service Hot Water	Electric Tankless Water Heater; 15 GPM	per heater	ROB	5.0	5.0	$1,950.0	12879	1.47	0	0	0.00	0
457	Non-Residential	All	All	Service Hot Water	Electric Tankless Water Heater; 5 GPM	per heater	ROB	5.0	5.0	$310.0	2992	0.34	0	0	0.00	0
458	Non-Residential	All	All	Service Hot Water	Heat Pump Storage Water Heater	per heater	ROB	10.0	10.0	$653.8	1628	0.18	0	0	0.00	0
459	Non-Residential	Large Commercial	All	Lighting	Custom Lighting	per project	RET	11.0	11.0	$5,133.2	19042	5.62	0	0	0.00	0
460	Non-Residential	Large Commercial	All	Other	Custom Non-Lighting	per project	RET	16.3	16.25	$71,284.0	257567	34.89	0	0	0.00	0

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MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
1	Cool Roofs	0.02	0	0									
2	Cool Roofs	0.07	0	0									
3	Cool Roofs	0.04	0	0									
4	Cool Roofs	0.05	0	0									
5	Cool Roofs	0.05	0	0									
6	Cool Roofs	0.05	0	0									
7	Cool Roofs	0.05	0	0									
8	Commercial Door Air Infiltration-1/8 inches	0.90	0	1	19,216	6.0	100.0%	26%	40.0%	100.0%	49%	100.0%	5,751
9	Commercial Door Air Infiltration-1/4 inches	1.82	1	1	19,216	6.0	100.0%	26%	30.0%	100.0%	49%	100.0%	4,313
10	Commercial Door Air Infiltration-1/2 inches	3.63	1	1	19,216	6.0	100.0%	26%	20.0%	100.0%	49%	100.0%	2,876
11	Commercial Door Air Infiltration-3/4 inches	5.44	1	1	19,216	6.0	100.0%	26%	10.0%	100.0%	49%	100.0%	1,438
12	Air Infiltration Improvements	0.17	0	0									
13	Roof Deck Insulation	0.10	0	0									
14	Wall Insulation	2.49	1	1	33,489	2865.5	28.8%	100%	100.0%	100.0%	84%	100.0%	23,205,964
15	Window Awnings for East Facing Windows	0.03	0	0									
16	Window Film for East Facing Windows	1.68	1	1	33,489	429.8	28.8%	26%	100.0%	50.0%	49%	100.0%	258,377
17	Window Awnings for West Facing Windows	0.03	0	0									
18	Window Film for West Facing Windows	2.30	1	1	33,489	429.8	28.8%	26%	100.0%	50.0%	49%	100.0%	258,377
19	High-Efficiency Electric Combination Oven	7.11	1	1	52,705	1.0	27.6%	9%	100.0%	100.0%	41%	8.3%	45
20	High-Efficiency Electric Convection Oven	2.16	1	1	52,705	1.0	27.6%	64%	100.0%	100.0%	49%	8.3%	380
21	ENERGY STAR Dishwasher, Elec Heat, High Temp	5.37	1	1	52,705	1.0	27.6%	38%	50.0%	50.0%	33%	6.7%	30
22	ENERGY STAR Dishwasher, Elec Heat, Low Temp	27.81	1	1	52,705	1.0	27.6%	38%	50.0%	50.0%	33%	6.3%	28
23	High-Efficiency Electric Fryer	2.29	1	1	52,705	1.0	27.6%	45%	100.0%	100.0%	33%	8.3%	180
24	Electric Griddle	2.16	1	1	52,705	1.0	27.6%	36%	100.0%	100.0%	33%	8.3%	144
25	3/4 Size Insulated Hot Holding Cabinet	2.55	1	1	52,705	1.0	27.6%	12%	33.3%	100.0%	33%	8.3%	16
26	Full Size Insulated Hot Holding Cabinet	3.80	1	1	52,705	1.0	27.6%	12%	33.3%	100.0%	33%	8.3%	16
27	Half Size Insulated Hot Holding Cabinet	2.15	1	1	52,705	1.0	27.6%	12%	33.3%	100.0%	33%	8.3%	16
28	Low-Flow Pre-Rinse Spray Valves	39.85	1	1	52,705	1.0	27.6%	38%	100.0%	100.0%	33%	100.0%	1,806
29	Steam Cooker, 3 Pan	4.32	1	1	52,705	1.0	27.6%	21%	25.0%	100.0%	50%	8.3%	32
30	Steam Cooker, 4 Pan	4.65	1	1	52,705	1.0	27.6%	21%	25.0%	100.0%	50%	8.3%	32
31	Steam Cooker, 5 Pan	5.00	1	1	52,705	1.0	27.6%	21%	25.0%	100.0%	50%	8.3%	32
32	Steam Cooker, 6 Pan	5.35	1	1	52,705	1.0	27.6%	21%	25.0%	100.0%	50%	8.3%	32
33	Air Cooled Chiller, Single Speed w/ Condenser; < 150 tons, greater than 10.2EER	1.94	1	1	19,216	57.4	100.0%	25%	50.0%	36.4%	83%	5.0%	2,075
34	Air Cooled Chiller, Single Speed w/ Condenser; ≥ 150 tons, greater than 10.2EER	1.94	1	1	19,216	57.4	100.0%	25%	50.0%	29.5%	83%	5.0%	1,684
35	Air Cooled Chiller, VFD w/ Condenser; < 150 tons	1.98	1	1	19,216	57.4	100.0%	25%	50.0%	37.4%	83%	5.0%	2,134
36	Air Cooled Chiller, VFD w/ Condenser; ≥ 150 tons	1.98	1	1	19,216	57.4	100.0%	25%	50.0%	30.4%	83%	5.0%	1,731
37	Electronically Commutated Motors for HVAC Applications - SP Replacement	1.25	1	1	52,705	2.0	100.0%	89%	100.0%	100.0%	82%	100.0%	76,643
38	Electronically Commutated Motors for HVAC Applications - PSC Replacement	0.43	0	0									
39	Economizer Repair; AC/-	0.38	0	0									
40	Economizer Repair; AC/-	0.02	0	0									
41	Economizer Repair; AC/-	0.71	0	0									
42	Economizer Repair; AC/-	0.74	0	0									
43	Economizer Repair; AC/-	0.36	0	0									
44	Economizer Repair; AC/-	0.16	0	0									
45	Economizer Repair; AC/-	0.18	0	0									
46	Economizer Repair; AC/-	0.18	0	0									
47	Economizer Repair; AC/-	0.19	0	0									
48	Economizer Repair; AC/Gas	0.44	0	0									
49	Economizer Repair; AC/Gas	0.02	0	0									
50	Economizer Repair; AC/Gas	0.86	0	1	52,705	30.7	1.5%	12%	100.0%	100.0%	65%	100.0%	1,867
51	Economizer Repair; AC/Gas	1.05	1	1	52,705	11.0	2.1%	13%	100.0%	100.0%	65%	100.0%	1,034
52	Economizer Repair; AC/Gas	0.47	0	0									
53	Economizer Repair; AC/Gas	0.17	0	0									
54	Economizer Repair; AC/Gas	0.19	0	0									
55	Economizer Repair; AC/Gas	0.27	0	0									
56	Economizer Repair; AC/Gas	0.27	0	0									
57	Economizer Repair; HP	0.77	0	1	52,705	21.0	1.2%	44%	100.0%	100.0%	65%	100.0%	3,733
58	Economizer Repair; HP	0.04	0	0									
59	Economizer Repair; HP	1.09	1	1	52,705	30.7	1.5%	44%	100.0%	100.0%	65%	100.0%	6,969
60	Economizer Repair; HP	1.49	1	1	52,705	11.0	2.1%	58%	100.0%	100.0%	65%	100.0%	4,550
61	Economizer Repair; HP	0.69	0	1	52,705	11.1	27.2%	51%	100.0%	100.0%	65%	100.0%	52,648
62	Economizer Repair; HP	0.31	0	0									
63	Economizer Repair; HP	0.45	0	0									
64	Economizer Repair; HP	0.34	0	0									
65	Economizer Repair; HP	0.33	0	0									
66	Air-Source Heat Pump, Tier 1; < 5.4 tons, greater than 14.0 SEER & 11.6 EER	1.21	1	1	52,705	57.4	100.0%	22%	25.0%	37.6%	83%	6.7%	3,388
67	Air-Source Heat Pump, Tier 1;≥ 5.4 tons & < 20 tons, greater than 11.5 SEER & 1	12.55	1	1	52,705	57.4	100.0%	22%	25.0%	49.9%	83%	6.7%	4,489
68	Air-Source Heat Pump, Tier 1;≥ 20 tons & < 63.3 tons, greater than 10.3 SEER &	1.19	1	1	52,705	57.4	100.0%	22%	25.0%	37.6%	83%	6.7%	3,385
69	Air-Source Heat Pump, Tier 1;≥ 63.3 tons, greater than 10.2 SEER & 10.3 EER	0.96	0	1	52,705	57.4	100.0%	22%	25.0%	34.7%	83%	6.7%	3,123
70	Air-Source Heat Pump, Tier 2; < 5.4 tons, greater than 15.0 SEER & 12.0 EER	1.62	1	1	52,705	57.4	100.0%	22%	25.0%	62.4%	83%	6.7%	5,614
71	Air-Source Heat Pump, Tier 2;≥ 5.4 tons & < 20 tons, greater than 12.0 SEER & 1	13.08	1	1	52,705	57.4	100.0%	22%	25.0%	50.1%	83%	6.7%	4,514
72	Air-Source Heat Pump, Tier 2;≥ 20 tons & < 63.3 tons, greater than 10.3 SEER &	1.60	1	1	52,705	57.4	100.0%	22%	25.0%	62.4%	83%	6.7%	5,618
73	Air-Source Heat Pump, Tier 2;≥ 63.3 tons, greater than 9.7 SEER & 9.8 EER	1.28	1	1	52,705	57.4	100.0%	22%	25.0%	65.3%	83%	6.7%	5,880
74	Commercial Kitchen Demand Hood Controls	1.57	1	1	52,705	6.5	1.2%	30%	100.0%	100.0%	96%	100.0%	1,145
75	Commercial Kitchen Demand Hood Controls	3.47	1	1	52,705	6.5	1.5%	30%	100.0%	100.0%	96%	100.0%	1,464
76	Commercial Kitchen Demand Hood Controls	2.54	1	1	52,705	6.5	3.1%	69%	100.0%	100.0%	96%	100.0%	7,029
77	Commercial Kitchen Demand Hood Controls	1.13	1	1	52,705	6.5	3.6%	30%	100.0%	100.0%	96%	100.0%	3,497

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Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
78	Occupancy-Based PTAC/PTHP Controls	1.09	1	1	52,705	11400.0	1.5%	26%	100.0%	100.0%	99%	100.0%	1,141,051
79	Occupancy-Based PTAC/PTHP Controls	1.09	1	1	52,705	11400.0	1.5%	26%	100.0%	100.0%	99%	6.7%	76,070
80	Occupancy-Based PTAC/PTHP Controls	1.09	1	1	685	11400.0	1.5%	26%	100.0%	100.0%	99%	100.0%	29,667
81	Packaged Terminal AC; < 0.75 tons, greater than 14.0 EER	3.59	1	1	52,705	57.4	100.0%	10%	33.3%	73.5%	83%	6.7%	4,189
82	Packaged Terminal AC;≥ 0.75 tons & < 1.00 ton, greater than 14.0 EER	3.50	1	1	52,705	57.4	100.0%	10%	33.3%	74.4%	83%	6.7%	4,243
83	Packaged Terminal AC;≥ 1.00 ton, greater than 14.0 EER	1.38	1	1	52,705	57.4	100.0%	10%	33.3%	51.5%	83%	6.7%	2,938
84	Packaged Terminal HP; < 0.75 tons, greater than 11.8 EER	1.40	1	1	52,705	57.4	100.0%	5%	33.3%	26.5%	83%	6.7%	721
85	Packaged Terminal HP;≥ 0.75 tons & < 1.0, greater than 11.0 EER	1.33	1	1	52,705	57.4	100.0%	5%	33.3%	25.6%	83%	6.7%	696
86	Packaged Terminal HP;≥ 1.0, greater than 10.3 EER	1.34	1	1	52,705	57.4	100.0%	5%	33.3%	48.5%	83%	6.7%	1,319
87	Small Business Duct Efficiency Improvements - AC/Gas	9.39	1	1	33,489	1.0	28.8%	12%	100.0%	100.0%	52%	100.0%	582
88	Small Business Duct Efficiency Improvements - AC/ER	6.11	1	1	33,489	1.0	28.8%	13%	100.0%	100.0%	52%	100.0%	662
89	Small Business Duct Efficiency Improvements - HP	10.69	1	1	33,489	1.0	28.8%	38%	100.0%	100.0%	52%	100.0%	1,881
90	Small Business AC Tune-up; < 5.4 tons	1.73	1	1	33,489	45.4	100.0%	51%	31.3%	100.0%	100%	100.0%	243,486
91	Small Business AC Tune-up;≥ 5.4 tons & < 11.25 tons	1.86	1	1	33,489	45.4	100.0%	51%	36.6%	100.0%	100%	100.0%	284,520
92	Small Business AC Tune-up;≥ 11.25 tons	2.04	1	1	33,489	45.4	100.0%	51%	30.1%	100.0%	100%	100.0%	233,616
93	Small Business HP Tune-up; < 5.4 tons	3.89	1	1	33,489	45.4	100.0%	38%	31.3%	100.0%	100%	100.0%	178,709
94	Small Business HP Tune-up;≥ 5.4 tons & < 11.25 tons	3.44	1	1	33,489	45.4	100.0%	38%	36.6%	100.0%	100%	100.0%	208,826
95	Small Business HP Tune-up;≥ 11.25 tons	3.69	1	1	33,489	45.4	100.0%	38%	30.1%	100.0%	100%	100.0%	171,464
96	Small Business Smart T-stats , AC & ER Heat	7.64	1	1	33,489	45.4	100.0%	13%	100.0%	100.0%	97%	100.0%	195,372
97	Small Business Smart T-stats, AC & Gas Heat	7.77	1	1	33,489	45.4	100.0%	12%	100.0%	100.0%	97%	100.0%	171,489
98	Small Business Smart T-stats, HP	3.58	1	1	33,489	45.4	100.0%	38%	100.0%	100.0%	97%	100.0%	554,721
99	Split System, Tier 1; < 5.4 tons, greater than 14.0 SEER & 12.0 EER	1.15	1	1	52,705	57.4	100.0%	49%	25.0%	60.5%	83%	6.7%	12,412
100	Split System, Tier 1;≥ 5.4 tons & < 20 tons, greater than 11.5 SEER & 11.7 EER	0.28	0	0									
101	Split System, Tier 1;≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.3 EER	1.26	1	1	52,705	57.4	100.0%	49%	25.0%	27.8%	83%	6.7%	5,696
102	Split System, Tier 1;≥ 63.3 tons, greater than 10.2 SEER & 10.3 EER	1.46	1	1	52,705	57.4	100.0%	49%	25.0%	45.0%	83%	6.7%	9,233
103	Split System, Tier 2; < 5.4 tons, greater than 15.0 SEER & 12.5 EER	1.04	1	1	52,705	57.4	100.0%	49%	25.0%	39.5%	83%	6.7%	8,113
104	Split System, Tier 2;≥ 5.4 tons & < 20 tons, greater than 12.0 SEER & 12.2 EER	0.37	0	0									
105	Split System, Tier 2;≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.6 EER	2.45	1	1	52,705	57.4	100.0%	49%	25.0%	72.2%	83%	6.7%	14,828
106	Split System, Tier 2;≥ 63.3 tons, greater than 9.7 SEER & 9.8 EER	1.96	1	1	52,705	57.4	100.0%	49%	25.0%	55.0%	83%	6.7%	11,292
107	Unitary AC, Tier 1; < 5.4 tons, greater than 14.0 SEER & 11.6 EER	1.15	1	1	52,705	57.4	100.0%	6%	25.0%	50.0%	83%	6.7%	1,260
108	Unitary AC, Tier 1;≥ 5.4 tons & < 20 tons, greater than 11.5 SEER & 11.7 EER	0.28	0	0									
109	Unitary AC, Tier 1;≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.3 EER	1.26	1	1	52,705	57.4	100.0%	6%	25.0%	27.8%	83%	6.7%	699
110	Unitary AC, Tier 1;≥ 63.3 tons, greater than 10.2 SEER & 10.3 EER	1.46	1	1	52,705	57.4	100.0%	6%	25.0%	51.1%	83%	6.7%	1,288
111	Unitary AC, Tier 2; < 5.4 tons, greater than 15.0 SEER & 12.0 EER	1.15	1	1	52,705	57.4	100.0%	6%	25.0%	50.0%	83%	6.7%	1,260
112	Unitary AC, Tier 2;≥ 5.4 tons & < 20 tons, greater than 12.0 SEER & 12.2 EER	0.37	0	0									
113	Unitary AC, Tier 2;≥ 20 tons & < 63.3 tons, greater than 10.3 SEER & 10.6 EER	2.45	1	1	52,705	57.4	100.0%	6%	25.0%	72.2%	83%	6.7%	1,820
114	Unitary AC, Tier 2;≥ 63.3 tons, greater than 9.7 SEER & 9.8 EER	1.42	1	1	52,705	57.4	100.0%	6%	25.0%	48.9%	83%	6.7%	1,231
115	Ventilation Fan, Retrofit; 36-47"	0.48	0	0									
116	Ventilation Fan, Retrofit; 48-61"	0.76	0	1	1,138	1.0	42.4%	100%	100.0%	100.0%	100%	100.0%	483
117	VFD Fan	2.94	1	1	52,705	2.3	2.1%	0%	100.0%	100.0%	0%	10.0%	0
118	VFD Fan	1.34	1	1	52,705	2.3	27.2%	21%	100.0%	100.0%	100%	10.0%	663
119	VFD Fan	2.16	1	1	52,705	2.3	3.1%	91%	100.0%	100.0%	100%	10.0%	333
120	VFD Fan	1.73	1	1	52,705	2.3	5.3%	24%	100.0%	100.0%	96%	10.0%	147
121	VFD Fan	1.30	1	1	52,705	2.3	3.6%	21%	100.0%	100.0%	52%	10.0%	47
122	VFD Fan	1.66	1	1	52,705	2.3	0.8%	21%	100.0%	100.0%	52%	10.0%	11
123	VFD Pump, Chilled Water	4.82	1	1	52,705	2.3	2.1%	50%	100.0%	100.0%	0%	10.0%	0
124	VFD Pump, Chilled Water	2.21	1	1	52,705	2.3	27.2%	79%	100.0%	100.0%	100%	10.0%	2,561
125	VFD Pump, Chilled Water	3.55	1	1	52,705	2.3	3.1%	18%	100.0%	100.0%	100%	10.0%	68
126	VFD Pump, Chilled Water	2.86	1	1	52,705	2.3	5.3%	4%	100.0%	100.0%	96%	10.0%	23
127	VFD Pump, Chilled Water	2.15	1	1	52,705	2.3	3.6%	51%	100.0%	100.0%	52%	10.0%	113
128	VFD Pump, Chilled Water	2.73	1	1	52,705	2.3	0.8%	51%	100.0%	100.0%	52%	10.0%	26
129	VFD Pump, Hot Water	4.04	1	1	52,705	2.3	2.1%	50%	100.0%	100.0%	0%	10.0%	0
130	VFD Pump, Hot Water	1.35	1	1	52,705	2.3	27.2%	79%	100.0%	100.0%	100%	10.0%	2,561
131	VFD Pump, Hot Water	2.74	1	1	52,705	2.3	3.1%	18%	100.0%	100.0%	100%	10.0%	68
132	VFD Pump, Hot Water	2.02	1	1	52,705	2.3	5.3%	4%	100.0%	100.0%	96%	10.0%	23
133	VFD Pump, Hot Water	1.30	1	1	52,705	2.3	3.6%	51%	100.0%	100.0%	52%	10.0%	113
134	VFD Pump, Hot Water	1.90	1	1	52,705	2.3	0.8%	51%	100.0%	100.0%	52%	10.0%	26
135	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	3.70	1	1	52,705	21.0	1.2%	82%	100.0%	100.0%	83%	6.7%	587
136	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	3.70	1	1	52,705	39.5	0.9%	90%	100.0%	100.0%	83%	6.7%	963
137	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	2.53	1	1	52,705	38.3	1.5%	82%	100.0%	100.0%	83%	6.7%	1,365
138	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	3.98	1	1	52,705	21.0	3.6%	82%	100.0%	100.0%	83%	6.7%	1,792
139	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	3.75	1	1	52,705	11.0	2.1%	100%	100.0%	100.0%	83%	6.7%	665
140	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	3.53	1	1	52,705	12.3	27.2%	93%	100.0%	100.0%	83%	6.7%	9,095
141	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	3.33	1	1	52,705	19.1	3.1%	100%	100.0%	100.0%	83%	6.7%	1,724
142	Variable Refrigerant Flow HVAC; 10% greater than baseline efficiency	3.96	1	1	52,705	10.4	5.3%	90%	100.0%	100.0%	83%	6.7%	1,467
143	Water Cooled Centrifugal Chiller, Single Speed; < 300 tons, greater than 0.59 kW	0.44	0	0									
144	Water Cooled Centrifugal Chiller, Single Speed≥ 300 & < 600 tons, greater than 0	0.52	0	1	19,216	57.4	100.0%	25%	33.3%	0.4%	83%	5.0%	15
145	Water Cooled Centrifugal Chiller, Single Speed≥ 600 tons, greater than 0.55 kW/t	1.40	1	1	19,216	57.4	100.0%	25%	33.3%	47.3%	83%	5.0%	1,799
146	Water Cooled Chiller, Single Speed; < 150 tons, greater than 0.71 kW/ton & 0.56	0.41	0	0									
147	Water Cooled Chiller, Single Speed≥ 150 & < 300 tons, greater than 0.58 kW/ton	1.86	1	1	19,216	57.4	100.0%	25%	33.3%	19.7%	83%	5.0%	748
148	Water Cooled Chiller, Single Speed≥ 300 tons, greater than 0.56 kW/ton & 0.47 I	6.00	1	1	19,216	57.4	100.0%	25%	33.3%	44.4%	83%	5.0%	1,689
149	Water Cooled Centrifugal Chiller, VFD; < 300 tons, greater than 0.59 kW/ton & 0.4	0.79	0	1	19,216	57.4	100.0%	25%	33.3%	100.0%	83%	5.0%	3,802
150	Water Cooled Centrifugal Chiller, VFD≥ 300 & < 600 tons, greater than 0.58 kW/t	1.53	1	1	19,216	57.4	100.0%	25%	33.3%	21.7%	83%	5.0%	827
151	Water Cooled Centrifugal Chiller, VFD≥ 600 tons, greater than 0.57 kW/ton & 0.3	1.23	1	1	19,216	57.4	100.0%	25%	33.3%	52.7%	83%	5.0%	2,003
152	Water Cooled Chiller, VFD; < 150 tons, greater than 0.73 kW/ton & 0.54 IPLV	1.63	1	1	19,216	57.4	100.0%	25%	33.3%	26.2%	83%	5.0%	996
153	Water Cooled Chiller, VFD;≥ 150 & < 300 tons, greater than 0.61 kW/ton & 0.44 I	1.41	1	1	19,216	57.4	100.0%	25%	33.3%	20.5%	83%	5.0%	778
154	Water Cooled Chiller, VFD;≥ 300 tons, greater than 0.58 kW/ton & 0.44 IPLV	1.46	1	1	19,216	57.4	100.0%	25%	33.3%	33.4%	83%	5.0%	1,271

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Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
155	LED Tube 4' 2 lamp Egg collection	3.62	1	1	1,138	2.0	32.1%	100%	100.0%	100.0%	100%	100.0%	730
156	LED Tube 8' 2 lamp Egg collection	1.87	1	1	1,138	2.0	32.1%	100%	100.0%	100.0%	100%	100.0%	730
157	LED Tube 8' 2 lamp Egg storage (24hr)	2.79	1	1	1,138	2.0	32.1%	100%	100.0%	100.0%	100%	100.0%	730
158	LED Pin-based Replacement Lamps	4.10	1	1	19,216	14.9	2.6%	100%	56.5%	100.0%	57%	100.0%	2,424
159	LED Pin-based Replacement Lamps	5.45	1	1	19,216	14.9	1.2%	100%	56.5%	100.0%	57%	100.0%	1,113
160	LED Pin-based Replacement Lamps	4.50	1	1	19,216	14.9	2.9%	100%	56.5%	100.0%	57%	100.0%	2,697
161	LED Pin-based Replacement Lamps	4.62	1	1	19,216	14.9	3.2%	100%	56.5%	100.0%	72%	100.0%	3,750
162	LED Pin-based Replacement Lamps	4.78	1	1	19,216	14.9	25.1%	100%	56.5%	100.0%	57%	100.0%	23,134
163	LED Pin-based Replacement Lamps	4.28	1	1	19,216	14.9	45.5%	100%	56.5%	100.0%	50%	100.0%	36,878
164	LED Pin-based Replacement Lamps	5.04	1	1	19,216	14.9	4.0%	100%	56.5%	100.0%	53%	100.0%	3,397
165	LED Pin-based Replacement Lamps	4.69	1	1	19,216	14.9	7.1%	100%	56.5%	100.0%	65%	100.0%	7,426
166	LED Pin-based Replacement Lamps	3.46	1	1	19,216	14.9	6.3%	100%	56.5%	100.0%	57%	100.0%	5,817
167	LED Pin-based Replacement Lamps	4.28	1	1	19,216	14.9	2.1%	100%	56.5%	100.0%	57%	100.0%	1,915
168	LED Screw-Base Replacement for HID Lamps	4.10	1	1	19,216	16.0	2.6%	8%	100.0%	100.0%	57%	100.0%	365
169	LED Screw-Base Replacement for HID Lamps	5.45	1	1	19,216	320.8	1.2%	8%	100.0%	100.0%	57%	100.0%	3,359
170	LED Screw-Base Replacement for HID Lamps	4.50	1	1	19,216	1067.2	2.9%	8%	100.0%	100.0%	57%	100.0%	27,071
171	LED Screw-Base Replacement for HID Lamps	4.62	1	1	19,216	166.0	3.2%	3%	100.0%	100.0%	72%	100.0%	2,210
172	LED Screw-Base Replacement for HID Lamps	4.78	1	1	19,216	7.0	25.1%	8%	100.0%	100.0%	57%	100.0%	1,523
173	LED Screw-Base Replacement for HID Lamps	4.28	1	1	19,216	30.5	45.5%	2%	100.0%	100.0%	50%	100.0%	2,992
174	LED Screw-Base Replacement for HID Lamps	5.04	1	1	19,216	48.7	4.0%	3%	100.0%	100.0%	53%	100.0%	686
175	LED Screw-Base Replacement for HID Lamps	4.69	1	1	19,216	320.8	7.1%	1%	100.0%	100.0%	65%	100.0%	3,734
176	LED Screw-Base Replacement for HID Lamps	3.46	1	1	19,216	14.0	6.3%	8%	100.0%	100.0%	57%	100.0%	766
177	LED Screw-Base Replacement for HID Lamps	4.28	1	1	19,216	4.0	2.1%	8%	100.0%	100.0%	57%	100.0%	72
178	Small Business LED Screw-ins	2.25	1	1	33,489	21.4	1.4%	100%	100.0%	100.0%	59%	11.1%	664
179	Small Business LED Screw-ins	2.10	1	1	33,489	21.4	71.1%	100%	100.0%	100.0%	59%	11.1%	33,692
180	Small Business LED Screw-ins	2.57	1	1	33,489	21.4	16.7%	100%	100.0%	100.0%	59%	11.1%	7,911
181	Small Business LED Screw-ins	2.13	1	1	33,489	21.4	2.6%	100%	100.0%	100.0%	59%	11.1%	1,228
182	Small Business LED Screw-ins	2.69	1	1	33,489	21.4	4.4%	100%	100.0%	100.0%	59%	11.1%	2,063
183	Small Business LED Screw-ins	2.38	1	1	33,489	21.4	2.0%	100%	100.0%	100.0%	59%	11.1%	943
184	Small Business LED Screw-ins	2.05	1	1	33,489	21.4	0.1%	100%	100.0%	100.0%	59%	11.1%	59
185	T-LED Replacement Lamps/Tubes	2.01	1	1	19,216	32.0	2.6%	90%	100.0%	100.0%	87%	100.0%	12,762
186	T-LED Replacement Lamps/Tubes	2.56	1	1	19,216	467.3	1.2%	90%	100.0%	100.0%	87%	100.0%	85,620
187	T-LED Replacement Lamps/Tubes	2.17	1	1	19,216	216.4	2.9%	90%	100.0%	100.0%	87%	100.0%	96,041
188	T-LED Replacement Lamps/Tubes	2.22	1	1	19,216	826.0	3.2%	98%	100.0%	100.0%	95%	100.0%	476,491
189	T-LED Replacement Lamps/Tubes	2.28	1	1	19,216	764.0	25.1%	90%	100.0%	100.0%	87%	100.0%	2,908,181
190	T-LED Replacement Lamps/Tubes	2.08	1	1	19,216	366.9	45.5%	88%	100.0%	100.0%	81%	100.0%	2,291,282
191	T-LED Replacement Lamps/Tubes	2.39	1	1	19,216	75.6	4.0%	95%	100.0%	100.0%	86%	100.0%	47,016
192	T-LED Replacement Lamps/Tubes	2.24	1	1	19,216	246.0	7.1%	92%	100.0%	100.0%	80%	100.0%	247,876
193	T-LED Replacement Lamps/Tubes	1.75	1	1	19,216	1969.0	6.3%	90%	100.0%	100.0%	87%	100.0%	1,884,562
194	T-LED Replacement Lamps/Tubes	2.08	1	1	19,216	447.0	2.1%	90%	100.0%	100.0%	87%	100.0%	140,845
195	LED Exterior Fixtures	1.64	1	1	19,216	28.0	2.6%	77%	100.0%	100.0%	57%	100.0%	6,239
196	LED Exterior Fixtures	2.11	1	1	19,216	28.0	1.2%	77%	100.0%	100.0%	57%	100.0%	2,866
197	LED Exterior Fixtures	1.78	1	1	19,216	79.0	2.9%	77%	100.0%	100.0%	57%	100.0%	19,589
198	LED Exterior Fixtures	1.82	1	1	19,216	21.0	3.2%	53%	100.0%	100.0%	72%	100.0%	4,939
199	LED Exterior Fixtures	1.88	1	1	19,216	8.2	25.1%	77%	100.0%	100.0%	57%	100.0%	17,439
200	LED Exterior Fixtures	1.70	1	1	19,216	8.5	45.5%	68%	100.0%	100.0%	50%	100.0%	25,247
201	LED Exterior Fixtures	1.97	1	1	19,216	7.0	4.0%	68%	100.0%	100.0%	53%	100.0%	1,917
202	LED Exterior Fixtures	1.84	1	1	19,216	22.7	7.1%	63%	100.0%	100.0%	65%	100.0%	12,589
203	LED Exterior Fixtures	1.41	1	1	19,216	8.2	6.3%	77%	100.0%	100.0%	57%	100.0%	4,385
204	LED Exterior Fixtures	1.70	1	1	19,216	4.7	2.1%	77%	100.0%	100.0%	57%	100.0%	827
205	Small Business LED Exterior Lights	1.60	1	1	33,489	5.8	0.8%	69%	100.0%	100.0%	59%	7.7%	47
206	Small Business LED Exterior Lights	1.40	1	1	33,489	2.5	1.4%	69%	100.0%	100.0%	59%	7.7%	37
207	Small Business LED Exterior Lights	1.75	1	1	33,489	9.4	71.1%	69%	100.0%	100.0%	59%	7.7%	7,063
208	Small Business LED Exterior Lights	1.63	1	1	33,489	2.2	16.7%	69%	100.0%	100.0%	59%	7.7%	395
209	Small Business LED Exterior Lights	1.59	1	1	33,489	4.1	2.6%	69%	100.0%	100.0%	59%	7.7%	114
210	Small Business LED Exterior Lights	1.63	1	1	33,489	1.9	4.4%	69%	100.0%	100.0%	59%	7.7%	88
211	Small Business LED Exterior Lights	1.78	1	1	33,489	1.5	2.0%	69%	100.0%	100.0%	59%	7.7%	32
212	Small Business LED Exterior Lights	1.83	1	1	33,489	2.3	0.1%	69%	100.0%	100.0%	59%	7.7%	3
213	LED Downlight or Pendant Fixture	11.50	1	1	19,216	57.0	2.6%	100%	43.5%	100.0%	57%	100.0%	7,132
214	LED Downlight or Pendant Fixture	13.76	1	1	19,216	12.0	1.2%	100%	43.5%	100.0%	57%	100.0%	690
215	LED Downlight or Pendant Fixture	12.16	1	1	19,216	172.3	2.9%	100%	43.5%	100.0%	57%	100.0%	23,993
216	LED Downlight or Pendant Fixture	12.36	1	1	19,216	34.0	3.2%	100%	43.5%	100.0%	72%	100.0%	6,582
217	LED Downlight or Pendant Fixture	12.63	1	1	19,216	12.0	25.1%	100%	43.5%	100.0%	57%	100.0%	14,332
218	LED Downlight or Pendant Fixture	11.78	1	1	19,216	12.0	45.5%	100%	43.5%	100.0%	50%	100.0%	22,846
219	LED Downlight or Pendant Fixture	13.06	1	1	19,216	12.0	4.0%	100%	43.5%	100.0%	53%	100.0%	2,104
220	LED Downlight or Pendant Fixture	12.47	1	1	19,216	8.0	7.1%	100%	43.5%	100.0%	65%	100.0%	3,067
221	LED Downlight or Pendant Fixture	10.43	1	1	19,216	57.0	6.3%	100%	43.5%	100.0%	57%	100.0%	17,118
222	LED Downlight or Pendant Fixture	11.79	1	1	19,216	12.0	2.1%	100%	43.5%	100.0%	57%	100.0%	1,186
223	LED High-Bay Fixture	3.34	1	1	19,216	56.0	2.6%	90%	36.1%	100.0%	87%	100.0%	8,055
224	LED High-Bay Fixture	4.35	1	1	19,216	150.8	1.2%	90%	36.1%	100.0%	87%	100.0%	9,965
225	LED High-Bay Fixture	3.64	1	1	19,216	28.0	2.9%	90%	36.1%	100.0%	87%	100.0%	4,482
226	LED High-Bay Fixture	3.73	1	1	19,216	237.0	3.2%	98%	2.1%	100.0%	95%	100.0%	2,846
227	LED High-Bay Fixture	3.85	1	1	19,216	28.0	25.1%	90%	36.1%	100.0%	87%	100.0%	38,439
228	LED High-Bay Fixture	3.47	1	1	19,216	14.0	45.5%	88%	12.4%	100.0%	81%	100.0%	10,811
229	LED High-Bay Fixture	4.04	1	1	19,216	28.0	4.0%	95%	7.4%	100.0%	86%	100.0%	1,287
230	LED High-Bay Fixture	3.78	1	1	19,216	26.0	7.1%	92%	9.4%	100.0%	80%	100.0%	2,459

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Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
231	LED High-Bay Fixture	2.86	1	1	19,216	56.0	6.3%	90%	36.1%	100.0%	87%	100.0%	19,331
232	LED High-Bay Fixture	3.47	1	1	19,216	54.7	2.1%	90%	36.1%	100.0%	87%	100.0%	6,216
233	LED Troffer or Panel Fixture	3.60	1	1	19,216	120.0	2.6%	90%	63.9%	100.0%	87%	100.0%	30,596
234	LED Troffer or Panel Fixture	4.12	1	1	19,216	92.4	1.2%	90%	63.9%	100.0%	87%	100.0%	10,823
235	LED Troffer or Panel Fixture	3.75	1	1	19,216	3.5	2.9%	90%	63.9%	100.0%	87%	100.0%	993
236	LED Troffer or Panel Fixture	3.80	1	1	19,216	29.0	3.2%	98%	97.9%	100.0%	95%	100.0%	16,380
237	LED Troffer or Panel Fixture	3.86	1	1	19,216	74.3	25.1%	90%	63.9%	100.0%	87%	100.0%	180,811
238	LED Troffer or Panel Fixture	3.67	1	1	19,216	27.9	45.5%	88%	87.6%	100.0%	81%	100.0%	152,674
239	LED Troffer or Panel Fixture	3.96	1	1	19,216	31.3	4.0%	95%	92.6%	100.0%	86%	100.0%	18,036
240	LED Troffer or Panel Fixture	3.82	1	1	19,216	150.0	7.1%	92%	90.6%	100.0%	80%	100.0%	136,954
241	LED Troffer or Panel Fixture	3.36	1	1	19,216	29.5	6.3%	90%	63.9%	100.0%	87%	100.0%	18,051
242	LED Troffer or Panel Fixture	3.67	1	1	19,216	51.5	2.1%	90%	63.9%	100.0%	87%	100.0%	10,375
243	4,800 Lumens LED Open Type	2.67	1	1	54,146	1.0	100.0%	100%	2.7%	100.0%	100%	100.0%	1,442
244	4,800 Lumens LED Open Type	3.17	1	1	54,146	1.0	100.0%	100%	3.0%	100.0%	100%	100.0%	1,640
245	ATB0 grey 108w	3.74	1	1	54,146	1.0	100.0%	100%	45.1%	100.0%	100%	100.0%	24,424
246	ATB0 grey 108w	3.34	1	1	54,146	1.0	100.0%	100%	24.1%	100.0%	100%	100.0%	13,047
247	ATB0 grey 72w	1.99	1	1	54,146	1.0	100.0%	100%	1.0%	100.0%	100%	100.0%	529
248	ATB0 grey 72w	2.59	1	1	54,146	1.0	100.0%	100%	0.6%	100.0%	100%	100.0%	341
249	ATB0 grey 72w	2.47	1	1	54,146	1.0	100.0%	100%	5.1%	100.0%	100%	100.0%	2,765
250	ATB2 grey 216w	2.68	1	1	54,146	1.0	100.0%	100%	2.2%	100.0%	100%	100.0%	1,213
251	ATB2 grey 216w	2.80	1	1	54,146	1.0	100.0%	100%	2.9%	100.0%	100%	100.0%	1,552
252	ATB2 grey 216w	2.99	1	1	54,146	1.0	100.0%	100%	9.3%	100.0%	100%	100.0%	5,026
253	ATB2 grey 216w	2.84	1	1	54,146	1.0	100.0%	100%	4.0%	100.0%	100%	100.0%	2,167
254	Daylight Control/Harvesting (On/Off)	1.50	1	1	19,216	154.0	2.6%	100%	100.0%	100.0%	28%	100.0%	21,721
255	Daylight Control/Harvesting (On/Off)	2.31	1	1	19,216	7.5	1.2%	100%	100.0%	100.0%	28%	100.0%	486
256	Daylight Control/Harvesting (On/Off)	1.48	1	1	19,216	28.5	2.9%	100%	100.0%	100.0%	28%	100.0%	4,474
257	Daylight Control/Harvesting (On/Off)	1.79	1	1	19,216	28.5	3.2%	100%	100.0%	100.0%	35%	100.0%	6,277
258	Daylight Control/Harvesting (On/Off)	1.82	1	1	19,216	28.5	25.1%	100%	100.0%	100.0%	28%	100.0%	38,367
259	Daylight Control/Harvesting (On/Off)	1.65	1	1	19,216	17.5	45.5%	100%	100.0%	100.0%	37%	100.0%	56,084
260	Daylight Control/Harvesting (On/Off)	1.99	1	1	19,216	7.5	4.0%	100%	100.0%	100.0%	31%	100.0%	1,745
261	Daylight Control/Harvesting (On/Off)	1.97	1	1	19,216	7.5	7.1%	100%	100.0%	100.0%	44%	100.0%	4,538
262	Daylight Control/Harvesting (On/Off)	1.00	1	1	19,216	154.0	6.3%	100%	100.0%	100.0%	28%	100.0%	52,131
263	Daylight Control/Harvesting (On/Off)	1.69	1	1	19,216	28.5	2.1%	100%	100.0%	100.0%	28%	100.0%	3,176
264	Daylight Harvesting (Dimming)	0.42	0	0									
265	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.60	0	0									
266	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.92	0	0									
267	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.59	0	0									
268	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.72	0	0									
269	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.73	0	0									
270	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.66	0	0									
271	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.80	0	0									
272	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.79	0	0									
273	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.40	0	0									
274	Occupancy Sensor: Ceiling/Wall Mount (Remote)	0.68	0	0									
275	Occupancy Sensor: Fixture Mounted (High Bay)	0.38	0	0									
276	Occupancy Sensor: Fixture Mounted (High Bay)	0.58	0	0									
277	Occupancy Sensor: Fixture Mounted (High Bay)	0.37	0	0									
278	Occupancy Sensor: Fixture Mounted (High Bay)	0.45	0	0									
279	Occupancy Sensor: Fixture Mounted (High Bay)	0.46	0	0									
280	Occupancy Sensor: Fixture Mounted (High Bay)	0.41	0	0									
281	Occupancy Sensor: Fixture Mounted (High Bay)	0.50	0	0									
282	Occupancy Sensor: Fixture Mounted (High Bay)	0.49	0	0									
283	Occupancy Sensor: Fixture Mounted (High Bay)	0.25	0	0									
284	Occupancy Sensor: Fixture Mounted (High Bay)	0.42	0	0									
285	Occupancy Sensor: Wall Switch Replacement	0.46	0	0									
286	Occupancy Sensor: Wall Switch Replacement	0.70	0	0									
287	Occupancy Sensor: Wall Switch Replacement	0.45	0	0									
288	Occupancy Sensor: Wall Switch Replacement	0.55	0	0									
289	Occupancy Sensor: Wall Switch Replacement	0.56	0	0									
290	Occupancy Sensor: Wall Switch Replacement	0.50	0	0									
291	Occupancy Sensor: Wall Switch Replacement	0.61	0	0									
292	Occupancy Sensor: Wall Switch Replacement	0.60	0	0									
293	Occupancy Sensor: Wall Switch Replacement	0.31	0	0									
294	Occupancy Sensor: Wall Switch Replacement	0.52	0	0									
295	Small Business Occupancy Sensor	0.19	0	0									
296	Lighting Density Reduction, Building Method	0.12	0	0									
297	Lighting Density Reduction, Building Method	0.24	0	0									
298	Lighting Density Reduction, Building Method	0.15	0	0									
299	Lighting Density Reduction, Building Method	0.16	0	0									
300	Lighting Density Reduction, Building Method	0.15	0	0									
301	Lighting Density Reduction, Building Method	0.17	0	0									
302	Lighting Density Reduction, Building Method	0.20	0	0									
303	Lighting Density Reduction, Building Method	0.17	0	0									
304	Lighting Density Reduction, Building Method	0.09	0	0									
305	Lighting Density Reduction, Building Method	0.08	0	0									
306	Lighting Density Reduction, Space Method	0.12	0	0									
307	Lighting Density Reduction, Space Method	0.29	0	0									
308	Outdoor Lighting	2.66	1	1	1,138	1.0	42.4%	100%	100.0%	100.0%	100%	100.0%	483

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SOUTH DAKOTA PUBLIC UTILITIES COMMISSION
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Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
309	A19 LED Poultry	12.53	1	1	1,138	244.0	32.1%	100%	100.0%	100.0%	100%	100.0%	89,060
310	Small Business Abandoned Fluorescent	4.49	1	1	33,489	25.8	1.4%	38%	100.0%	100.0%	100%	18.2%	832
311	Small Business Abandoned Fluorescent	7.86	1	1	33,489	25.8	71.1%	38%	100.0%	100.0%	100%	18.2%	42,207
312	Small Business Abandoned Fluorescent	5.15	1	1	33,489	25.8	16.7%	38%	100.0%	100.0%	100%	18.2%	9,911
313	Small Business Abandoned Fluorescent	8.01	1	1	33,489	25.8	4.4%	38%	100.0%	100.0%	100%	18.2%	2,585
314	Small Business Abandoned Fluorescent	4.62	1	1	33,489	25.8	0.1%	38%	100.0%	100.0%	100%	18.2%	74
315	Small Business Abandoned HID	12.16	1	1	33,489	3.9	0.1%	3%	100.0%	100.0%	100%	18.2%	1
316	LED Exit Signs	2.36	1	1	19,216	6.7	2.6%	100%	100.0%	100.0%	56%	100.0%	1,906
317	LED Exit Signs	2.51	1	1	19,216	6.7	1.2%	100%	100.0%	100.0%	56%	100.0%	876
318	LED Exit Signs	2.27	1	1	19,216	6.7	2.9%	100%	100.0%	100.0%	56%	100.0%	2,121
319	LED Exit Signs	2.41	1	1	19,216	7.7	3.2%	100%	100.0%	100.0%	42%	100.0%	2,004
320	LED Exit Signs	2.39	1	1	19,216	6.7	25.1%	100%	100.0%	100.0%	56%	100.0%	18,193
321	LED Exit Signs	2.40	1	1	19,216	6.3	45.5%	100%	100.0%	100.0%	55%	100.0%	30,099
322	LED Exit Signs	2.43	1	1	19,216	2.6	4.0%	100%	100.0%	100.0%	56%	100.0%	1,118
323	LED Exit Signs	2.49	1	1	19,216	3.4	7.1%	100%	100.0%	100.0%	69%	100.0%	3,228
324	LED Exit Signs	2.23	1	1	19,216	6.7	6.3%	100%	100.0%	100.0%	56%	100.0%	4,575
325	LED Exit Signs	2.42	1	1	19,216	6.7	2.1%	100%	100.0%	100.0%	56%	100.0%	1,506
326	Small Business LED Exit Signs	0.87	0	1	33,489	2.5	16.7%	100%	100.0%	100.0%	55%	100.0%	7,686
327	Small Business LED Exit Signs	0.84	0	1	33,489	1.0	2.6%	100%	100.0%	100.0%	56%	100.0%	486
328	Small Business LED Exit Signs	0.88	0	1	33,489	2.4	4.4%	100%	100.0%	100.0%	69%	100.0%	2,414
329	Small Business LED Exit Signs	0.87	0	1	33,489	3.0	2.0%	100%	100.0%	100.0%	56%	100.0%	1,119
330	Small Business LED Exit Signs	0.83	0	1	33,489	2.2	0.1%	100%	100.0%	100.0%	56%	100.0%	52
331	Solar Light Tubes	0.26	0	0									
332	Solar Light Tubes	0.35	0	0									
333	Solar Light Tubes	0.63	0	0									
334	Solar Light Tubes	0.47	0	0									
335	Solar Light Tubes	0.58	0	0									
336	Solar Light Tubes	0.38	0	0									
337	Solar Light Tubes	0.47	0	0									
338	Solar Light Tubes	0.43	0	0									
339	Solar Light Tubes	0.42	0	0									
340	A19 LED Swine	10.83	1	1	1,138	538.0	1.7%	100%	100.0%	100.0%	100%	100.0%	10,222
341	Power Strip with Occupancy Sensor	0.12	0	0									
342	Computer Power Management - Monitor	2.01	1	1	52,705	17.3	27.2%	93%	80.0%	100.0%	99%	100.0%	182,098
343	Computer Power Management - Desktop	4.27	1	1	52,705	17.3	27.2%	93%	40.0%	100.0%	99%	100.0%	91,049
344	Computer Power Management - Laptop	1.23	1	1	52,705	17.3	27.2%	93%	60.0%	100.0%	99%	100.0%	136,573
345	Compressed Air Controller, Pressure/Flow Controller; >15 HP	0.43	0	0									
346	Compressed Air Controller, Pressure/Flow Controller≤ 15 HP	0.37	0	0									
347	VFD Air Compressors; > 15 HP	0.61	0	0									
348	VFD Air Compressors; ≤ 15 HP	0.45	0	0									
349	Commercial Clothes Dryer Moisture Sensor	4.32	1	1	52,705	4.6	100.0%	21%	100.0%	100.0%	60%	100.0%	30,941
350	Clothes Washers - Electric Water Heater	0.32	0	0									
351	Clothes Washers - Heat Pump Water Heater	0.32	0	0									
352	Clothes Washers - Non-Electric Water Heater	0.32	0	0									
353	Large Commercial Building 10% better than applicable code	1.76	1	1	250	1.0	100.0%	100%	100.0%	100.0%	100%	100.0%	250
354	Small Commercial Building 10% better than applicable code	1.76	1	1	435	1.0	100.0%	100%	100.0%	100.0%	100%	100.0%	435
355	Large Commercial Building Retro-Commissioning	2.04	1	1	52,705	1.0	100.0%	100%	100.0%	50.0%	83%	100.0%	21,873
356	Small Commercial Building Retro-Commissioning	1.72	1	1	52,705	1.0	100.0%	100%	100.0%	50.0%	83%	100.0%	21,873
357	Energy Management System	1.28	1	1	52,705	1.0	1.5%	2%	100.0%	100.0%	84%	100.0%	13
358	Energy Management System	1.39	1	1	52,705	1.0	27.2%	2%	100.0%	100.0%	84%	100.0%	241
359	Energy Management System	1.08	1	1	52,705	1.0	5.3%	2%	100.0%	100.0%	84%	100.0%	47
360	EndSuction Pump 0.75 HP	0.75	0	1	1,138	1.0	57.6%	100%	100.0%	23.8%	100%	6.7%	10
361	EndSuction Pump 2 HP	1.64	1	1	1,138	1.0	57.6%	100%	100.0%	76.2%	100%	6.7%	33
362	Pump Tune-up 60 HP	0.73	0	1	1,138	1.0	57.6%	100%	100.0%	100.0%	100%	100.0%	655
363	Submersible Boost Pump 1 HP	0.62	0	1	1,138	1.0	57.6%	100%	100.0%	17.1%	100%	6.7%	7
364	Submersible Boost Pump 5 HP	1.60	1	1	1,138	1.0	57.6%	100%	100.0%	82.9%	100%	6.7%	36
365	Pump Tune-up < 40 HP	1.10	1	1	52,705	26.7	2.1%	2%	100.0%	100.0%	100%	100.0%	439
366	Pump Tune-up < 40 HP	0.45	0	0									
367	Pump Tune-up < 40 HP	0.43	0	0									
368	Low Pressure Irrigation System	4.88	1	1	1,138	1.0	57.6%	100%	100.0%	100.0%	100%	100.0%	655
369	ENERGY STAR Pool Pump	3.83	1	1	52,705	1.0	100.0%	2%	100.0%	100.0%	66%	10.0%	53
370	Door Gaskets for Walk-in and Reach-in Freezers	2.12	1	1	19,216	36.0	65.8%	44%	40.0%	100.0%	67%	100.0%	53,926
371	Door Gaskets for Walk-in and Reach-in Coolers	0.28	0	0									
372	Anti-Sweat Heater Controls - Cooler Doors	1.12	1	1	19,216	1.8	65.8%	44%	60.0%	35.2%	67%	100.0%	1,426
373	Zero Energy Doors, Cooler	1.96	1	1	19,216	1.8	65.8%	44%	30.0%	64.8%	67%	100.0%	1,309
374	Small Business Cooler Door Heater Controls	2.10	1	1	33,489	1.0	0.8%	67%	100.0%	100.0%	82%	100.0%	140
375	Small Business Cooler Door Heater Controls	1.04	1	1	33,489	1.0	2.6%	67%	100.0%	100.0%	82%	100.0%	475
376	Anti-Sweat Heater Controls - Freezer Doors	1.97	1	1	19,216	1.8	65.8%	44%	40.0%	40.0%	67%	100.0%	1,078
377	Zero Energy Doors, Freezer	4.32	1	1	19,216	1.8	65.8%	44%	40.0%	60.0%	67%	100.0%	1,619
378	Small Business Freezer Door Heater Controls	0.62	0	1	33,489	1.0	0.8%	67%	100.0%	100.0%	82%	100.0%	140
379	Small Business Freezer Door Heater Controls	0.30	0	0									
380	Electronically Commutated Motors for All Refrigeration	0.76	0	0									
381	Small Business Other Controls & EC Motors - Large	0.30	0	0									
382	Small Business Other Controls & EC Motors - Large	0.27	0	0									
383	Small Business Other Controls & EC Motors - Medium	0.84	0	1	33,489	3.3	0.8%	15%	50.0%	33.3%	81%	100.0%	17
384	Small Business Other Controls & EC Motors - Medium	1.39	1	1	33,489	3.3	2.6%	15%	50.0%	50.0%	81%	100.0%	87
385	Small Business Other Controls & EC Motors - Small	0.74	0	1	33,489	3.3	0.8%	15%	50.0%	33.3%	81%	100.0%	17
386	Small Business Other Controls & EC Motors - Small	0.69	0	1	33,489	3.3	2.6%	15%	50.0%	50.0%	81%	100.0%	87

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Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
387	Small Business Evaporative/Compressor Controls	0.85	0	1	33,489	3.3	0.8%	15%	50.0%	33.3%	81%	100.0%	17
388	Small Business Evaporative/Compressor Controls	0.47	0	0									
389	Batch Ice Machine, Ice Making Head	0.58	0	0									
390	Batch Ice Machine, Self-Contained	0.12	0	0									
391	Batch Ice Machine, Split System	0.28	0	0									
392	Continuous Ice Machine, Ice Making Head	1.21	1	1	19,216	1.0	65.8%	77%	50.0%	82.1%	67%	8.3%	224
393	Continuous Ice Machine, Self-Contained	0.46	0	0									
394	Continuous Ice Machine, Split System	0.55	0	1	19,216	1.0	65.8%	77%	50.0%	17.9%	67%	8.3%	49
395	LED Refrigeration Case Lighting	0.40	0	0									
396	Small Business LED Case Lights	0.83	0	1	33,489	3.3	0.8%	67%	100.0%	100.0%	59%	100.0%	335
397	Small Business LED Case Lights	0.64	0	1	33,489	3.3	2.6%	67%	100.0%	100.0%	59%	100.0%	1,135
398	LED Refrigeration Case Lighting Controls	8.80	1	1	19,216	1.8	65.8%	44%	100.0%	100.0%	67%	100.0%	6,741
399	Refrigeration Night Covers - Coolers	0.91	0	1	19,216	5.4	65.8%	44%	60.0%	100.0%	98%	100.0%	17,700
400	Refrigeration Night Covers - Freezers	1.21	1	1	19,216	5.4	65.8%	44%	40.0%	100.0%	98%	100.0%	11,800
401	Glass Door Reach-in Freezer; < 15 cubic feet	10.33	1	1	19,216	1.0	65.8%	16%	8.0%	52.7%	55%	8.3%	4
402	Glass Door Reach-in Freezer;≥ 15 & < 30 cubic feet	12.07	1	1	19,216	1.5	65.8%	16%	8.0%	50.0%	55%	8.3%	6
403	Glass Door Reach-in Freezer;≥ 30 & < 50 cubic feet	14.42	1	1	19,216	2.0	65.8%	16%	16.0%	50.0%	55%	8.3%	15
404	Glass Door Reach-in Freezer;≥ 50 cubic feet	17.78	1	1	19,216	3.0	65.8%	16%	8.0%	50.0%	55%	8.3%	11
405	Reach-in Freezer; < 15 cubic feet	3.12	1	1	19,216	1.0	65.8%	16%	8.0%	47.3%	31%	8.3%	2
406	Reach-in Freezer;≥ 15 & < 30 cubic feet	5.77	1	1	19,216	1.5	65.8%	16%	8.0%	50.0%	31%	8.3%	3
407	Reach-in Freezer;≥ 30 & < 50 cubic feet	7.74	1	1	19,216	2.0	65.8%	16%	16.0%	50.0%	31%	8.3%	8
408	Reach-in Freezer;≥ 50 cubic feet	10.79	1	1	19,216	3.0	65.8%	16%	8.0%	50.0%	31%	8.3%	6
409	Glass Door Reach-in Refrigerator; < 15 cubic feet	4.25	1	1	19,216	1.0	65.8%	16%	12.0%	50.0%	55%	8.3%	6
410	Glass Door Reach-in Refrigerator;≥ 15 & < 30 cubic feet	3.94	1	1	19,216	1.5	65.8%	16%	12.0%	50.0%	55%	8.3%	8
411	Glass Door Reach-in Refrigerator;≥ 30 & < 50 cubic feet	4.30	1	1	19,216	2.0	65.8%	16%	24.0%	50.0%	55%	8.3%	22
412	Glass Door Reach-in Refrigerator;≥ 50 cubic feet	4.06	1	1	19,216	3.0	65.8%	16%	12.0%	50.0%	55%	8.3%	17
413	Reach-in Refrigerator; < 15 cubic feet	7.31	1	1	19,216	1.0	65.8%	16%	12.0%	50.0%	31%	8.3%	3
414	Reach-in Refrigerator;≥ 15 & < 30 cubic feet	6.75	1	1	19,216	1.5	65.8%	16%	12.0%	50.0%	31%	8.3%	5
415	Reach-in Refrigerator;≥ 30 & < 50 cubic feet	6.33	1	1	19,216	2.0	65.8%	16%	24.0%	50.0%	31%	8.3%	13
416	Reach-in Refrigerator;≥ 50 cubic feet	4.79	1	1	19,216	3.0	65.8%	16%	12.0%	50.0%	31%	8.3%	9
417	Automatic Door Closer for Walk-In Coolers	3.45	1	1	19,216	1.0	65.8%	31%	60.0%	100.0%	94%	100.0%	2,209
418	Automatic Door Closer for Walk-In Freezers	3.45	1	1	19,216	1.0	65.8%	31%	40.0%	100.0%	94%	100.0%	1,473
419	High Speed Doors for Cold Storage Facilities	2.77	1	1	19,216	40.0	2.1%	4%	100.0%	100.0%	67%	100.0%	441
420	Zero Energy Doors, Refrigerator	2.07	1	1	19,216	1.8	65.8%	52%	30.0%	100.0%	67%	100.0%	2,390
421	Strip Curtains for Walk-in Coolers	1.65	1	1	19,216	20.0	65.8%	31%	60.0%	100.0%	10%	100.0%	4,499
422	Strip Curtains for Walk-in Freezers	8.81	1	1	19,216	20.0	65.8%	31%	40.0%	100.0%	10%	100.0%	3,000
423	Vending Machine Controls - Non-Refrigerated	0.84	0	1	19,216	9.1	100.0%	67%	100.0%	100.0%	67%	100.0%	78,369
424	Vending Machine Controls - Refrigerated	1.29	1	1	19,216	9.1	100.0%	67%	100.0%	100.0%	67%	100.0%	78,369
425	Low Flow Faucet Aerators - Electric Water Heater	59.24	1	1	52,705	5.9	100.0%	60%	100.0%	100.0%	46%	100.0%	86,193
426	Low Flow Faucet Aerators - Non-Electric Water Heater	54.64	1	1	52,705	5.9	100.0%	6%	100.0%	0.0%	46%	100.0%	0
427	Low Flow Showerheads - Electric Water Heater	41.79	1	1	52,705	0.6	100.0%	60%	100.0%	100.0%	63%	100.0%	11,258
428	Low Flow Showerheads - Non-Electric Water Heater	37.24	1	1	52,705	0.6	100.0%	6%	100.0%	0.0%	63%	100.0%	0
429	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	0.04	0	0									
430	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	0.37	0	0									
431	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	2.34	1	1	33,489	1.0	2.6%	59%	60.0%	100.0%	94%	6.7%	19
432	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	6.95	1	1	19,216	1.0	4.0%	56%	40.0%	100.0%	94%	6.7%	11
433	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	0.03	0	0									
434	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	0.03	0	0									
435	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	0.07	0	0									
436	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	0.08	0	0									
437	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	0.24	0	0									
438	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	0.66	0	1	52,705	1.0	2.1%	67%	50.0%	100.0%	94%	6.7%	23
439	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	5.52	1	1	33,489	1.0	0.7%	59%	60.0%	100.0%	94%	6.7%	5
440	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	1.70	1	1	19,216	1.0	2.9%	59%	40.0%	100.0%	94%	6.7%	8
441	Electric Storage Water Heater;≥ 20 gal & ≤ 55 gal	0.01	0	0									
442	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	0.10	0	0									
443	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	0.86	0	1	19,216	1.0	45.5%	56%	60.0%	100.0%	94%	6.7%	183
444	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	5.47	1	1	33,489	1.0	2.6%	59%	40.0%	100.0%	94%	6.7%	13
445	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	16.26	1	1	19,216	1.0	4.0%	56%	60.0%	100.0%	94%	6.7%	16
446	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	0.06	0	0									
447	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	0.08	0	0									
448	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	0.15	0	0									
449	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	0.18	0	0									
450	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	0.55	0	1	19,216	1.0	6.3%	56%	60.0%	100.0%	94%	6.7%	25
451	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	1.55	1	1	52,705	1.0	2.1%	67%	50.0%	100.0%	94%	6.7%	23
452	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	12.90	1	1	33,489	1.0	0.7%	59%	40.0%	100.0%	94%	6.7%	3
453	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	3.97	1	1	19,216	1.0	2.9%	59%	60.0%	100.0%	94%	6.7%	13
454	Electric Storage Water Heater;≥ 55 gal & ≤ 120 gal	0.03	0	0									
455	Electric Tankless Water Heater; 10 GPM	1.62	1	1	52,705	1.0	100.0%	59%	35.0%	100.0%	92%	20.0%	1,990
456	Electric Tankless Water Heater; 15 GPM	1.43	1	1	52,705	1.0	100.0%	59%	20.0%	100.0%	92%	20.0%	1,137
457	Electric Tankless Water Heater; 5 GPM	2.08	1	1	52,705	1.0	100.0%	59%	45.0%	100.0%	92%	20.0%	2,559
458	Heat Pump Storage Water Heater	0.93	0	0									
459	Custom Lighting	1.97	1	1	19,216	1.0	100.0%	100%	100.0%	100.0%	90%	100.0%	17,294
460	Custom Non-Lighting	1.94	1	1	19,216	1.0	100.0%	100%	100.0%	100.0%	90%	100.0%	17,294

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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
1	Industrial	Small Industrial	Compressed Air	Compression ratio optimization (gas compressor)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
2	Industrial	Small Industrial	Compressed Air	Eliminate air leaks	Per kWh	Retrofit	3.0	3.0	$0.01	0.15	0.0000	0	0	0.0000	0
3	Industrial	Small Industrial	Compressed Air	Gas compressor right sizing	Per kWh	Retrofit	10.0	10.0	$0.06	0.10	0.0000	0	0	0.0000	0
4	Industrial	Small Industrial	Compressed Air	Minimize operating air pressure	Per kWh	Retrofit	1.0	1.0	$0.00	0.20	0.0000	0	0	0.0000	0
5	Industrial	Small Industrial	Compressed Air	Minimum cylinder clearance	Per kWh	Retrofit	5.0	5.0	$0.00	0.10	0.0000	0	0	0.0000	0
6	Industrial	Small Industrial	Compressed Air	Optimized Distribution System	Per kWh	Retrofit	10.0	10.0	$0.01	0.10	0.0000	0	0	0.0000	0
7	Industrial	Small Industrial	Compressed Air	Optimized sizes of air receiver tanks	Per kWh	Retrofit	10.0	10.0	$0.03	0.12	0.0000	0	0	0.0000	0
8	Industrial	Small Industrial	Compressed Air	Optimized sizing of compressor system	Per kWh	Retrofit	20.0	20.0	$0.06	0.10	0.0000	0	0	0.0000	0
9	Industrial	Small Industrial	Compressed Air	Premium Efficiency Air Dryer (compressors)	Per kWh	Retrofit	20.0	20.0	$0.03	0.08	0.0000	0	0	0.0000	0
10	Industrial	Small Industrial	Compressed Air	Premium efficiency ASD compressor	Per kWh	Retrofit	10.0	10.0	$0.12	0.13	0.0000	0	0	0.0000	0
11	Industrial	Small Industrial	Compressed Air	Premium efficiency ASD compressor	Per kWh	Retrofit	10.0	10.0	$0.07	0.13	0.0000	0	0	0.0000	0
12	Industrial	Small Industrial	Compressed Air	Replace compressed air use with mechanical or electrical	Per kWh	Retrofit	20.0	20.0	$0.03	0.56	0.0001	0	0	0.0000	0
13	Industrial	Small Industrial	Compressed Air	Retrofit internal parts of existing centrifugal compressors	Per kWh	Retrofit	20.0	20.0	$0.02	0.05	0.0000	0	0	0.0000	0
14	Industrial	Small Industrial	Compressed Air	Sequencing Control	Per kWh	Retrofit	5.0	5.0	$0.01	0.10	0.0000	0	0	0.0000	0
15	Industrial	Small Industrial	Compressed Air	Synchronous Belts for Air Compressors	Per kWh	Retrofit	10.0	10.0	$0.00	0.02	0.0000	0	0	0.0000	0
16	Industrial	Small Industrial	Compressed Air	Synchronous Belts for Air or Gas Compressors	Per kWh	Retrofit	10.0	10.0	$0.00	0.02	0.0000	0	0	0.0000	0
17	Industrial	Small Industrial	Compressed Air	Use cooler air from outside for make up air	Per kWh	Retrofit	20.0	20.0	$0.00	0.04	0.0000	0	0	0.0000	0
18	Industrial	Small Industrial	Compressed Air	Volume pocket adjustments	Per kWh	Retrofit	20.0	20.0	$0.00	0.10	0.0000	0	0	0.0000	0
19	Industrial	Small Industrial	Fans	High/Premium Efficiency Motors (Fans)	Per kWh	Retrofit	15.0	15.0	$0.03	0.02	0.0000	0	0	0.0000	0
20	Industrial	Small Industrial	Fans	Impeller Trimming or Inlet Guide Vanes	Per kWh	Retrofit	3.0	3.0	$0.01	0.15	0.0000	0	0	0.0000	0
21	Industrial	Small Industrial	Fans	Premium efficiency control, with ASD (Fans)	Per kWh	Retrofit	10.0	10.0	$0.13	0.10	0.0000	0	0	0.0000	0
22	Industrial	Small Industrial	Fans	Preventative Fan Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
23	Industrial	Small Industrial	Fans	Synchronous Belts (Fans)	Per kWh	Retrofit	10.0	10.0	$0.04	0.20	0.0000	0	0	0.0000	0
24	Industrial	Small Industrial	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.03	0.15	0.0000	0	0	0.0000	0
25	Industrial	Small Industrial	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
26	Industrial	Small Industrial	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.11	0.45	0.0001	0	0	0.0000	0
27	Industrial	Small Industrial	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.28	0.15	0.0000	0	0	0.0000	0
28	Industrial	Small Industrial	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
29	Industrial	Small Industrial	HVAC	Ventilation Optimization	Per kWh	Retrofit	15.0	15.0	$0.13	0.20	0.0000	0	0	0.0000	0
30	Industrial	Small Industrial	HVAC	Air Curtains	Per kWh	Retrofit	15.0	15.0	$0.16	0.03	0.0000	0	0	0.0000	0
31	Industrial	Small Industrial	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.39	0.68	0.0001	0	0	0.0000	0
32	Industrial	Small Industrial	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.03	0.07	0.0000	0	0	0.0000	0
33	Industrial	Small Industrial	HVAC	Demand-Controlled Ventilation	Per kWh	Retrofit	15.0	15.0	$0.26	0.20	0.0000	0	0	0.0000	0
34	Industrial	Small Industrial	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.04	0.08	0.0000	0	0	0.0000	0
35	Industrial	Small Industrial	HVAC	Free cooling	Per kWh	Retrofit	15.0	15.0	$0.02	0.53	0.0001	0	0	0.0000	0
36	Industrial	Small Industrial	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.78	0.51	0.0001	0	0	0.0000	0
37	Industrial	Small Industrial	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$5.01	0.15	0.0000	0	0	0.0000	0
38	Industrial	Small Industrial	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$2.58	0.25	0.0000	0	0	0.0000	0
39	Industrial	Small Industrial	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.06	0.17	0.0000	0	0	0.0000	0
40	Industrial	Small Industrial	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
41	Industrial	Small Industrial	HVAC	Premium efficiency ventilation control with VSD	Per kWh	Retrofit	10.0	10.0	$0.04	0.30	0.0000	0	0	0.0000	0
42	Industrial	Small Industrial	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
43	Industrial	Small Industrial	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$2.58	0.10	0.0000	0	0	0.0000	0
44	Industrial	Small Industrial	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
45	Industrial	Small Industrial	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
46	Industrial	Small Industrial	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$1.32	0.20	0.0000	0	0	0.0000	0
47	Industrial	Small Industrial	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.08	0.05	0.0000	0	0	0.0000	0
48	Industrial	Small Industrial	Machine Drive	Integrated control system	Per kWh	Retrofit	10.0	10.0	$0.00	0.08	0.0000	0	0	0.0000	0
49	Industrial	Small Industrial	Machine Drive	Sub-Metering and Interval Metering	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
50	Industrial	Small Industrial	Motor - Other	Correctly sized motors	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
51	Industrial	Small Industrial	Motor - Other	High/Premium Efficiency Motors	Per kWh	Retrofit	15.0	15.0	$0.03	0.02	0.0000	0	0	0.0000	0
52	Industrial	Small Industrial	Motor - Other	Optimized motor control	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
53	Industrial	Small Industrial	Motor - Other	Premium Efficiency Control with ASDs (Other motors)	Per kWh	Retrofit	15.0	15.0	$0.03	0.20	0.0000	0	0	0.0000	0
54	Industrial	Small Industrial	Motor - Other	Preventative Motor Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
55	Industrial	Small Industrial	Motor - Other	Synchronous Belts	Per kWh	Retrofit	10.0	10.0	$0.00	0.02	0.0000	0	0	0.0000	0
56	Industrial	Small Industrial	ONPU	High efficiency battery charger (for forklifts)	Per kWh	Retrofit	20.0	20.0	$0.02	0.10	0.0000	0	0	0.0000	0
57	Industrial	Small Industrial	OPU	HE Dry-Type Transformers	Per kWh	Retrofit	30.0	30.0	$0.00	0.01	0.0000	0	0	0.0000	0
58	Industrial	Small Industrial	PCR	Doors, Covers and Curtains	Per kWh	Retrofit	5.0	5.0	$0.01	0.07	0.0000	0	0	0.0000	0
59	Industrial	Small Industrial	PCR	Floating head pressure controls	Per kWh	Retrofit	15.0	15.0	$0.00	0.07	0.0000	0	0	0.0000	0
60	Industrial	Small Industrial	PCR	Free-cooling	Per kWh	Retrofit	12.0	12.0	$0.02	0.21	0.0000	0	0	0.0000	0
61	Industrial	Small Industrial	PCR	High Efficiency Chiller	Per kWh	Retrofit	20.0	20.0	$0.14	0.19	0.0000	0	0	0.0000	0
62	Industrial	Small Industrial	PCR	Improve insulation of refrigeration system	Per kWh	Retrofit	10.0	10.0	$0.04	0.05	0.0000	0	0	0.0000	0
63	Industrial	Small Industrial	PCR	Optimized chilled water temperature and/or optimized condenser temperature	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
64	Industrial	Small Industrial	PCR	Optimized condenser pressure	Per kWh	Retrofit	3.0	3.0	$0.00	0.06	0.0000	0	0	0.0000	0
65	Industrial	Small Industrial	PCR	Optimized Distribution System	Per kWh	Retrofit	25.0	25.0	$0.02	0.03	0.0000	0	0	0.0000	0

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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
66	Industrial	Small Industrial	PCR	Premium efficiency refrigeration control system	Per kWh	Retrofit	15.0	15.0	$0.20	0.09	0.0000	0	0	0.0000	0
67	Industrial	Small Industrial	PCR	Preventative refrigeration/cooling system maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
68	Industrial	Small Industrial	PCR	Smart Defrost Controls	Per kWh	Retrofit	16.0	16.0	$0.00	0.10	0.0000	0	0	0.0000	0
69	Industrial	Small Industrial	PCR	VSD on chiller compressor	Per kWh	Retrofit	15.0	15.0	$0.05	0.30	0.0000	0	0	0.0000	0
70	Industrial	Small Industrial	PH	Advanced water heater controls	Per kWh	Retrofit	20.0	20.0	$0.00	0.03	0.0000	0	0	0.0000	0
71	Industrial	Small Industrial	PH	Air Curtains (Dryer)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
72	Industrial	Small Industrial	PH	Air Curtains (Oven)	Per kWh	Retrofit	20.0	20.0	$0.03	0.15	0.0000	0	0	0.0000	0
73	Industrial	Small Industrial	PH	Insulation (Dryer)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
74	Industrial	Small Industrial	PH	Insulation (Furnace)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
75	Industrial	Small Industrial	PH	Insulation (Kiln)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
76	Industrial	Small Industrial	PH	Insulation (Oven)	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
77	Industrial	Small Industrial	PH	Preventative Dryer Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
78	Industrial	Small Industrial	PH	Preventative Furnace Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
79	Industrial	Small Industrial	PH	Preventative Kiln Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
80	Industrial	Small Industrial	PH	Preventative Oven Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
81	Industrial	Small Industrial	PH	Process Heat Recovery to Preheat Makeup Water	Per kWh	Retrofit	20.0	20.0	$0.02	0.06	0.0000	0	0	0.0000	0
82	Industrial	Small Industrial	Pumps	High/Premium Efficiency Motors (Pumps)	Per kWh	Retrofit	15.0	15.0	$0.03	0.04	0.0000	0	0	0.0000	0
83	Industrial	Small Industrial	Pumps	Impeller Trimming (Pump)	Per kWh	Retrofit	20.0	20.0	$0.01	0.15	0.0000	0	0	0.0000	0
84	Industrial	Small Industrial	Pumps	Optimization of pumping system	Per kWh	Retrofit	15.0	15.0	$0.03	0.14	0.0000	0	0	0.0000	0
85	Industrial	Small Industrial	Pumps	Premium Efficiency Control with ASDs (Pumps)	Per kWh	Retrofit	15.0	15.0	$0.03	0.20	0.0000	0	0	0.0000	0
86	Industrial	Small Industrial	Pumps	Preventative Pump Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
87	Industrial	Electronics	Compressed Air	Compressor Control	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
88	Industrial	Electronics	Compressed Air	Improve Compressor Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
89	Industrial	Electronics	Compressed Air	Match Compressor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.03	0.0000	0	0	0.0000	0
90	Industrial	Electronics	Compressed Air	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
91	Industrial	Electronics	Compressed Air	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
92	Industrial	Electronics	Fans	Improve Fan Components	Per kWh	Retrofit	15.0	15.0	$0.03	0.05	0.0000	0	0	0.0000	0
93	Industrial	Electronics	Fans	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
94	Industrial	Electronics	Fans	Reduce or Control Fan Speed	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
95	Industrial	Electronics	Fans	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
96	Industrial	Electronics	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
97	Industrial	Electronics	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
98	Industrial	Electronics	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
99	Industrial	Electronics	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
100	Industrial	Electronics	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
101	Industrial	Electronics	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
102	Industrial	Electronics	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
103	Industrial	Electronics	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
104	Industrial	Electronics	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
105	Industrial	Electronics	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
106	Industrial	Electronics	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
107	Industrial	Electronics	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
108	Industrial	Electronics	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
109	Industrial	Electronics	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
110	Industrial	Electronics	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
111	Industrial	Electronics	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
112	Industrial	Electronics	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
113	Industrial	Electronics	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
114	Industrial	Electronics	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
115	Industrial	Electronics	Motor - Other	Match Motor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.01	0.01	0.0000	0	0	0.0000	0
116	Industrial	Electronics	Motor - Other	Motor Efficiency Upgrade	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
117	Industrial	Electronics	Motor - Other	Operations and maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
118	Industrial	Electronics	Motor - Other	Variable Speed Drives	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
119	Industrial	Electronics	ONPU	High efficiency battery charger (for forklifts)	Per kWh	Retrofit	20.0	20.0	$0.01	0.10	0.0000	0	0	0.0000	0
120	Industrial	Electronics	OPU	HE Dry-Type Transformers	Per kWh	Retrofit	30.0	30.0	$0.00	0.01	0.0000	0	0	0.0000	0
121	Industrial	Electronics	PCR	Doors, Covers and Curtains	Per kWh	Retrofit	5.0	5.0	$0.00	0.07	0.0000	0	0	0.0000	0
122	Industrial	Electronics	PCR	Floating head pressure controls	Per kWh	Retrofit	15.0	15.0	$0.00	0.07	0.0000	0	0	0.0000	0
123	Industrial	Electronics	PCR	Free-cooling	Per kWh	Retrofit	12.0	12.0	$0.02	0.21	0.0000	0	0	0.0000	0
124	Industrial	Electronics	PCR	High Efficiency Chiller	Per kWh	Retrofit	20.0	20.0	$0.10	0.19	0.0000	0	0	0.0000	0
125	Industrial	Electronics	PCR	Improve insulation of refrigeration system	Per kWh	Retrofit	10.0	10.0	$0.02	0.05	0.0000	0	0	0.0000	0
126	Industrial	Electronics	PCR	Optimized chilled water temperature and/or optimized condenser temperature	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
127	Industrial	Electronics	PCR	Optimized condenser pressure	Per kWh	Retrofit	3.0	3.0	$0.00	0.06	0.0000	0	0	0.0000	0
128	Industrial	Electronics	PCR	Premium efficiency refrigeration control system	Per kWh	Retrofit	15.0	15.0	$0.13	0.09	0.0000	0	0	0.0000	0
129	Industrial	Electronics	PCR	Preventative refrigeration/cooling system maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
130	Industrial	Electronics	PCR	Smart Defrost Controls	Per kWh	Retrofit	16.0	16.0	$0.00	0.10	0.0000	0	0	0.0000	0

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BEFORE THE PUBLIC UTILITIES COMMISSION
STATE OF UTAH
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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
131	Industrial	Electronics	PH	Advanced water heater controls	Per kWh	Retrofit	20.0	20.0	$0.00	0.03	0.0000	0	0	0.0000	0
132	Industrial	Electronics	PH	Air Curtains (Dryer)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
133	Industrial	Electronics	PH	Air Curtains (Oven)	Per kWh	Retrofit	20.0	20.0	$0.02	0.15	0.0000	0	0	0.0000	0
134	Industrial	Electronics	PH	Insulation (Dryer)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
135	Industrial	Electronics	PH	Insulation (Oven)	Per kWh	Retrofit	15.0	15.0	$0.01	0.05	0.0000	0	0	0.0000	0
136	Industrial	Electronics	PH	Optimized Distribution System	Per kWh	Retrofit	25.0	25.0	$0.01	0.03	0.0000	0	0	0.0000	0
137	Industrial	Electronics	PH	Preventative Dryer Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
138	Industrial	Electronics	PH	Preventative Oven Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
139	Industrial	Electronics	PH	Process Heat Recovery to Preheat Makeup Water	Per kWh	Retrofit	20.0	20.0	$0.02	0.06	0.0000	0	0	0.0000	0
140	Industrial	Electronics	Pumps	Improve Pump Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
141	Industrial	Electronics	Pumps	Match Pump Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
142	Industrial	Electronics	Pumps	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
143	Industrial	Electronics	Pumps	Reduce or Control Pump Speed	Per kWh	Retrofit	15.0	15.0	$0.01	0.30	0.0000	0	0	0.0000	0
144	Industrial	Electronics	Pumps	Reduce Overall System Requirements	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
145	Industrial	Fabricated Metal	Compressed Air	Compressor Control	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
146	Industrial	Fabricated Metal	Compressed Air	Improve Compressor Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
147	Industrial	Fabricated Metal	Compressed Air	Match Compressor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.03	0.0000	0	0	0.0000	0
148	Industrial	Fabricated Metal	Compressed Air	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
149	Industrial	Fabricated Metal	Compressed Air	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
150	Industrial	Fabricated Metal	Fans	Improve Fan Components	Per kWh	Retrofit	15.0	15.0	$0.03	0.05	0.0000	0	0	0.0000	0
151	Industrial	Fabricated Metal	Fans	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
152	Industrial	Fabricated Metal	Fans	Reduce or Control Fan Speed	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
153	Industrial	Fabricated Metal	Fans	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
154	Industrial	Fabricated Metal	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
155	Industrial	Fabricated Metal	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
156	Industrial	Fabricated Metal	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
157	Industrial	Fabricated Metal	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
158	Industrial	Fabricated Metal	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
159	Industrial	Fabricated Metal	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
160	Industrial	Fabricated Metal	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
161	Industrial	Fabricated Metal	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
162	Industrial	Fabricated Metal	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
163	Industrial	Fabricated Metal	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
164	Industrial	Fabricated Metal	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
165	Industrial	Fabricated Metal	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
166	Industrial	Fabricated Metal	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
167	Industrial	Fabricated Metal	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
168	Industrial	Fabricated Metal	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
169	Industrial	Fabricated Metal	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
170	Industrial	Fabricated Metal	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
171	Industrial	Fabricated Metal	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
172	Industrial	Fabricated Metal	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
173	Industrial	Fabricated Metal	Motor - Other	Match Motor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.01	0.01	0.0000	0	0	0.0000	0
174	Industrial	Fabricated Metal	Motor - Other	Motor Efficiency Upgrade	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
175	Industrial	Fabricated Metal	Motor - Other	Operations and maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
176	Industrial	Fabricated Metal	Motor - Other	Variable Speed Drives	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
177	Industrial	Fabricated Metal	ONPU	High efficiency battery charger (for forklifts)	Per kWh	Retrofit	20.0	20.0	$0.01	0.10	0.0000	0	0	0.0000	0
178	Industrial	Fabricated Metal	OPU	HE Dry-Type Transformers	Per kWh	Retrofit	30.0	30.0	$0.00	0.01	0.0000	0	0	0.0000	0
179	Industrial	Fabricated Metal	PCR	Doors, Covers and Curtains	Per kWh	Retrofit	5.0	5.0	$0.00	0.07	0.0000	0	0	0.0000	0
180	Industrial	Fabricated Metal	PCR	Floating head pressure controls	Per kWh	Retrofit	15.0	15.0	$0.00	0.07	0.0000	0	0	0.0000	0
181	Industrial	Fabricated Metal	PCR	Free-cooling	Per kWh	Retrofit	12.0	12.0	$0.02	0.21	0.0000	0	0	0.0000	0
182	Industrial	Fabricated Metal	PCR	High Efficiency Chiller	Per kWh	Retrofit	20.0	20.0	$0.10	0.19	0.0000	0	0	0.0000	0
183	Industrial	Fabricated Metal	PCR	Improve insulation of refrigeration system	Per kWh	Retrofit	10.0	10.0	$0.02	0.05	0.0000	0	0	0.0000	0
184	Industrial	Fabricated Metal	PCR	Optimized chilled water temperature and/or optimized condenser temperature	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
185	Industrial	Fabricated Metal	PCR	Optimized condenser pressure	Per kWh	Retrofit	3.0	3.0	$0.00	0.06	0.0000	0	0	0.0000	0
186	Industrial	Fabricated Metal	PCR	Premium efficiency refrigeration control system	Per kWh	Retrofit	15.0	15.0	$0.13	0.09	0.0000	0	0	0.0000	0
187	Industrial	Fabricated Metal	PCR	Preventative refrigeration/cooling system maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
188	Industrial	Fabricated Metal	PCR	Smart Defrost Controls	Per kWh	Retrofit	16.0	16.0	$0.00	0.10	0.0000	0	0	0.0000	0
189	Industrial	Fabricated Metal	PH	Advanced water heater controls	Per kWh	Retrofit	20.0	20.0	$0.00	0.03	0.0000	0	0	0.0000	0
190	Industrial	Fabricated Metal	PH	Air Curtains (Dryer)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
191	Industrial	Fabricated Metal	PH	Air Curtains (Oven)	Per kWh	Retrofit	20.0	20.0	$0.02	0.15	0.0000	0	0	0.0000	0
192	Industrial	Fabricated Metal	PH	Insulation (Dryer)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
193	Industrial	Fabricated Metal	PH	Insulation (Oven)	Per kWh	Retrofit	15.0	15.0	$0.01	0.05	0.0000	0	0	0.0000	0
194	Industrial	Fabricated Metal	PH	Optimized Distribution System	Per kWh	Retrofit	25.0	25.0	$0.01	0.03	0.0000	0	0	0.0000	0
195	Industrial	Fabricated Metal	PH	Preventative Dryer Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0

BEFORE THE PUBLIC UTILITIES COMMISSION
STATE OF HAWAII
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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
196	Industrial	Fabricated Metal	PH	Preventative Oven Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
197	Industrial	Fabricated Metal	PH	Process Heat Recovery to Preheat Makeup Water	Per kWh	Retrofit	20.0	20.0	$0.02	0.06	0.0000	0	0	0.0000	0
198	Industrial	Fabricated Metal	Pumps	Improve Pump Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
199	Industrial	Fabricated Metal	Pumps	Match Pump Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
200	Industrial	Fabricated Metal	Pumps	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
201	Industrial	Fabricated Metal	Pumps	Reduce or Control Pump Speed	Per kWh	Retrofit	15.0	15.0	$0.01	0.30	0.0000	0	0	0.0000	0
202	Industrial	Fabricated Metal	Pumps	Reduce Overall System Requirements	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
203	Industrial	Food Products	Compressed Air	Compressor Control	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
204	Industrial	Food Products	Compressed Air	Improve Compressor Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
205	Industrial	Food Products	Compressed Air	Match Compressor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.03	0.0000	0	0	0.0000	0
206	Industrial	Food Products	Compressed Air	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
207	Industrial	Food Products	Compressed Air	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
208	Industrial	Food Products	Fans	Improve Fan Components	Per kWh	Retrofit	15.0	15.0	$0.03	0.05	0.0000	0	0	0.0000	0
209	Industrial	Food Products	Fans	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
210	Industrial	Food Products	Fans	Reduce or Control Fan Speed	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
211	Industrial	Food Products	Fans	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
212	Industrial	Food Products	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
213	Industrial	Food Products	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
214	Industrial	Food Products	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
215	Industrial	Food Products	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
216	Industrial	Food Products	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
217	Industrial	Food Products	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
218	Industrial	Food Products	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
219	Industrial	Food Products	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
220	Industrial	Food Products	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
221	Industrial	Food Products	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
222	Industrial	Food Products	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
223	Industrial	Food Products	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
224	Industrial	Food Products	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
225	Industrial	Food Products	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
226	Industrial	Food Products	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
227	Industrial	Food Products	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
228	Industrial	Food Products	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
229	Industrial	Food Products	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
230	Industrial	Food Products	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
231	Industrial	Food Products	Motor - Other	Match Motor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.01	0.01	0.0000	0	0	0.0000	0
232	Industrial	Food Products	Motor - Other	Motor Efficiency Upgrade	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
233	Industrial	Food Products	Motor - Other	Operations and maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
234	Industrial	Food Products	Motor - Other	Variable Speed Drives	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
235	Industrial	Food Products	ONPU	High efficiency battery charger (for forklifts)	Per kWh	Retrofit	20.0	20.0	$0.01	0.10	0.0000	0	0	0.0000	0
236	Industrial	Food Products	OPU	HE Dry-Type Transformers	Per kWh	Retrofit	30.0	30.0	$0.00	0.01	0.0000	0	0	0.0000	0
237	Industrial	Food Products	PCR	Doors, Covers and Curtains	Per kWh	Retrofit	5.0	5.0	$0.00	0.07	0.0000	0	0	0.0000	0
238	Industrial	Food Products	PCR	Floating head pressure controls	Per kWh	Retrofit	15.0	15.0	$0.00	0.07	0.0000	0	0	0.0000	0
239	Industrial	Food Products	PCR	Free-cooling	Per kWh	Retrofit	12.0	12.0	$0.02	0.21	0.0000	0	0	0.0000	0
240	Industrial	Food Products	PCR	High Efficiency Chiller	Per kWh	Retrofit	20.0	20.0	$0.10	0.19	0.0000	0	0	0.0000	0
241	Industrial	Food Products	PCR	Improve insulation of refrigeration system	Per kWh	Retrofit	10.0	10.0	$0.02	0.05	0.0000	0	0	0.0000	0
242	Industrial	Food Products	PCR	Optimized chilled water temperature and/or optimized condenser temperature	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
243	Industrial	Food Products	PCR	Optimized condenser pressure	Per kWh	Retrofit	3.0	3.0	$0.00	0.06	0.0000	0	0	0.0000	0
244	Industrial	Food Products	PCR	Premium efficiency refrigeration control system	Per kWh	Retrofit	15.0	15.0	$0.13	0.09	0.0000	0	0	0.0000	0
245	Industrial	Food Products	PCR	Preventative refrigeration/cooling system maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
246	Industrial	Food Products	PCR	Smart Defrost Controls	Per kWh	Retrofit	16.0	16.0	$0.00	0.10	0.0000	0	0	0.0000	0
247	Industrial	Food Products	PH	Advanced water heater controls	Per kWh	Retrofit	20.0	20.0	$0.00	0.03	0.0000	0	0	0.0000	0
248	Industrial	Food Products	PH	Air Curtains (Dryer)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
249	Industrial	Food Products	PH	Air Curtains (Oven)	Per kWh	Retrofit	20.0	20.0	$0.02	0.15	0.0000	0	0	0.0000	0
250	Industrial	Food Products	PH	Insulation (Dryer)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
251	Industrial	Food Products	PH	Insulation (Oven)	Per kWh	Retrofit	15.0	15.0	$0.01	0.05	0.0000	0	0	0.0000	0
252	Industrial	Food Products	PH	Optimized Distribution System	Per kWh	Retrofit	25.0	25.0	$0.01	0.03	0.0000	0	0	0.0000	0
253	Industrial	Food Products	PH	Preventative Dryer Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
254	Industrial	Food Products	PH	Preventative Oven Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
255	Industrial	Food Products	PH	Process Heat Recovery to Preheat Makeup Water	Per kWh	Retrofit	20.0	20.0	$0.02	0.06	0.0000	0	0	0.0000	0
256	Industrial	Food Products	Pumps	Improve Pump Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
257	Industrial	Food Products	Pumps	Match Pump Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
258	Industrial	Food Products	Pumps	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
259	Industrial	Food Products	Pumps	Reduce or Control Pump Speed	Per kWh	Retrofit	15.0	15.0	$0.01	0.30	0.0000	0	0	0.0000	0
260	Industrial	Food Products	Pumps	Reduce Overall System Requirements	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0

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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
261	Industrial	Industrial Organic Chemicals	Compressed Air	Compressor Control	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
262	Industrial	Industrial Organic Chemicals	Compressed Air	Improve Compressor Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
263	Industrial	Industrial Organic Chemicals	Compressed Air	Match Compressor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.03	0.0000	0	0	0.0000	0
264	Industrial	Industrial Organic Chemicals	Compressed Air	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
265	Industrial	Industrial Organic Chemicals	Compressed Air	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
266	Industrial	Industrial Organic Chemicals	Fans	Improve Fan Components	Per kWh	Retrofit	15.0	15.0	$0.03	0.05	0.0000	0	0	0.0000	0
267	Industrial	Industrial Organic Chemicals	Fans	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
268	Industrial	Industrial Organic Chemicals	Fans	Reduce or Control Fan Speed	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
269	Industrial	Industrial Organic Chemicals	Fans	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
270	Industrial	Industrial Organic Chemicals	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
271	Industrial	Industrial Organic Chemicals	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
272	Industrial	Industrial Organic Chemicals	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
273	Industrial	Industrial Organic Chemicals	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
274	Industrial	Industrial Organic Chemicals	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
275	Industrial	Industrial Organic Chemicals	HVAC	Air Curtains	Per kWh	Retrofit	15.0	15.0	$0.10	0.03	0.0000	0	0	0.0000	0
276	Industrial	Industrial Organic Chemicals	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
277	Industrial	Industrial Organic Chemicals	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
278	Industrial	Industrial Organic Chemicals	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
279	Industrial	Industrial Organic Chemicals	HVAC	Free cooling	Per kWh	Retrofit	15.0	15.0	$0.01	0.53	0.0001	0	0	0.0000	0
280	Industrial	Industrial Organic Chemicals	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
281	Industrial	Industrial Organic Chemicals	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
282	Industrial	Industrial Organic Chemicals	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
283	Industrial	Industrial Organic Chemicals	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
284	Industrial	Industrial Organic Chemicals	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
285	Industrial	Industrial Organic Chemicals	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
286	Industrial	Industrial Organic Chemicals	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
287	Industrial	Industrial Organic Chemicals	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
288	Industrial	Industrial Organic Chemicals	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
289	Industrial	Industrial Organic Chemicals	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
290	Industrial	Industrial Organic Chemicals	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
291	Industrial	Industrial Organic Chemicals	Motor - Other	Match Motor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.01	0.01	0.0000	0	0	0.0000	0
292	Industrial	Industrial Organic Chemicals	Motor - Other	Motor Efficiency Upgrade	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
293	Industrial	Industrial Organic Chemicals	Motor - Other	Operations and maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
294	Industrial	Industrial Organic Chemicals	Motor - Other	Variable Speed Drives	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
295	Industrial	Industrial Organic Chemicals	Pumps	Improve Pump Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
296	Industrial	Industrial Organic Chemicals	Pumps	Match Pump Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
297	Industrial	Industrial Organic Chemicals	Pumps	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
298	Industrial	Industrial Organic Chemicals	Pumps	Reduce or Control Pump Speed	Per kWh	Retrofit	15.0	15.0	$0.01	0.30	0.0000	0	0	0.0000	0
299	Industrial	Industrial Organic Chemicals	Pumps	Reduce Overall System Requirements	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
300	Industrial	Machinery	Compressed Air	Compressor Control	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
301	Industrial	Machinery	Compressed Air	Improve Compressor Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
302	Industrial	Machinery	Compressed Air	Match Compressor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.03	0.0000	0	0	0.0000	0
303	Industrial	Machinery	Compressed Air	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
304	Industrial	Machinery	Compressed Air	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
305	Industrial	Machinery	Fans	Improve Fan Components	Per kWh	Retrofit	15.0	15.0	$0.03	0.05	0.0000	0	0	0.0000	0
306	Industrial	Machinery	Fans	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
307	Industrial	Machinery	Fans	Reduce or Control Fan Speed	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
308	Industrial	Machinery	Fans	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
309	Industrial	Machinery	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
310	Industrial	Machinery	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
311	Industrial	Machinery	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
312	Industrial	Machinery	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
313	Industrial	Machinery	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
314	Industrial	Machinery	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
315	Industrial	Machinery	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
316	Industrial	Machinery	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
317	Industrial	Machinery	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
318	Industrial	Machinery	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
319	Industrial	Machinery	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
320	Industrial	Machinery	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
321	Industrial	Machinery	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
322	Industrial	Machinery	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
323	Industrial	Machinery	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
324	Industrial	Machinery	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
325	Industrial	Machinery	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0

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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
326	Industrial	Machinery	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
327	Industrial	Machinery	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
328	Industrial	Machinery	Motor - Other	Match Motor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.01	0.01	0.0000	0	0	0.0000	0
329	Industrial	Machinery	Motor - Other	Motor Efficiency Upgrade	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
330	Industrial	Machinery	Motor - Other	Operations and maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
331	Industrial	Machinery	Motor - Other	Variable Speed Drives	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
332	Industrial	Machinery	ONPU	High efficiency battery charger (for forklifts)	Per kWh	Retrofit	20.0	20.0	$0.01	0.10	0.0000	0	0	0.0000	0
333	Industrial	Machinery	OPU	HE Dry-Type Transformers	Per kWh	Retrofit	30.0	30.0	$0.00	0.01	0.0000	0	0	0.0000	0
334	Industrial	Machinery	PCR	Doors, Covers and Curtains	Per kWh	Retrofit	5.0	5.0	$0.00	0.07	0.0000	0	0	0.0000	0
335	Industrial	Machinery	PCR	Floating head pressure controls	Per kWh	Retrofit	15.0	15.0	$0.00	0.07	0.0000	0	0	0.0000	0
336	Industrial	Machinery	PCR	Free-cooling	Per kWh	Retrofit	12.0	12.0	$0.02	0.21	0.0000	0	0	0.0000	0
337	Industrial	Machinery	PCR	High Efficiency Chiller	Per kWh	Retrofit	20.0	20.0	$0.10	0.19	0.0000	0	0	0.0000	0
338	Industrial	Machinery	PCR	Improve insulation of refrigeration system	Per kWh	Retrofit	10.0	10.0	$0.02	0.05	0.0000	0	0	0.0000	0
339	Industrial	Machinery	PCR	Optimized chilled water temperature and/or optimized condenser temperature	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
340	Industrial	Machinery	PCR	Optimized condenser pressure	Per kWh	Retrofit	3.0	3.0	$0.00	0.06	0.0000	0	0	0.0000	0
341	Industrial	Machinery	PCR	Premium efficiency refrigeration control system	Per kWh	Retrofit	15.0	15.0	$0.13	0.09	0.0000	0	0	0.0000	0
342	Industrial	Machinery	PCR	Preventative refrigeration/cooling system maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
343	Industrial	Machinery	PCR	Smart Defrost Controls	Per kWh	Retrofit	16.0	16.0	$0.00	0.10	0.0000	0	0	0.0000	0
344	Industrial	Machinery	PH	Advanced water heater controls	Per kWh	Retrofit	20.0	20.0	$0.00	0.03	0.0000	0	0	0.0000	0
345	Industrial	Machinery	PH	Air Curtains (Dryer)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
346	Industrial	Machinery	PH	Air Curtains (Oven)	Per kWh	Retrofit	20.0	20.0	$0.02	0.15	0.0000	0	0	0.0000	0
347	Industrial	Machinery	PH	Insulation (Dryer)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
348	Industrial	Machinery	PH	Insulation (Oven)	Per kWh	Retrofit	15.0	15.0	$0.01	0.05	0.0000	0	0	0.0000	0
349	Industrial	Machinery	PH	Optimized Distribution System	Per kWh	Retrofit	25.0	25.0	$0.01	0.03	0.0000	0	0	0.0000	0
350	Industrial	Machinery	PH	Preventative Dryer Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
351	Industrial	Machinery	PH	Preventative Oven Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
352	Industrial	Machinery	PH	Process Heat Recovery to Preheat Makeup Water	Per kWh	Retrofit	20.0	20.0	$0.02	0.06	0.0000	0	0	0.0000	0
353	Industrial	Machinery	Pumps	Improve Pump Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
354	Industrial	Machinery	Pumps	Match Pump Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
355	Industrial	Machinery	Pumps	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
356	Industrial	Machinery	Pumps	Reduce or Control Pump Speed	Per kWh	Retrofit	15.0	15.0	$0.01	0.30	0.0000	0	0	0.0000	0
357	Industrial	Machinery	Pumps	Reduce Overall System Requirements	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
358	Industrial	Petroleum Refining	Compressed Air	Compressor Control	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
359	Industrial	Petroleum Refining	Compressed Air	Improve Compressor Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
360	Industrial	Petroleum Refining	Compressed Air	Match Compressor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.03	0.0000	0	0	0.0000	0
361	Industrial	Petroleum Refining	Compressed Air	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
362	Industrial	Petroleum Refining	Compressed Air	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
363	Industrial	Petroleum Refining	Fans	Improve Fan Components	Per kWh	Retrofit	15.0	15.0	$0.03	0.05	0.0000	0	0	0.0000	0
364	Industrial	Petroleum Refining	Fans	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
365	Industrial	Petroleum Refining	Fans	Reduce or Control Fan Speed	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
366	Industrial	Petroleum Refining	Fans	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
367	Industrial	Petroleum Refining	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
368	Industrial	Petroleum Refining	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
369	Industrial	Petroleum Refining	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
370	Industrial	Petroleum Refining	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
371	Industrial	Petroleum Refining	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
372	Industrial	Petroleum Refining	HVAC	Air Curtains	Per kWh	Retrofit	15.0	15.0	$0.10	0.03	0.0000	0	0	0.0000	0
373	Industrial	Petroleum Refining	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
374	Industrial	Petroleum Refining	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
375	Industrial	Petroleum Refining	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
376	Industrial	Petroleum Refining	HVAC	Free cooling	Per kWh	Retrofit	15.0	15.0	$0.01	0.53	0.0001	0	0	0.0000	0
377	Industrial	Petroleum Refining	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
378	Industrial	Petroleum Refining	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
379	Industrial	Petroleum Refining	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
380	Industrial	Petroleum Refining	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
381	Industrial	Petroleum Refining	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
382	Industrial	Petroleum Refining	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
383	Industrial	Petroleum Refining	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
384	Industrial	Petroleum Refining	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
385	Industrial	Petroleum Refining	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
386	Industrial	Petroleum Refining	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
387	Industrial	Petroleum Refining	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
388	Industrial	Petroleum Refining	Motor - Other	Match Motor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.01	0.01	0.0000	0	0	0.0000	0
389	Industrial	Petroleum Refining	Motor - Other	Motor Efficiency Upgrade	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
390	Industrial	Petroleum Refining	Motor - Other	Operations and maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0

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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
391	Industrial	Petroleum Refining	Motor - Other	Variable Speed Drives	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
392	Industrial	Petroleum Refining	Pumps	Improve Pump Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
393	Industrial	Petroleum Refining	Pumps	Match Pump Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
394	Industrial	Petroleum Refining	Pumps	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
395	Industrial	Petroleum Refining	Pumps	Reduce or Control Pump Speed	Per kWh	Retrofit	15.0	15.0	$0.01	0.30	0.0000	0	0	0.0000	0
396	Industrial	Petroleum Refining	Pumps	Reduce Overall System Requirements	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
397	Industrial	Plastics & Polymers	Compressed Air	Minimize operating air pressure	Per kWh	Retrofit	1.0	1.0	$0.00	0.20	0.0000	0	0	0.0000	0
398	Industrial	Plastics & Polymers	Compressed Air	Optimized Distribution System	Per kWh	Retrofit	10.0	10.0	$0.01	0.10	0.0000	0	0	0.0000	0
399	Industrial	Plastics & Polymers	Compressed Air	Optimized sizing of compressor system	Per kWh	Retrofit	20.0	20.0	$0.04	0.10	0.0000	0	0	0.0000	0
400	Industrial	Plastics & Polymers	Compressed Air	Premium efficiency ASD compressor	Per kWh	Retrofit	10.0	10.0	$0.08	0.13	0.0000	0	0	0.0000	0
401	Industrial	Plastics & Polymers	Fans	Impeller Trimming or Inlet Guide Vanes	Per kWh	Retrofit	3.0	3.0	$0.01	0.15	0.0000	0	0	0.0000	0
402	Industrial	Plastics & Polymers	Fans	Premium efficiency control, with ASD (Fans)	Per kWh	Retrofit	10.0	10.0	$0.00	0.10	0.0000	0	0	0.0000	0
403	Industrial	Plastics & Polymers	Fans	Preventative Fan Maintenance	Per kWh	Retrofit	3.0	3.0	$0.02	0.02	0.0000	0	0	0.0000	0
404	Industrial	Plastics & Polymers	Fans	Synchronous Belts (Fans)	Per kWh	Retrofit	10.0	10.0	$0.01	0.20	0.0000	0	0	0.0000	0
405	Industrial	Plastics & Polymers	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
406	Industrial	Plastics & Polymers	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
407	Industrial	Plastics & Polymers	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
408	Industrial	Plastics & Polymers	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
409	Industrial	Plastics & Polymers	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
410	Industrial	Plastics & Polymers	HVAC	Air Curtains	Per kWh	Retrofit	15.0	15.0	$0.10	0.03	0.0000	0	0	0.0000	0
411	Industrial	Plastics & Polymers	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
412	Industrial	Plastics & Polymers	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
413	Industrial	Plastics & Polymers	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
414	Industrial	Plastics & Polymers	HVAC	Free cooling	Per kWh	Retrofit	15.0	15.0	$0.01	0.53	0.0001	0	0	0.0000	0
415	Industrial	Plastics & Polymers	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
416	Industrial	Plastics & Polymers	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
417	Industrial	Plastics & Polymers	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
418	Industrial	Plastics & Polymers	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
419	Industrial	Plastics & Polymers	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
420	Industrial	Plastics & Polymers	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
421	Industrial	Plastics & Polymers	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
422	Industrial	Plastics & Polymers	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
423	Industrial	Plastics & Polymers	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
424	Industrial	Plastics & Polymers	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
425	Industrial	Plastics & Polymers	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
426	Industrial	Plastics & Polymers	Machine Drive	Sub-Metering and Interval Metering	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
427	Industrial	Plastics & Polymers	Motor - Other	Correctly sized motors	Per kWh	Retrofit	15.0	15.0	$0.01	0.02	0.0000	0	0	0.0000	0
428	Industrial	Plastics & Polymers	Motor - Other	High/Premium Efficiency Motors	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
429	Industrial	Plastics & Polymers	Motor - Other	Premium Efficiency Control with ASDs (Other motors)	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
430	Industrial	Plastics & Polymers	Motor - Other	Preventative Motor Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
431	Industrial	Plastics & Polymers	ONPU	High efficiency battery charger (for forklifts)	Per kWh	Retrofit	20.0	20.0	$0.01	0.10	0.0000	0	0	0.0000	0
432	Industrial	Plastics & Polymers	PCR	Doors, Covers and Curtains	Per kWh	Retrofit	5.0	5.0	$0.00	0.07	0.0000	0	0	0.0000	0
433	Industrial	Plastics & Polymers	PCR	Floating head pressure controls	Per kWh	Retrofit	15.0	15.0	$0.00	0.07	0.0000	0	0	0.0000	0
434	Industrial	Plastics & Polymers	PCR	Free-cooling	Per kWh	Retrofit	12.0	12.0	$0.02	0.21	0.0000	0	0	0.0000	0
435	Industrial	Plastics & Polymers	PCR	High Efficiency Chiller	Per kWh	Retrofit	20.0	20.0	$0.10	0.19	0.0000	0	0	0.0000	0
436	Industrial	Plastics & Polymers	PCR	Improve insulation of refrigeration system	Per kWh	Retrofit	10.0	10.0	$0.02	0.05	0.0000	0	0	0.0000	0
437	Industrial	Plastics & Polymers	PCR	Optimized chilled water temperature and/or optimized condenser temperature	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
438	Industrial	Plastics & Polymers	PCR	Optimized condenser pressure	Per kWh	Retrofit	3.0	3.0	$0.00	0.06	0.0000	0	0	0.0000	0
439	Industrial	Plastics & Polymers	PCR	Premium efficiency refrigeration control system	Per kWh	Retrofit	15.0	15.0	$0.13	0.09	0.0000	0	0	0.0000	0
440	Industrial	Plastics & Polymers	PCR	Preventative refrigeration/cooling system maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
441	Industrial	Plastics & Polymers	PCR	Smart Defrost Controls	Per kWh	Retrofit	16.0	16.0	$0.00	0.10	0.0000	0	0	0.0000	0
442	Industrial	Plastics & Polymers	PCR	VSD on chiller compressor	Per kWh	Retrofit	15.0	15.0	$0.03	0.30	0.0000	0	0	0.0000	0
443	Industrial	Plastics & Polymers	PH	Advanced water heater controls	Per kWh	Retrofit	20.0	20.0	$0.00	0.03	0.0000	0	0	0.0000	0
444	Industrial	Plastics & Polymers	PH	Air Curtains (Dryer)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
445	Industrial	Plastics & Polymers	PH	Air Curtains (Oven)	Per kWh	Retrofit	20.0	20.0	$0.02	0.15	0.0000	0	0	0.0000	0
446	Industrial	Plastics & Polymers	PH	Insulation (Dryer)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
447	Industrial	Plastics & Polymers	PH	Insulation (Oven)	Per kWh	Retrofit	15.0	15.0	$0.01	0.05	0.0000	0	0	0.0000	0
448	Industrial	Plastics & Polymers	PH	Optimized Distribution System	Per kWh	Retrofit	25.0	25.0	$0.01	0.03	0.0000	0	0	0.0000	0
449	Industrial	Plastics & Polymers	PH	Preventative Dryer Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
450	Industrial	Plastics & Polymers	PH	Preventative Oven Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
451	Industrial	Plastics & Polymers	PH	Process Heat Recovery to Preheat Makeup Water	Per kWh	Retrofit	20.0	20.0	$0.02	0.06	0.0000	0	0	0.0000	0
452	Industrial	Plastics & Polymers	Pumps	Impeller Trimming (Pump)	Per kWh	Retrofit	20.0	20.0	$0.01	0.15	0.0000	0	0	0.0000	0
453	Industrial	Plastics & Polymers	Pumps	Optimization of pumping system	Per kWh	Retrofit	15.0	15.0	$0.02	0.14	0.0000	0	0	0.0000	0
454	Industrial	Plastics & Polymers	Pumps	Premium Efficiency Control with ASDs (Pumps)	Per kWh	Retrofit	15.0	15.0	$0.01	0.20	0.0000	0	0	0.0000	0
455	Industrial	Plastics & Polymers	Pumps	Preventative Pump Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0

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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
456	Industrial	Pulp & paper	Compressed Air	Eliminate air leaks	Per kWh	Retrofit	3.0	3.0	$0.00	0.15	0.0000	0	0	0.0000	0
457	Industrial	Pulp & paper	Compressed Air	Minimize operating air pressure	Per kWh	Retrofit	1.0	1.0	$0.00	0.20	0.0000	0	0	0.0000	0
458	Industrial	Pulp & paper	Compressed Air	Optimized Distribution System	Per kWh	Retrofit	10.0	10.0	$0.01	0.10	0.0000	0	0	0.0000	0
459	Industrial	Pulp & paper	Compressed Air	Optimized sizes of air receiver tanks	Per kWh	Retrofit	10.0	10.0	$0.02	0.12	0.0000	0	0	0.0000	0
460	Industrial	Pulp & paper	Compressed Air	Optimized sizing of compressor system	Per kWh	Retrofit	20.0	20.0	$0.04	0.10	0.0000	0	0	0.0000	0
461	Industrial	Pulp & paper	Compressed Air	Premium Efficiency Air Dryer (compressors)	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
462	Industrial	Pulp & paper	Compressed Air	Premium efficiency ASD compressor	Per kWh	Retrofit	10.0	10.0	$0.08	0.13	0.0000	0	0	0.0000	0
463	Industrial	Pulp & paper	Compressed Air	Premium efficiency ASD compressor	Per kWh	Retrofit	10.0	10.0	$0.05	0.13	0.0000	0	0	0.0000	0
464	Industrial	Pulp & paper	Compressed Air	Replace compressed air use with mechanical or electrical	Per kWh	Retrofit	20.0	20.0	$0.02	0.56	0.0001	0	0	0.0000	0
465	Industrial	Pulp & paper	Compressed Air	Sequencing Control	Per kWh	Retrofit	5.0	5.0	$0.01	0.10	0.0000	0	0	0.0000	0
466	Industrial	Pulp & paper	Compressed Air	Synchronous Belts for Air Compressors	Per kWh	Retrofit	10.0	10.0	$0.00	0.02	0.0000	0	0	0.0000	0
467	Industrial	Pulp & paper	Compressed Air	Use cooler air from outside for make up air	Per kWh	Retrofit	20.0	20.0	$0.00	0.04	0.0000	0	0	0.0000	0
468	Industrial	Pulp & paper	Fans	High/Premium Efficiency Motors (Fans)	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
469	Industrial	Pulp & paper	Fans	Impeller Trimming or Inlet Guide Vanes	Per kWh	Retrofit	3.0	3.0	$0.01	0.15	0.0000	0	0	0.0000	0
470	Industrial	Pulp & paper	Fans	Premium efficiency control, with ASD (Fans)	Per kWh	Retrofit	10.0	10.0	$0.00	0.10	0.0000	0	0	0.0000	0
471	Industrial	Pulp & paper	Fans	Preventative Fan Maintenance	Per kWh	Retrofit	3.0	3.0	$0.02	0.02	0.0000	0	0	0.0000	0
472	Industrial	Pulp & paper	Fans	Synchronous Belts (Fans)	Per kWh	Retrofit	10.0	10.0	$0.01	0.20	0.0000	0	0	0.0000	0
473	Industrial	Pulp & paper	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
474	Industrial	Pulp & paper	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
475	Industrial	Pulp & paper	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
476	Industrial	Pulp & paper	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
477	Industrial	Pulp & paper	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
478	Industrial	Pulp & paper	HVAC	Air Curtains	Per kWh	Retrofit	15.0	15.0	$0.10	0.03	0.0000	0	0	0.0000	0
479	Industrial	Pulp & paper	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
480	Industrial	Pulp & paper	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
481	Industrial	Pulp & paper	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
482	Industrial	Pulp & paper	HVAC	Free cooling	Per kWh	Retrofit	15.0	15.0	$0.01	0.53	0.0001	0	0	0.0000	0
483	Industrial	Pulp & paper	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
484	Industrial	Pulp & paper	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
485	Industrial	Pulp & paper	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
486	Industrial	Pulp & paper	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
487	Industrial	Pulp & paper	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
488	Industrial	Pulp & paper	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
489	Industrial	Pulp & paper	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
490	Industrial	Pulp & paper	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
491	Industrial	Pulp & paper	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
492	Industrial	Pulp & paper	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
493	Industrial	Pulp & paper	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
494	Industrial	Pulp & paper	Machine Drive	Integrated control system	Per kWh	Retrofit	10.0	10.0	$0.00	0.08	0.0000	0	0	0.0000	0
495	Industrial	Pulp & paper	Machine Drive	Sub-Metering and Interval Metering	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
496	Industrial	Pulp & paper	Motor - Other	Correctly sized motors	Per kWh	Retrofit	15.0	15.0	$0.01	0.02	0.0000	0	0	0.0000	0
497	Industrial	Pulp & paper	Motor - Other	High/Premium Efficiency Motors	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
498	Industrial	Pulp & paper	Motor - Other	Optimized motor control	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
499	Industrial	Pulp & paper	Motor - Other	Premium Efficiency Control with ASDs (Other motors)	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
500	Industrial	Pulp & paper	Motor - Other	Preventative Motor Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
501	Industrial	Pulp & paper	Motor - Other	Synchronous Belts	Per kWh	Retrofit	10.0	10.0	$0.00	0.02	0.0000	0	0	0.0000	0
502	Industrial	Pulp & paper	ONPU	High efficiency battery charger (for forklifts)	Per kWh	Retrofit	20.0	20.0	$0.01	0.10	0.0000	0	0	0.0000	0
503	Industrial	Pulp & paper	OPU	HE Dry-Type Transformers	Per kWh	Retrofit	30.0	30.0	$0.00	0.01	0.0000	0	0	0.0000	0
504	Industrial	Pulp & paper	PCR	Doors, Covers and Curtains	Per kWh	Retrofit	5.0	5.0	$0.00	0.07	0.0000	0	0	0.0000	0
505	Industrial	Pulp & paper	PCR	Floating head pressure controls	Per kWh	Retrofit	15.0	15.0	$0.00	0.07	0.0000	0	0	0.0000	0
506	Industrial	Pulp & paper	PCR	Free-cooling	Per kWh	Retrofit	12.0	12.0	$0.02	0.21	0.0000	0	0	0.0000	0
507	Industrial	Pulp & paper	PCR	High Efficiency Chiller	Per kWh	Retrofit	20.0	20.0	$0.10	0.19	0.0000	0	0	0.0000	0
508	Industrial	Pulp & paper	PCR	Improve insulation of refrigeration system	Per kWh	Retrofit	10.0	10.0	$0.02	0.05	0.0000	0	0	0.0000	0
509	Industrial	Pulp & paper	PCR	Optimized chilled water temperature and/or optimized condenser temperature	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
510	Industrial	Pulp & paper	PCR	Optimized condenser pressure	Per kWh	Retrofit	3.0	3.0	$0.00	0.06	0.0000	0	0	0.0000	0
511	Industrial	Pulp & paper	PCR	Optimized Distribution System	Per kWh	Retrofit	25.0	25.0	$0.01	0.03	0.0000	0	0	0.0000	0
512	Industrial	Pulp & paper	PCR	Premium efficiency refrigeration control system	Per kWh	Retrofit	15.0	15.0	$0.13	0.09	0.0000	0	0	0.0000	0
513	Industrial	Pulp & paper	PCR	Preventative refrigeration/cooling system maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
514	Industrial	Pulp & paper	PCR	Smart Defrost Controls	Per kWh	Retrofit	16.0	16.0	$0.00	0.10	0.0000	0	0	0.0000	0
515	Industrial	Pulp & paper	PCR	VSD on chiller compressor	Per kWh	Retrofit	15.0	15.0	$0.03	0.30	0.0000	0	0	0.0000	0
516	Industrial	Pulp & paper	PH	Advanced water heater controls	Per kWh	Retrofit	20.0	20.0	$0.00	0.03	0.0000	0	0	0.0000	0
517	Industrial	Pulp & paper	PH	Air Curtains (Dryer)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
518	Industrial	Pulp & paper	PH	Air Curtains (Oven)	Per kWh	Retrofit	20.0	20.0	$0.02	0.15	0.0000	0	0	0.0000	0
519	Industrial	Pulp & paper	PH	Insulation (Dryer)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
520	Industrial	Pulp & paper	PH	Insulation (Oven)	Per kWh	Retrofit	15.0	15.0	$0.01	0.05	0.0000	0	0	0.0000	0

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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
521	Industrial	Pulp & paper	PH	Preventative Dryer Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
522	Industrial	Pulp & paper	PH	Preventative Oven Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
523	Industrial	Pulp & paper	PH	Process Heat Recovery to Preheat Makeup Water	Per kWh	Retrofit	20.0	20.0	$0.02	0.06	0.0000	0	0	0.0000	0
524	Industrial	Pulp & paper	Pumps	High/Premium Efficiency Motors (Pumps)	Per kWh	Retrofit	15.0	15.0	$0.02	0.04	0.0000	0	0	0.0000	0
525	Industrial	Pulp & paper	Pumps	Impeller Trimming (Pump)	Per kWh	Retrofit	20.0	20.0	$0.01	0.15	0.0000	0	0	0.0000	0
526	Industrial	Pulp & paper	Pumps	Optimization of pumping system	Per kWh	Retrofit	15.0	15.0	$0.02	0.14	0.0000	0	0	0.0000	0
527	Industrial	Pulp & paper	Pumps	Premium Efficiency Control with ASDs (Pumps)	Per kWh	Retrofit	15.0	15.0	$0.01	0.20	0.0000	0	0	0.0000	0
528	Industrial	Pulp & paper	Pumps	Preventative Pump Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
529	Industrial	Transportation Equipment	Compressed Air	Compressor Control	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
530	Industrial	Transportation Equipment	Compressed Air	Improve Compressor Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
531	Industrial	Transportation Equipment	Compressed Air	Match Compressor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.03	0.0000	0	0	0.0000	0
532	Industrial	Transportation Equipment	Compressed Air	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
533	Industrial	Transportation Equipment	Compressed Air	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
534	Industrial	Transportation Equipment	Fans	Improve Fan Components	Per kWh	Retrofit	15.0	15.0	$0.03	0.05	0.0000	0	0	0.0000	0
535	Industrial	Transportation Equipment	Fans	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
536	Industrial	Transportation Equipment	Fans	Reduce or Control Fan Speed	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
537	Industrial	Transportation Equipment	Fans	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
538	Industrial	Transportation Equipment	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
539	Industrial	Transportation Equipment	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
540	Industrial	Transportation Equipment	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
541	Industrial	Transportation Equipment	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
542	Industrial	Transportation Equipment	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
543	Industrial	Transportation Equipment	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
544	Industrial	Transportation Equipment	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
545	Industrial	Transportation Equipment	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
546	Industrial	Transportation Equipment	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
547	Industrial	Transportation Equipment	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
548	Industrial	Transportation Equipment	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
549	Industrial	Transportation Equipment	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
550	Industrial	Transportation Equipment	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
551	Industrial	Transportation Equipment	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
552	Industrial	Transportation Equipment	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
553	Industrial	Transportation Equipment	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
554	Industrial	Transportation Equipment	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
555	Industrial	Transportation Equipment	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
556	Industrial	Transportation Equipment	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
557	Industrial	Transportation Equipment	Motor - Other	Match Motor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.01	0.01	0.0000	0	0	0.0000	0
558	Industrial	Transportation Equipment	Motor - Other	Motor Efficiency Upgrade	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
559	Industrial	Transportation Equipment	Motor - Other	Operations and maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
560	Industrial	Transportation Equipment	Motor - Other	Variable Speed Drives	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
561	Industrial	Transportation Equipment	ONPU	High efficiency battery charger (for forklifts)	Per kWh	Retrofit	20.0	20.0	$0.01	0.10	0.0000	0	0	0.0000	0
562	Industrial	Transportation Equipment	OPU	HE Dry-Type Transformers	Per kWh	Retrofit	30.0	30.0	$0.00	0.01	0.0000	0	0	0.0000	0
563	Industrial	Transportation Equipment	PCR	Doors, Covers and Curtains	Per kWh	Retrofit	5.0	5.0	$0.00	0.07	0.0000	0	0	0.0000	0
564	Industrial	Transportation Equipment	PCR	Floating head pressure controls	Per kWh	Retrofit	15.0	15.0	$0.00	0.07	0.0000	0	0	0.0000	0
565	Industrial	Transportation Equipment	PCR	Free-cooling	Per kWh	Retrofit	12.0	12.0	$0.02	0.21	0.0000	0	0	0.0000	0
566	Industrial	Transportation Equipment	PCR	High Efficiency Chiller	Per kWh	Retrofit	20.0	20.0	$0.10	0.19	0.0000	0	0	0.0000	0
567	Industrial	Transportation Equipment	PCR	Improve insulation of refrigeration system	Per kWh	Retrofit	10.0	10.0	$0.02	0.05	0.0000	0	0	0.0000	0
568	Industrial	Transportation Equipment	PCR	Optimized chilled water temperature and/or optimized condenser temperature	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
569	Industrial	Transportation Equipment	PCR	Optimized condenser pressure	Per kWh	Retrofit	3.0	3.0	$0.00	0.06	0.0000	0	0	0.0000	0
570	Industrial	Transportation Equipment	PCR	Premium efficiency refrigeration control system	Per kWh	Retrofit	15.0	15.0	$0.13	0.09	0.0000	0	0	0.0000	0
571	Industrial	Transportation Equipment	PCR	Preventative refrigeration/cooling system maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
572	Industrial	Transportation Equipment	PCR	Smart Defrost Controls	Per kWh	Retrofit	16.0	16.0	$0.00	0.10	0.0000	0	0	0.0000	0
573	Industrial	Transportation Equipment	PH	Advanced water heater controls	Per kWh	Retrofit	20.0	20.0	$0.00	0.03	0.0000	0	0	0.0000	0
574	Industrial	Transportation Equipment	PH	Air Curtains (Dryer)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
575	Industrial	Transportation Equipment	PH	Air Curtains (Oven)	Per kWh	Retrofit	20.0	20.0	$0.02	0.15	0.0000	0	0	0.0000	0
576	Industrial	Transportation Equipment	PH	Insulation (Dryer)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
577	Industrial	Transportation Equipment	PH	Insulation (Oven)	Per kWh	Retrofit	15.0	15.0	$0.01	0.05	0.0000	0	0	0.0000	0
578	Industrial	Transportation Equipment	PH	Optimized Distribution System	Per kWh	Retrofit	25.0	25.0	$0.01	0.03	0.0000	0	0	0.0000	0
579	Industrial	Transportation Equipment	PH	Preventative Dryer Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
580	Industrial	Transportation Equipment	PH	Preventative Oven Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
581	Industrial	Transportation Equipment	PH	Process Heat Recovery to Preheat Makeup Water	Per kWh	Retrofit	20.0	20.0	$0.02	0.06	0.0000	0	0	0.0000	0
582	Industrial	Transportation Equipment	Pumps	Improve Pump Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
583	Industrial	Transportation Equipment	Pumps	Match Pump Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
584	Industrial	Transportation Equipment	Pumps	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
585	Industrial	Transportation Equipment	Pumps	Reduce or Control Pump Speed	Per kWh	Retrofit	15.0	15.0	$0.01	0.30	0.0000	0	0	0.0000	0

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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF HAWAII
Docket No. 2020-0183
Filed 2020-09-18 13:36 PSC
Exhibit #2020-0183-E-1
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MEASURE DESCRIPTION									MEASURE INCREMENTAL SAVINGS PER UNIT						
Measure ID	Sector	Sub-Sector	End Use	Measure Name	Measure Unit Name	Retrofit (RET), Replace-on-Burnout (ROB), or New Construction (NEW)	Baseline Unit Lifetime (Years)	Efficient Unit Lifetime (Years)	Total Incremental Cost (per kWh usage)	Annual kWh Savings (percent of usage)	Annual kW Coincident Peak Savings (percent of usage)	Annual Gas Savings (Therms) (percent of usage)	Annual kWh Increases (percent of usage)	Annual kW Coincident Peak Increases (percent of usage)	Annual Gas Therms Increase (percent of usage)
586	Industrial	Transportation Equipment	Pumps	Reduce Overall System Requirements	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
587	Industrial	Other	Compressed Air	Compressor Control	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
588	Industrial	Other	Compressed Air	Improve Compressor Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
589	Industrial	Other	Compressed Air	Match Compressor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.03	0.0000	0	0	0.0000	0
590	Industrial	Other	Compressed Air	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0
591	Industrial	Other	Compressed Air	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
592	Industrial	Other	Fans	Improve Fan Components	Per kWh	Retrofit	15.0	15.0	$0.03	0.05	0.0000	0	0	0.0000	0
593	Industrial	Other	Fans	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
594	Industrial	Other	Fans	Reduce or Control Fan Speed	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
595	Industrial	Other	Fans	Reduce Overall System Requirements	Per kWh	Retrofit	15.0	15.0	$0.01	0.10	0.0000	0	0	0.0000	0
596	Industrial	Other	FL	Efficient Lighting Design	Per kWh	Retrofit	16.0	16.0	$0.02	0.15	0.0000	0	0	0.0000	0
597	Industrial	Other	FL	High efficiency ballasts for lighting	Per kWh	Retrofit	11.0	11.0	$0.01	0.25	0.0000	0	0	0.0000	0
598	Industrial	Other	FL	High Efficiency Light fixtures	Per kWh	Retrofit	16.0	16.0	$0.07	0.45	0.0001	0	0	0.0000	0
599	Industrial	Other	FL	Lighting controls: occupancy sensors	Per kWh	Retrofit	8.0	8.0	$0.19	0.15	0.0000	0	0	0.0000	0
600	Industrial	Other	FL	Lighting controls: on/off timer settings	Per kWh	Retrofit	8.0	8.0	$0.02	0.15	0.0000	0	0	0.0000	0
601	Industrial	Other	HVAC	Air Source Heat Pump for Backup Generators	Per kWh	Retrofit	15.0	15.0	$0.26	0.68	0.0001	0	0	0.0000	0
602	Industrial	Other	HVAC	Automated Temperature Control	Per kWh	Retrofit	25.0	25.0	$0.02	0.07	0.0000	0	0	0.0000	0
603	Industrial	Other	HVAC	Destratification Fans	Per kWh	Retrofit	20.0	20.0	$0.02	0.08	0.0000	0	0	0.0000	0
604	Industrial	Other	HVAC	Ground Source Heat Pump	Per kWh	Retrofit	20.0	20.0	$0.52	0.51	0.0001	0	0	0.0000	0
605	Industrial	Other	HVAC	Heat Recovery from Processes to Heat Ventilation Make-up Air	Per kWh	Retrofit	15.0	15.0	$3.34	0.15	0.0000	0	0	0.0000	0
606	Industrial	Other	HVAC	High efficiency non-packaged HVAC equipment	Per kWh	Retrofit	20.0	20.0	$1.72	0.25	0.0000	0	0	0.0000	0
607	Industrial	Other	HVAC	High-efficiency rooftop AC with an EER of 13.5	Per kWh	Retrofit	15.0	15.0	$0.04	0.17	0.0000	0	0	0.0000	0
608	Industrial	Other	HVAC	Optimized duct design to improve efficiency	Per kWh	Retrofit	15.0	15.0	$0.09	0.05	0.0000	0	0	0.0000	0
609	Industrial	Other	HVAC	Preventative Packaged HVAC Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
610	Industrial	Other	HVAC	Radiant Heaters	Per kWh	Retrofit	20.0	20.0	$1.72	0.10	0.0000	0	0	0.0000	0
611	Industrial	Other	HVAC	Reduced Temperature Settings	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
612	Industrial	Other	HVAC	Seasonal Temperature Settings Adjustments	Per kWh	Retrofit	3.0	3.0	$0.00	0.07	0.0000	0	0	0.0000	0
613	Industrial	Other	HVAC	Ventilation Heat Recovery	Per kWh	Retrofit	20.0	20.0	$0.88	0.20	0.0000	0	0	0.0000	0
614	Industrial	Other	HVAC	Warehouse Loading Dock Seals	Per kWh	Retrofit	10.0	10.0	$0.05	0.05	0.0000	0	0	0.0000	0
615	Industrial	Other	Motor - Other	Match Motor Size to Load	Per kWh	Retrofit	15.0	15.0	$0.01	0.01	0.0000	0	0	0.0000	0
616	Industrial	Other	Motor - Other	Motor Efficiency Upgrade	Per kWh	Retrofit	15.0	15.0	$0.02	0.02	0.0000	0	0	0.0000	0
617	Industrial	Other	Motor - Other	Operations and maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
618	Industrial	Other	Motor - Other	Variable Speed Drives	Per kWh	Retrofit	15.0	15.0	$0.00	0.20	0.0000	0	0	0.0000	0
619	Industrial	Other	ONPU	High efficiency battery charger (for forklifts)	Per kWh	Retrofit	20.0	20.0	$0.01	0.10	0.0000	0	0	0.0000	0
620	Industrial	Other	OPU	HE Dry-Type Transformers	Per kWh	Retrofit	30.0	30.0	$0.00	0.01	0.0000	0	0	0.0000	0
621	Industrial	Other	PCR	Doors, Covers and Curtains	Per kWh	Retrofit	5.0	5.0	$0.00	0.07	0.0000	0	0	0.0000	0
622	Industrial	Other	PCR	Floating head pressure controls	Per kWh	Retrofit	15.0	15.0	$0.00	0.07	0.0000	0	0	0.0000	0
623	Industrial	Other	PCR	Free-cooling	Per kWh	Retrofit	12.0	12.0	$0.02	0.21	0.0000	0	0	0.0000	0
624	Industrial	Other	PCR	High Efficiency Chiller	Per kWh	Retrofit	20.0	20.0	$0.10	0.19	0.0000	0	0	0.0000	0
625	Industrial	Other	PCR	Improve insulation of refrigeration system	Per kWh	Retrofit	10.0	10.0	$0.02	0.05	0.0000	0	0	0.0000	0
626	Industrial	Other	PCR	Optimized chilled water temperature and/or optimized condenser temperature	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
627	Industrial	Other	PCR	Optimized condenser pressure	Per kWh	Retrofit	3.0	3.0	$0.00	0.06	0.0000	0	0	0.0000	0
628	Industrial	Other	PCR	Premium efficiency refrigeration control system	Per kWh	Retrofit	15.0	15.0	$0.13	0.09	0.0000	0	0	0.0000	0
629	Industrial	Other	PCR	Preventative refrigeration/cooling system maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
630	Industrial	Other	PCR	Smart Defrost Controls	Per kWh	Retrofit	16.0	16.0	$0.00	0.10	0.0000	0	0	0.0000	0
631	Industrial	Other	PH	Advanced water heater controls	Per kWh	Retrofit	20.0	20.0	$0.00	0.03	0.0000	0	0	0.0000	0
632	Industrial	Other	PH	Air Curtains (Dryer)	Per kWh	Retrofit	20.0	20.0	$0.00	0.15	0.0000	0	0	0.0000	0
633	Industrial	Other	PH	Air Curtains (Oven)	Per kWh	Retrofit	20.0	20.0	$0.02	0.15	0.0000	0	0	0.0000	0
634	Industrial	Other	PH	Insulation (Dryer)	Per kWh	Retrofit	15.0	15.0	$0.00	0.05	0.0000	0	0	0.0000	0
635	Industrial	Other	PH	Insulation (Oven)	Per kWh	Retrofit	15.0	15.0	$0.01	0.05	0.0000	0	0	0.0000	0
636	Industrial	Other	PH	Optimized Distribution System	Per kWh	Retrofit	25.0	25.0	$0.01	0.03	0.0000	0	0	0.0000	0
637	Industrial	Other	PH	Preventative Dryer Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
638	Industrial	Other	PH	Preventative Oven Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.05	0.0000	0	0	0.0000	0
639	Industrial	Other	PH	Process Heat Recovery to Preheat Makeup Water	Per kWh	Retrofit	20.0	20.0	$0.02	0.06	0.0000	0	0	0.0000	0
640	Industrial	Other	Pumps	Improve Pump Components	Per kWh	Retrofit	15.0	15.0	$0.02	0.05	0.0000	0	0	0.0000	0
641	Industrial	Other	Pumps	Match Pump Size to Load	Per kWh	Retrofit	15.0	15.0	$0.02	0.20	0.0000	0	0	0.0000	0
642	Industrial	Other	Pumps	Operation and Maintenance	Per kWh	Retrofit	3.0	3.0	$0.00	0.02	0.0000	0	0	0.0000	0
643	Industrial	Other	Pumps	Reduce or Control Pump Speed	Per kWh	Retrofit	15.0	15.0	$0.01	0.30	0.0000	0	0	0.0000	0
644	Industrial	Other	Pumps	Reduce Overall System Requirements	Per kWh	Retrofit	3.0	3.0	$0.00	0.10	0.0000	0	0	0.0000	0

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MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
1	Compression ratio optimization (gas compressor)	62.60	1	1	151,036,384	1	8.7%	80%	100.0%	100.0%	34%	100.0%	3,576,891
2	Eliminate air leaks	2.88	1	1	151,036,384	1	8.7%	100%	100.0%	100.0%	61%	100.0%	8,021,704
3	Gas compressor right sizing	0.65	0	0									
4	Minimize operating air pressure	94,310.10	1	1	151,036,384	1	8.7%	80%	100.0%	100.0%	61%	100.0%	6,417,363
5	Minimum cylinder clearance	8.27	1	1	151,036,384	1	8.7%	60%	100.0%	100.0%	44%	100.0%	3,451,963
6	Optimized Distribution System	4.39	1	1	151,036,384	1	8.7%	80%	100.0%	100.0%	81%	100.0%	8,468,815
7	Optimized sizes of air receiver tanks	1.46	1	1	151,036,384	1	8.7%	80%	100.0%	100.0%	45%	100.0%	4,681,519
8	Optimized sizing of compressor system	0.98	0	0									
9	Premium Efficiency Air Dryer (compressors)	1.56	1	1	151,036,384	1	8.7%	80%	100.0%	100.0%	89%	100.0%	9,336,737
10	Premium efficiency ASD compressor	0.38	0	0									
11	Premium efficiency ASD compressor	0.63	0	0									
12	Replace compressed air use with mechanical or electrical	9.59	1	1	151,036,384	1	8.7%	10%	100.0%	100.0%	98%	100.0%	1,285,445
13	Retrofit internal parts of existing centrifugal compressors	1.88	1	1	151,036,384	1	8.7%	50%	100.0%	100.0%	70%	100.0%	4,602,617
14	Sequencing Control	1.68	1	1	151,036,384	1	8.7%	60%	100.0%	100.0%	69%	100.0%	5,404,787
15	Synchronous Belts for Air Compressors	3.58	1	1	151,036,384	1	8.7%	40%	100.0%	100.0%	94%	100.0%	4,944,526
16	Synchronous Belts for Air or Gas Compressors	5.90	1	1	151,036,384	1	8.7%	40%	100.0%	100.0%	94%	100.0%	4,944,526
17	Use cooler air from outside for make up air	32.81	1	1	151,036,384	1	8.7%	60%	100.0%	100.0%	56%	100.0%	4,398,787
18	Volume pocket adjustments	573,728.24	1	1	151,036,384	1	8.7%	30%	100.0%	100.0%	53%	100.0%	2,081,040
19	High/Premium Efficiency Motors (Fans)	0.35	0	0									
20	Impeller Trimming or Inlet Guide Vanes	2.39	1	1	151,036,384	1	7.5%	70%	100.0%	100.0%	99%	100.0%	7,903,746
21	Premium efficiency control, with ASD (Fans)	0.29	0	0									
22	Preventative Fan Maintenance	0.64	0	0									
23	Synchronous Belts (Fans)	1.65	1	1	151,036,384	1	7.5%	40%	100.0%	100.0%	100%	100.0%	4,550,556
24	Efficient Lighting Design	2.35	1	1	151,036,384	1	6.3%	100%	100.0%	100.0%	96%	100.0%	9,149,874
25	High efficiency ballasts for lighting	8.77	1	1	151,036,384	1	6.3%	100%	100.0%	100.0%	86%	100.0%	8,151,706
26	High Efficiency Light fixtures	2.05	1	1	151,036,384	1	6.3%	100%	100.0%	100.0%	74%	100.0%	7,034,709
27	Lighting controls: occupancy sensors	0.16	0	0									
28	Lighting controls: on/off timer settings	2.00	1	1	151,036,384	1	6.3%	80%	100.0%	100.0%	100%	100.0%	7,605,090
29	Ventilation Optimization	0.75	0	0									
30	Air Curtains	0.09	0	0									
31	Air Source Heat Pump for Backup Generators	0.85	0	0									
32	Automated Temperature Control	1.73	1	1	151,036,384	1	9.6%	80%	100.0%	100.0%	46%	100.0%	5,328,969
33	Demand-Controlled Ventilation	0.38	0	0									
34	Destratification Fans	1.29	1	1	151,036,384	1	9.6%	40%	100.0%	100.0%	94%	100.0%	5,444,816
35	Free cooling	15.79	1	1	151,036,384	1	9.6%	10%	100.0%	100.0%	80%	100.0%	1,154,851
36	Ground Source Heat Pump	0.38	0	0									
37	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.01	0	0									
38	High efficiency non-packaged HVAC equipment	0.06	0	0									
39	High-efficiency rooftop AC with an EER of 13.5	1.35	1	1	151,036,384	1	9.6%	80%	100.0%	100.0%	70%	100.0%	8,109,301
40	Optimized duct design to improve efficiency	242,866.16	1	1	151,036,384	1	9.6%	80%	100.0%	100.0%	100%	100.0%	11,584,716
41	Premium efficiency ventilation control with VSD	2.47	1	1	151,036,384	1	9.6%	80%	100.0%	100.0%	89%	100.0%	10,281,435
42	Preventative Packaged HVAC Maintenance	66,810.49	1	1	151,036,384	1	9.6%	100%	100.0%	100.0%	36%	100.0%	5,249,324
43	Radiant Heaters	0.02	0	0									
44	Reduced Temperature Settings	93,534.67	1	1	151,036,384	1	9.6%	80%	100.0%	100.0%	42%	100.0%	4,894,542
45	Seasonal Temperature Settings Adjustments	93,534.67	1	1	151,036,384	1	9.6%	100%	100.0%	100.0%	42%	100.0%	6,118,178
46	Ventilation Heat Recovery	0.09	0	0									
47	Warehouse Loading Dock Seals	0.24	0	0									
48	Integrated control system	294,423.20	1	1	151,036,384	1	51.6%	83%	100.0%	100.0%	96%	100.0%	61,822,097
49	Sub-Metering and Interval Metering	242,866.20	1	1	151,036,384	1	51.6%	100%	100.0%	100.0%	87%	100.0%	67,464,977
50	Correctly sized motors	0.61	0	0									
51	High/Premium Efficiency Motors	0.39	0	0									
52	Optimized motor control	24.16	1	1	151,036,384	1	21.7%	70%	100.0%	100.0%	96%	100.0%	22,117,117
53	Premium Efficiency Control with ASDs (Other motors)	3.09	1	1	151,036,384	1	21.7%	70%	100.0%	100.0%	90%	100.0%	20,652,217
54	Preventative Motor Maintenance	66,810.50	1	1	151,036,384	1	21.7%	100%	100.0%	100.0%	46%	100.0%	15,100,369
55	Synchronous Belts	3.58	1	1	151,036,384	1	21.7%	40%	100.0%	100.0%	99%	100.0%	13,032,275
56	High efficiency battery charger (for forklifts)	2.65	1	1	151,036,384	1	2.3%	100%	100.0%	100.0%	89%	100.0%	3,123,050
57	HE Dry-Type Transformers	68,870.14	1	1	151,036,384	1	2.1%	100%	100.0%	100.0%	100%	100.0%	3,203,802
58	Doors, Covers and Curtains	2.34	1	1	151,036,384	1	7.4%	40%	100.0%	100.0%	61%	100.0%	2,716,824
59	Floating head pressure controls	13.46	1	1	151,036,384	1	7.4%	10%	100.0%	100.0%	75%	100.0%	837,873
60	Free-cooling	3.89	1	1	151,036,384	1	7.4%	35%	100.0%	100.0%	80%	100.0%	3,107,924
61	High Efficiency Chiller	0.76	0	0									
62	Improve insulation of refrigeration system	0.50	0	0									
63	Optimized chilled water temperature and/or optimized condenser temperature	27,392.35	1	1	151,036,384	1	7.4%	60%	100.0%	100.0%	84%	100.0%	5,578,397
64	Optimized condenser pressure	80,172.60	1	1	151,036,384	1	7.4%	60%	100.0%	100.0%	84%	100.0%	5,578,397
65	Optimized Distribution System	1.15	1	1	151,036,384	1	7.4%	90%	100.0%	100.0%	94%	100.0%	9,419,808

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MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
66	Premium efficiency refrigeration control system	0.22	0	0									
67	Preventative refrigeration/cooling system maintenance	66,810.52	1	1	151,036,384	1	7.4%	100%	100.0%	100.0%	42%	100.0%	4,620,828
68	Smart Defrost Controls	37.72	1	1	151,036,384	1	7.4%	15%	100.0%	100.0%	87%	100.0%	1,457,231
69	VSD on chiller compressor	2.90	1	1	151,036,384	1	7.4%	80%	100.0%	100.0%	84%	100.0%	7,437,862
70	Advanced water heater controls	5.96	1	1	151,036,384	1	11.3%	90%	100.0%	100.0%	77%	100.0%	11,790,713
71	Air Curtains (Dryer)	27.54	1	1	151,036,384	1	11.3%	9%	100.0%	100.0%	79%	100.0%	1,213,637
72	Air Curtains (Oven)	2.75	1	1	151,036,384	1	11.3%	9%	100.0%	100.0%	79%	100.0%	1,213,637
73	Insulation (Dryer)	14.59	1	1	151,036,384	1	11.3%	90%	100.0%	100.0%	42%	100.0%	6,490,653
74	Insulation (Furnace)	14.59	1	1	151,036,384	1	11.3%	90%	100.0%	100.0%	42%	100.0%	6,490,653
75	Insulation (Kiln)	72.95	1	1	151,036,384	1	11.3%	90%	100.0%	100.0%	42%	100.0%	6,490,653
76	Insulation (Oven)	1.46	1	1	151,036,384	1	11.3%	90%	100.0%	100.0%	42%	100.0%	6,490,653
77	Preventative Dryer Maintenance	66,810.53	1	1	151,036,384	1	11.3%	100%	100.0%	100.0%	36%	100.0%	6,187,671
78	Preventative Furnace Maintenance	66,810.53	1	1	151,036,384	1	11.3%	100%	100.0%	100.0%	36%	100.0%	6,187,671
79	Preventative Kiln Maintenance	66,810.53	1	1	151,036,384	1	11.3%	100%	100.0%	100.0%	36%	100.0%	6,187,671
80	Preventative Oven Maintenance	66,810.53	1	1	151,036,384	1	11.3%	100%	100.0%	100.0%	36%	100.0%	6,187,671
81	Process Heat Recovery to Preheat Makeup Water	1.42	1	1	151,036,384	1	11.3%	70%	100.0%	100.0%	69%	100.0%	8,274,409
82	High/Premium Efficiency Motors (Pumps)	0.85	0	0									
83	Impeller Trimming (Pump)	5.87	1	1	151,036,384	1	13.7%	15%	100.0%	100.0%	99%	100.0%	3,048,342
84	Optimization of pumping system	2.24	1	1	151,036,384	1	13.7%	80%	100.0%	100.0%	99%	100.0%	16,381,614
85	Premium Efficiency Control with ASDs (Pumps)	3.09	1	1	151,036,384	1	13.7%	70%	100.0%	100.0%	86%	100.0%	12,384,212
86	Preventative Pump Maintenance	66,810.54	1	1	151,036,384	1	13.7%	100%	100.0%	100.0%	46%	100.0%	9,490,608
87	Compressor Control	8.37	1	1	47,651,097	1	4.3%	25%	100.0%	100.0%	72%	100.0%	366,543
88	Improve Compressor Components	1.01	1	1	47,651,097	1	4.3%	15%	100.0%	100.0%	92%	100.0%	281,017
89	Match Compressor Size to Load	0.78	0	0									
90	Operation and Maintenance	19.93	1	1	47,651,097	1	4.3%	75%	100.0%	100.0%	37%	100.0%	565,088
91	Reduce Overall System Requirements	34.42	1	1	47,651,097	1	4.3%	30%	100.0%	100.0%	85%	100.0%	519,270
92	Improve Fan Components	0.81	0	0									
93	Operation and Maintenance	26,724.28	1	1	47,651,097	1	4.3%	50%	100.0%	100.0%	37%	100.0%	376,725
94	Reduce or Control Fan Speed	48.27	1	1	47,651,097	1	4.3%	10%	100.0%	100.0%	90%	100.0%	183,272
95	Reduce Overall System Requirements	4.39	1	1	47,651,097	1	4.3%	15%	100.0%	100.0%	75%	100.0%	229,090
96	Efficient Lighting Design	3.53	1	1	47,651,097	1	9.7%	100%	100.0%	100.0%	93%	100.0%	4,283,471
97	High efficiency ballasts for lighting	13.15	1	1	47,651,097	1	9.7%	100%	100.0%	100.0%	85%	100.0%	3,915,000
98	High Efficiency Light fixtures	3.07	1	1	47,651,097	1	9.7%	100%	100.0%	100.0%	85%	100.0%	3,915,000
99	Lighting controls: occupancy sensors	0.25	0	0									
100	Lighting controls: on/off timer settings	3.00	1	1	47,651,097	1	9.7%	80%	100.0%	100.0%	100%	100.0%	3,684,706
101	Air Source Heat Pump for Backup Generators	1.27	1	1	47,651,097	1	26.5%	80%	100.0%	100.0%	95%	100.0%	9,611,257
102	Automated Temperature Control	2.60	1	1	47,651,097	1	26.5%	80%	100.0%	100.0%	80%	100.0%	8,093,690
103	Destratification Fans	1.94	1	1	47,651,097	1	26.5%	20%	100.0%	100.0%	95%	100.0%	2,402,814
104	Ground Source Heat Pump	0.57	0	0									
105	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
106	High efficiency non-packaged HVAC equipment	0.08	0	0									
107	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	47,651,097	1	26.5%	80%	100.0%	100.0%	60%	100.0%	6,070,268
108	Optimized duct design to improve efficiency	0.28	0	0									
109	Preventative Packaged HVAC Maintenance	66,810.56	1	1	47,651,097	1	26.5%	100%	100.0%	100.0%	15%	100.0%	1,896,959
110	Radiant Heaters	0.03	0	0									
111	Reduced Temperature Settings	93,534.74	1	1	47,651,097	1	26.5%	80%	100.0%	100.0%	80%	100.0%	8,093,690
112	Seasonal Temperature Settings Adjustments	93,534.74	1	1	47,651,097	1	26.5%	100%	100.0%	100.0%	80%	100.0%	10,117,113
113	Ventilation Heat Recovery	0.13	0	0									
114	Warehouse Loading Dock Seals	0.36	0	0									
115	Match Motor Size to Load	0.55	0	0									
116	Motor Efficiency Upgrade	0.58	0	0									
117	Operations and maintenance	6.07	1	1	47,651,097	1	13.5%	5%	100.0%	100.0%	37%	100.0%	119,292
118	Variable Speed Drives	23.18	1	1	47,651,097	1	13.5%	35%	100.0%	100.0%	9%	100.0%	203,119
119	High efficiency battery charger (for forklifts)	3.98	1	1	47,651,097	1	1.0%	100%	100.0%	100.0%	85%	100.0%	391,500
120	HE Dry-Type Transformers	68,870.50	1	1	47,651,097	1	5.8%	100%	100.0%	100.0%	100%	100.0%	2,763,529
121	Doors, Covers and Curtains	3.51	1	1	47,651,097	1	10.6%	10%	100.0%	100.0%	79%	100.0%	400,251
122	Floating head pressure controls	20.18	1	1	47,651,097	1	10.6%	10%	100.0%	100.0%	97%	100.0%	491,448
123	Free-cooling	5.84	1	1	47,651,097	1	10.6%	35%	100.0%	100.0%	100%	100.0%	1,773,265
124	High Efficiency Chiller	1.15	1	1	47,651,097	1	10.6%	10%	100.0%	100.0%	96%	100.0%	486,381
125	Improve insulation of refrigeration system	0.75	0	0									
126	Optimized chilled water temperature and/or optimized condenser temperature	27,392.42	1	1	47,651,097	1	10.6%	35%	100.0%	100.0%	87%	100.0%	1,542,740
127	Optimized condenser pressure	80,172.67	1	1	47,651,097	1	10.6%	35%	100.0%	100.0%	87%	100.0%	1,542,740
128	Premium efficiency refrigeration control system	0.33	0	0									
129	Preventative refrigeration/cooling system maintenance	66,810.59	1	1	47,651,097	1	10.6%	100%	100.0%	100.0%	15%	100.0%	759,971
130	Smart Defrost Controls	56.54	1	1	47,651,097	1	10.6%	10%	100.0%	100.0%	90%	100.0%	455,982

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MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
131	Advanced water heater controls	8.93	1	1	47,651,097	1	15.5%	90%	100.0%	100.0%	60%	100.0%	3,979,482
132	Air Curtains (Dryer)	41.28	1	1	47,651,097	1	15.5%	9%	100.0%	100.0%	80%	100.0%	530,598
133	Air Curtains (Oven)	4.12	1	1	47,651,097	1	15.5%	9%	100.0%	100.0%	80%	100.0%	530,598
134	Insulation (Dryer)	21.87	1	1	47,651,097	1	15.5%	95%	100.0%	100.0%	40%	100.0%	2,800,376
135	Insulation (Oven)	2.18	1	1	47,651,097	1	15.5%	90%	100.0%	100.0%	40%	100.0%	2,652,988
136	Optimized Distribution System	1.72	1	1	47,651,097	1	15.5%	93%	100.0%	100.0%	76%	100.0%	5,208,700
137	Preventative Dryer Maintenance	66,810.60	1	1	47,651,097	1	15.5%	100%	100.0%	100.0%	15%	100.0%	1,105,412
138	Preventative Oven Maintenance	66,810.60	1	1	47,651,097	1	15.5%	100%	100.0%	100.0%	15%	100.0%	1,105,412
139	Process Heat Recovery to Preheat Makeup Water	2.13	1	1	47,651,097	1	15.5%	90%	100.0%	100.0%	75%	100.0%	4,974,353
140	Improve Pump Components	1.24	1	1	47,651,097	1	5.7%	10%	100.0%	100.0%	4%	100.0%	10,859
141	Match Pump Size to Load	4.64	1	1	47,651,097	1	5.7%	20%	100.0%	100.0%	20%	100.0%	108,588
142	Operation and Maintenance	26,724.34	1	1	47,651,097	1	5.7%	5%	100.0%	100.0%	37%	100.0%	50,222
143	Reduce or Control Pump Speed	10.43	1	1	47,651,097	1	5.7%	35%	100.0%	100.0%	94%	100.0%	893,139
144	Reduce Overall System Requirements	4.78	1	1	47,651,097	1	5.7%	50%	100.0%	100.0%	82%	100.0%	1,113,030
145	Compressor Control	8.37	1	1	37,946,740	1	5.0%	25%	100.0%	100.0%	72%	100.0%	341,682
146	Improve Compressor Components	1.01	1	1	37,946,740	1	5.0%	15%	100.0%	100.0%	92%	100.0%	261,956
147	Match Compressor Size to Load	0.78	0	0									
148	Operation and Maintenance	19.93	1	1	37,946,740	1	5.0%	75%	100.0%	100.0%	37%	100.0%	526,760
149	Reduce Overall System Requirements	34.42	1	1	37,946,740	1	5.0%	30%	100.0%	100.0%	85%	100.0%	484,049
150	Improve Fan Components	0.81	0	0									
151	Operation and Maintenance	26,724.35	1	1	37,946,740	1	4.4%	50%	100.0%	100.0%	37%	100.0%	312,253
152	Reduce or Control Fan Speed	48.27	1	1	37,946,740	1	4.4%	10%	100.0%	100.0%	90%	100.0%	151,907
153	Reduce Overall System Requirements	4.39	1	1	37,946,740	1	4.4%	15%	100.0%	100.0%	75%	100.0%	189,883
154	Efficient Lighting Design	3.53	1	1	37,946,740	1	5.0%	100%	100.0%	100.0%	93%	100.0%	1,746,909
155	High efficiency ballasts for lighting	13.15	1	1	37,946,740	1	5.0%	100%	100.0%	100.0%	85%	100.0%	1,596,637
156	High Efficiency Light fixtures	3.07	1	1	37,946,740	1	5.0%	100%	100.0%	100.0%	85%	100.0%	1,596,637
157	Lighting controls: occupancy sensors	0.25	0	0									
158	Lighting controls: on/off timer settings	3.00	1	1	37,946,740	1	5.0%	80%	100.0%	100.0%	100%	100.0%	1,502,718
159	Air Source Heat Pump for Backup Generators	1.27	1	1	37,946,740	1	7.9%	80%	100.0%	100.0%	95%	100.0%	2,286,502
160	Automated Temperature Control	2.60	1	1	37,946,740	1	7.9%	80%	100.0%	100.0%	80%	100.0%	1,925,475
161	Destratification Fans	1.94	1	1	37,946,740	1	7.9%	20%	100.0%	100.0%	95%	100.0%	571,625
162	Ground Source Heat Pump	0.57	0	0									
163	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
164	High efficiency non-packaged HVAC equipment	0.08	0	0									
165	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	37,946,740	1	7.9%	80%	100.0%	100.0%	60%	100.0%	1,444,106
166	Optimized duct design to improve efficiency	0.28	0	0									
167	Preventative Packaged HVAC Maintenance	66,810.63	1	1	37,946,740	1	7.9%	100%	100.0%	100.0%	15%	100.0%	451,283
168	Radiant Heaters	0.03	0	0									
169	Reduced Temperature Settings	93,534.81	1	1	37,946,740	1	7.9%	80%	100.0%	100.0%	80%	100.0%	1,925,475
170	Seasonal Temperature Settings Adjustments	93,534.81	1	1	37,946,740	1	7.9%	100%	100.0%	100.0%	80%	100.0%	2,406,844
171	Ventilation Heat Recovery	0.13	0	0									
172	Warehouse Loading Dock Seals	0.36	0	0									
173	Match Motor Size to Load	0.55	0	0									
174	Motor Efficiency Upgrade	0.58	0	0									
175	Operations and maintenance	6.07	1	1	37,946,740	1	15.6%	5%	100.0%	100.0%	37%	100.0%	109,244
176	Variable Speed Drives	23.18	1	1	37,946,740	1	15.6%	35%	100.0%	100.0%	9%	100.0%	186,010
177	High efficiency battery charger (for forklifts)	3.98	1	1	37,946,740	1	0.0%	100%	100.0%	100.0%	85%	100.0%	0
178	HE Dry-Type Transformers	68,870.82	1	1	37,946,740	1	2.0%	100%	100.0%	100.0%	100%	100.0%	751,359
179	Doors, Covers and Curtains	3.51	1	1	37,946,740	1	2.0%	10%	100.0%	100.0%	79%	100.0%	59,357
180	Floating head pressure controls	20.18	1	1	37,946,740	1	2.0%	10%	100.0%	100.0%	97%	100.0%	72,882
181	Free-cooling	5.84	1	1	37,946,740	1	2.0%	35%	100.0%	100.0%	100%	100.0%	262,976
182	High Efficiency Chiller	1.15	1	1	37,946,740	1	2.0%	10%	100.0%	100.0%	96%	100.0%	72,130
183	Improve insulation of refrigeration system	0.75	0	0									
184	Optimized chilled water temperature and/or optimized condenser temperature	27,392.49	1	1	37,946,740	1	2.0%	35%	100.0%	100.0%	87%	100.0%	228,789
185	Optimized condenser pressure	80,172.74	1	1	37,946,740	1	2.0%	35%	100.0%	100.0%	87%	100.0%	228,789
186	Premium efficiency refrigeration control system	0.33	0	0									
187	Preventative refrigeration/cooling system maintenance	66,810.65	1	1	37,946,740	1	2.0%	100%	100.0%	100.0%	15%	100.0%	112,704
188	Smart Defrost Controls	56.54	1	1	37,946,740	1	2.0%	10%	100.0%	100.0%	90%	100.0%	67,622
189	Advanced water heater controls	8.93	1	1	37,946,740	1	32.7%	90%	100.0%	100.0%	60%	100.0%	6,694,607
190	Air Curtains (Dryer)	41.28	1	1	37,946,740	1	32.7%	9%	100.0%	100.0%	80%	100.0%	892,614
191	Air Curtains (Oven)	4.12	1	1	37,946,740	1	32.7%	9%	100.0%	100.0%	80%	100.0%	892,614
192	Insulation (Dryer)	21.87	1	1	37,946,740	1	32.7%	95%	100.0%	100.0%	40%	100.0%	4,711,020
193	Insulation (Oven)	2.18	1	1	37,946,740	1	32.7%	90%	100.0%	100.0%	40%	100.0%	4,463,071
194	Optimized Distribution System	1.72	1	1	37,946,740	1	32.7%	93%	100.0%	100.0%	76%	100.0%	8,762,497
195	Preventative Dryer Maintenance	66,810.66	1	1	37,946,740	1	32.7%	100%	100.0%	100.0%	15%	100.0%	1,859,613

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196	Preventative Oven Maintenance	66,810.66	1	1	37,946,740	1	32.7%	100%	100.0%	100.0%	15%	100.0%	1,859,613
197	Process Heat Recovery to Preheat Makeup Water	2.13	1	1	37,946,740	1	32.7%	90%	100.0%	100.0%	75%	100.0%	8,368,259
198	Improve Pump Components	1.24	1	1	37,946,740	1	6.7%	10%	100.0%	100.0%	4%	100.0%	10,122
199	Match Pump Size to Load	4.64	1	1	37,946,740	1	6.7%	20%	100.0%	100.0%	20%	100.0%	101,223
200	Operation and Maintenance	26,724.40	1	1	37,946,740	1	6.7%	5%	100.0%	100.0%	37%	100.0%	46,816
201	Reduce or Control Pump Speed	10.43	1	1	37,946,740	1	6.7%	35%	100.0%	100.0%	94%	100.0%	832,560
202	Reduce Overall System Requirements	4.78	1	1	37,946,740	1	6.7%	50%	100.0%	100.0%	82%	100.0%	1,037,536
203	Compressor Control	8.37	1	1	178,853,482	1	4.9%	25%	100.0%	100.0%	72%	100.0%	1,583,296
204	Improve Compressor Components	1.01	1	1	178,853,482	1	4.9%	15%	100.0%	100.0%	92%	100.0%	1,213,861
205	Match Compressor Size to Load	0.78	0	0									
206	Operation and Maintenance	19.93	1	1	178,853,482	1	4.9%	75%	100.0%	100.0%	37%	100.0%	2,440,915
207	Reduce Overall System Requirements	34.42	1	1	178,853,482	1	4.9%	30%	100.0%	100.0%	85%	100.0%	2,243,003
208	Improve Fan Components	0.81	0	0									
209	Operation and Maintenance	26,724.41	1	1	178,853,482	1	4.9%	50%	100.0%	100.0%	37%	100.0%	1,627,277
210	Reduce or Control Fan Speed	48.27	1	1	178,853,482	1	4.9%	10%	100.0%	100.0%	90%	100.0%	791,648
211	Reduce Overall System Requirements	4.39	1	1	178,853,482	1	4.9%	15%	100.0%	100.0%	75%	100.0%	989,560
212	Efficient Lighting Design	3.53	1	1	178,853,482	1	7.9%	100%	100.0%	100.0%	93%	100.0%	13,136,400
213	High efficiency ballasts for lighting	13.15	1	1	178,853,482	1	7.9%	100%	100.0%	100.0%	85%	100.0%	12,006,387
214	High Efficiency Light fixtures	3.07	1	1	178,853,482	1	7.9%	100%	100.0%	100.0%	85%	100.0%	12,006,387
215	Lighting controls: occupancy sensors	0.25	0	0									
216	Lighting controls: on/off timer settings	3.00	1	1	178,853,482	1	7.9%	80%	100.0%	100.0%	100%	100.0%	11,300,129
217	Air Source Heat Pump for Backup Generators	1.27	1	1	178,853,482	1	10.2%	80%	100.0%	100.0%	95%	100.0%	13,816,628
218	Automated Temperature Control	2.60	1	1	178,853,482	1	10.2%	80%	100.0%	100.0%	80%	100.0%	11,635,055
219	Destratification Fans	1.94	1	1	178,853,482	1	10.2%	20%	100.0%	100.0%	95%	100.0%	3,454,157
220	Ground Source Heat Pump	0.57	0	0									
221	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
222	High efficiency non-packaged HVAC equipment	0.08	0	0									
223	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	178,853,482	1	10.2%	80%	100.0%	100.0%	60%	100.0%	8,726,291
224	Optimized duct design to improve efficiency	0.28	0	0									
225	Preventative Packaged HVAC Maintenance	66,810.69	1	1	178,853,482	1	10.2%	100%	100.0%	100.0%	15%	100.0%	2,726,966
226	Radiant Heaters	0.03	0	0									
227	Reduced Temperature Settings	93,534.87	1	1	178,853,482	1	10.2%	80%	100.0%	100.0%	80%	100.0%	11,635,055
228	Seasonal Temperature Settings Adjustments	93,534.87	1	1	178,853,482	1	10.2%	100%	100.0%	100.0%	80%	100.0%	14,543,819
229	Ventilation Heat Recovery	0.13	0	0									
230	Warehouse Loading Dock Seals	0.36	0	0									
231	Match Motor Size to Load	0.55	0	0									
232	Motor Efficiency Upgrade	0.58	0	0									
233	Operations and maintenance	6.07	1	1	178,853,482	1	25.2%	5%	100.0%	100.0%	37%	100.0%	832,571
234	Variable Speed Drives	23.18	1	1	178,853,482	1	25.2%	35%	100.0%	100.0%	9%	100.0%	1,417,620
235	High efficiency battery charger (for forklifts)	3.98	1	1	178,853,482	1	1.0%	100%	100.0%	100.0%	85%	100.0%	1,500,798
236	HE Dry-Type Transformers	68,871.15	1	1	178,853,482	1	2.0%	100%	100.0%	100.0%	100%	100.0%	3,531,290
237	Doors, Covers and Curtains	3.51	1	1	178,853,482	1	28.6%	10%	100.0%	100.0%	79%	100.0%	4,045,093
238	Floating head pressure controls	20.18	1	1	178,853,482	1	28.6%	10%	100.0%	100.0%	97%	100.0%	4,966,760
239	Free-cooling	5.84	1	1	178,853,482	1	28.6%	35%	100.0%	100.0%	100%	100.0%	17,921,298
240	High Efficiency Chiller	1.15	1	1	178,853,482	1	28.6%	10%	100.0%	100.0%	96%	100.0%	4,915,556
241	Improve insulation of refrigeration system	0.75	0	0									
242	Optimized chilled water temperature and/or optimized condenser temperature	27,392.55	1	1	178,853,482	1	28.6%	35%	100.0%	100.0%	87%	100.0%	15,591,529
243	Optimized condenser pressure	80,172.80	1	1	178,853,482	1	28.6%	35%	100.0%	100.0%	87%	100.0%	15,591,529
244	Premium efficiency refrigeration control system	0.33	0	0									
245	Preventative refrigeration/cooling system maintenance	66,810.71	1	1	178,853,482	1	28.6%	100%	100.0%	100.0%	15%	100.0%	7,680,556
246	Smart Defrost Controls	56.54	1	1	178,853,482	1	28.6%	10%	100.0%	100.0%	90%	100.0%	4,608,334
247	Advanced water heater controls	8.93	1	1	178,853,482	1	4.9%	90%	100.0%	100.0%	60%	100.0%	4,767,242
248	Air Curtains (Dryer)	41.28	1	1	178,853,482	1	4.9%	9%	100.0%	100.0%	80%	100.0%	635,632
249	Air Curtains (Oven)	4.12	1	1	178,853,482	1	4.9%	9%	100.0%	100.0%	80%	100.0%	635,632
250	Insulation (Dryer)	21.87	1	1	178,853,482	1	4.9%	95%	100.0%	100.0%	40%	100.0%	3,354,726
251	Insulation (Oven)	2.18	1	1	178,853,482	1	4.9%	90%	100.0%	100.0%	40%	100.0%	3,178,161
252	Optimized Distribution System	1.72	1	1	178,853,482	1	4.9%	93%	100.0%	100.0%	76%	100.0%	6,239,790
253	Preventative Dryer Maintenance	66,810.72	1	1	178,853,482	1	4.9%	100%	100.0%	100.0%	15%	100.0%	1,324,234
254	Preventative Oven Maintenance	66,810.72	1	1	178,853,482	1	4.9%	100%	100.0%	100.0%	15%	100.0%	1,324,234
255	Process Heat Recovery to Preheat Makeup Water	2.13	1	1	178,853,482	1	4.9%	90%	100.0%	100.0%	75%	100.0%	5,959,052
256	Improve Pump Components	1.24	1	1	178,853,482	1	10.7%	10%	100.0%	100.0%	4%	100.0%	76,574
257	Match Pump Size to Load	4.64	1	1	178,853,482	1	10.7%	20%	100.0%	100.0%	20%	100.0%	765,739
258	Operation and Maintenance	26,724.46	1	1	178,853,482	1	10.7%	5%	100.0%	100.0%	37%	100.0%	354,154
259	Reduce or Control Pump Speed	10.43	1	1	178,853,482	1	10.7%	35%	100.0%	100.0%	94%	100.0%	6,298,204
260	Reduce Overall System Requirements	4.78	1	1	178,853,482	1	10.7%	50%	100.0%	100.0%	82%	100.0%	7,848,826

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MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
261	Compressor Control	8.37	1	1	1,849,000	1	11.9%	25%	100.0%	100.0%	72%	100.0%	39,740
262	Improve Compressor Components	1.01	1	1	1,849,000	1	11.9%	15%	100.0%	100.0%	92%	100.0%	30,468
263	Match Compressor Size to Load	0.78	0	0									
264	Operation and Maintenance	19.93	1	1	1,849,000	1	11.9%	75%	100.0%	100.0%	37%	100.0%	61,266
265	Reduce Overall System Requirements	34.42	1	1	1,849,000	1	11.9%	30%	100.0%	100.0%	85%	100.0%	56,299
266	Improve Fan Components	0.81	0	0									
267	Operation and Maintenance	26,724.47	1	1	1,849,000	1	7.0%	50%	100.0%	100.0%	37%	100.0%	23,826
268	Reduce or Control Fan Speed	48.27	1	1	1,849,000	1	7.0%	10%	100.0%	100.0%	90%	100.0%	11,591
269	Reduce Overall System Requirements	4.39	1	1	1,849,000	1	7.0%	15%	100.0%	100.0%	75%	100.0%	14,489
270	Efficient Lighting Design	3.53	1	1	1,849,000	1	2.4%	100%	100.0%	100.0%	93%	100.0%	40,546
271	High efficiency ballasts for lighting	13.15	1	1	1,849,000	1	2.4%	100%	100.0%	100.0%	85%	100.0%	37,058
272	High Efficiency Light fixtures	3.07	1	1	1,849,000	1	2.4%	100%	100.0%	100.0%	85%	100.0%	37,058
273	Lighting controls: occupancy sensors	0.25	0	0									
274	Lighting controls: on/off timer settings	3.00	1	1	1,849,000	1	2.4%	80%	100.0%	100.0%	100%	100.0%	34,878
275	Air Curtains	0.14	0	0									
276	Air Source Heat Pump for Backup Generators	1.27	1	1	1,849,000	1	3.8%	80%	100.0%	100.0%	95%	100.0%	53,070
277	Automated Temperature Control	2.60	1	1	1,849,000	1	3.8%	80%	100.0%	100.0%	80%	100.0%	44,691
278	Destratification Fans	1.94	1	1	1,849,000	1	3.8%	20%	100.0%	100.0%	95%	100.0%	13,268
279	Free cooling	23.66	1	1	1,849,000	1	3.8%	10%	100.0%	100.0%	100%	100.0%	6,983
280	Ground Source Heat Pump	0.57	0	0									
281	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
282	High efficiency non-packaged HVAC equipment	0.08	0	0									
283	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	1,849,000	1	3.8%	80%	100.0%	100.0%	60%	100.0%	33,518
284	Optimized duct design to improve efficiency	0.28	0	0									
285	Preventative Packaged HVAC Maintenance	66,810.76	1	1	1,849,000	1	3.8%	100%	100.0%	100.0%	15%	100.0%	10,474
286	Radiant Heaters	0.03	0	0									
287	Reduced Temperature Settings	93,534.94	1	1	1,849,000	1	3.8%	80%	100.0%	100.0%	80%	100.0%	44,691
288	Seasonal Temperature Settings Adjustments	93,534.94	1	1	1,849,000	1	3.8%	100%	100.0%	100.0%	80%	100.0%	55,863
289	Ventilation Heat Recovery	0.13	0	0									
290	Warehouse Loading Dock Seals	0.36	0	0									
291	Match Motor Size to Load	0.55	0	0									
292	Motor Efficiency Upgrade	0.58	0	0									
293	Operations and maintenance	6.07	1	1	1,849,000	1	12.7%	5%	100.0%	100.0%	37%	100.0%	4,357
294	Variable Speed Drives	23.18	1	1	1,849,000	1	12.7%	35%	100.0%	100.0%	9%	100.0%	7,418
295	Improve Pump Components	1.24	1	1	1,849,000	1	47.8%	10%	100.0%	100.0%	4%	100.0%	3,532
296	Match Pump Size to Load	4.64	1	1	1,849,000	1	47.8%	20%	100.0%	100.0%	20%	100.0%	35,325
297	Operation and Maintenance	26,724.51	1	1	1,849,000	1	47.8%	5%	100.0%	100.0%	37%	100.0%	16,338
298	Reduce or Control Pump Speed	10.43	1	1	1,849,000	1	47.8%	35%	100.0%	100.0%	94%	100.0%	290,546
299	Reduce Overall System Requirements	4.78	1	1	1,849,000	1	47.8%	50%	100.0%	100.0%	82%	100.0%	362,079
300	Compressor Control	8.37	1	1	102,517,578	1	6.1%	25%	100.0%	100.0%	72%	100.0%	1,117,628
301	Improve Compressor Components	1.01	1	1	102,517,578	1	6.1%	15%	100.0%	100.0%	92%	100.0%	856,848
302	Match Compressor Size to Load	0.78	0	0									
303	Operation and Maintenance	19.93	1	1	102,517,578	1	6.1%	75%	100.0%	100.0%	37%	100.0%	1,723,010
304	Reduce Overall System Requirements	34.42	1	1	102,517,578	1	6.1%	30%	100.0%	100.0%	85%	100.0%	1,583,306
305	Improve Fan Components	0.81	0	0									
306	Operation and Maintenance	26,724.52	1	1	102,517,578	1	6.1%	50%	100.0%	100.0%	37%	100.0%	1,148,673
307	Reduce or Control Fan Speed	48.27	1	1	102,517,578	1	6.1%	10%	100.0%	100.0%	90%	100.0%	558,814
308	Reduce Overall System Requirements	4.39	1	1	102,517,578	1	6.1%	15%	100.0%	100.0%	75%	100.0%	698,517
309	Efficient Lighting Design	3.53	1	1	102,517,578	1	14.3%	100%	100.0%	100.0%	93%	100.0%	13,611,111
310	High efficiency ballasts for lighting	13.15	1	1	102,517,578	1	14.3%	100%	100.0%	100.0%	85%	100.0%	12,440,262
311	High Efficiency Light fixtures	3.07	1	1	102,517,578	1	14.3%	100%	100.0%	100.0%	85%	100.0%	12,440,262
312	Lighting controls: occupancy sensors	0.25	0	0									
313	Lighting controls: on/off timer settings	3.00	1	1	102,517,578	1	14.3%	80%	100.0%	100.0%	100%	100.0%	11,708,482
314	Air Source Heat Pump for Backup Generators	1.27	1	1	102,517,578	1	22.9%	80%	100.0%	100.0%	95%	100.0%	17,815,367
315	Automated Temperature Control	2.60	1	1	102,517,578	1	22.9%	80%	100.0%	100.0%	80%	100.0%	15,002,414
316	Destratification Fans	1.94	1	1	102,517,578	1	22.9%	20%	100.0%	100.0%	95%	100.0%	4,453,842
317	Ground Source Heat Pump	0.57	0	0									
318	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
319	High efficiency non-packaged HVAC equipment	0.08	0	0									
320	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	102,517,578	1	22.9%	80%	100.0%	100.0%	60%	100.0%	11,251,811
321	Optimized duct design to improve efficiency	0.28	0	0									
322	Preventative Packaged HVAC Maintenance	66,810.80	1	1	102,517,578	1	22.9%	100%	100.0%	100.0%	15%	100.0%	3,516,191
323	Radiant Heaters	0.03	0	0									
324	Reduced Temperature Settings	93,534.98	1	1	102,517,578	1	22.9%	80%	100.0%	100.0%	80%	100.0%	15,002,414
325	Seasonal Temperature Settings Adjustments	93,534.98	1	1	102,517,578	1	22.9%	100%	100.0%	100.0%	80%	100.0%	18,753,018

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MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
326	Ventilation Heat Recovery	0.13	0	0									
327	Warehouse Loading Dock Seals	0.36	0	0									
328	Match Motor Size to Load	0.55	0	0									
329	Motor Efficiency Upgrade	0.58	0	0									
330	Operations and maintenance	6.07	1	1	102,517,578	1	19.4%	5%	100.0%	100.0%	37%	100.0%	367,575
331	Variable Speed Drives	23.18	1	1	102,517,578	1	19.4%	35%	100.0%	100.0%	9%	100.0%	625,872
332	High efficiency battery charger (for forklifts)	3.98	1	1	102,517,578	1	4.3%	100%	100.0%	100.0%	85%	100.0%	3,732,079
333	HE Dry-Type Transformers	68,871.70	1	1	102,517,578	1	2.9%	100%	100.0%	100.0%	100%	100.0%	2,927,121
334	Doors, Covers and Curtains	3.51	1	1	102,517,578	1	2.9%	10%	100.0%	100.0%	79%	100.0%	231,243
335	Floating head pressure controls	20.18	1	1	102,517,578	1	2.9%	10%	100.0%	100.0%	97%	100.0%	283,931
336	Free-cooling	5.84	1	1	102,517,578	1	2.9%	35%	100.0%	100.0%	100%	100.0%	1,024,492
337	High Efficiency Chiller	1.15	1	1	102,517,578	1	2.9%	10%	100.0%	100.0%	96%	100.0%	281,004
338	Improve insulation of refrigeration system	0.75	0	0									
339	Optimized chilled water temperature and/or optimized condenser temperature	27,392.66	1	1	102,517,578	1	2.9%	35%	100.0%	100.0%	87%	100.0%	891,308
340	Optimized condenser pressure	80,172.91	1	1	102,517,578	1	2.9%	35%	100.0%	100.0%	87%	100.0%	891,308
341	Premium efficiency refrigeration control system	0.33	0	0									
342	Preventative refrigeration/cooling system maintenance	66,810.82	1	1	102,517,578	1	2.9%	100%	100.0%	100.0%	15%	100.0%	439,068
343	Smart Defrost Controls	56.54	1	1	102,517,578	1	2.9%	10%	100.0%	100.0%	90%	100.0%	263,441
344	Advanced water heater controls	8.93	1	1	102,517,578	1	11.4%	90%	100.0%	100.0%	60%	100.0%	6,322,580
345	Air Curtains (Dryer)	41.28	1	1	102,517,578	1	11.4%	9%	100.0%	100.0%	80%	100.0%	843,011
346	Air Curtains (Oven)	4.12	1	1	102,517,578	1	11.4%	9%	100.0%	100.0%	80%	100.0%	843,011
347	Insulation (Dryer)	21.87	1	1	102,517,578	1	11.4%	95%	100.0%	100.0%	40%	100.0%	4,449,223
348	Insulation (Oven)	2.18	1	1	102,517,578	1	11.4%	90%	100.0%	100.0%	40%	100.0%	4,215,054
349	Optimized Distribution System	1.72	1	1	102,517,578	1	11.4%	93%	100.0%	100.0%	76%	100.0%	8,275,555
350	Preventative Dryer Maintenance	66,810.83	1	1	102,517,578	1	11.4%	100%	100.0%	100.0%	15%	100.0%	1,756,272
351	Preventative Oven Maintenance	66,810.83	1	1	102,517,578	1	11.4%	100%	100.0%	100.0%	15%	100.0%	1,756,272
352	Process Heat Recovery to Preheat Makeup Water	2.13	1	1	102,517,578	1	11.4%	90%	100.0%	100.0%	75%	100.0%	7,903,225
353	Improve Pump Components	1.24	1	1	102,517,578	1	8.5%	10%	100.0%	100.0%	4%	100.0%	34,771
354	Match Pump Size to Load	4.64	1	1	102,517,578	1	8.5%	20%	100.0%	100.0%	20%	100.0%	347,706
355	Operation and Maintenance	26,724.57	1	1	102,517,578	1	8.5%	5%	100.0%	100.0%	37%	100.0%	160,814
356	Reduce or Control Pump Speed	10.43	1	1	102,517,578	1	8.5%	35%	100.0%	100.0%	94%	100.0%	2,859,885
357	Reduce Overall System Requirements	4.78	1	1	102,517,578	1	8.5%	50%	100.0%	100.0%	82%	100.0%	3,563,991
358	Compressor Control	8.37	1	1	18,524,974	1	11.9%	25%	100.0%	100.0%	72%	100.0%	398,156
359	Improve Compressor Components	1.01	1	1	18,524,974	1	11.9%	15%	100.0%	100.0%	92%	100.0%	305,253
360	Match Compressor Size to Load	0.78	0	0									
361	Operation and Maintenance	19.93	1	1	18,524,974	1	11.9%	75%	100.0%	100.0%	37%	100.0%	613,823
362	Reduce Overall System Requirements	34.42	1	1	18,524,974	1	11.9%	30%	100.0%	100.0%	85%	100.0%	564,054
363	Improve Fan Components	0.81	0	0									
364	Operation and Maintenance	26,724.58	1	1	18,524,974	1	7.0%	50%	100.0%	100.0%	37%	100.0%	238,709
365	Reduce or Control Fan Speed	48.27	1	1	18,524,974	1	7.0%	10%	100.0%	100.0%	90%	100.0%	116,129
366	Reduce Overall System Requirements	4.39	1	1	18,524,974	1	7.0%	15%	100.0%	100.0%	75%	100.0%	145,161
367	Efficient Lighting Design	3.53	1	1	18,524,974	1	2.4%	100%	100.0%	100.0%	93%	100.0%	406,228
368	High efficiency ballasts for lighting	13.15	1	1	18,524,974	1	2.4%	100%	100.0%	100.0%	85%	100.0%	371,284
369	High Efficiency Light fixtures	3.07	1	1	18,524,974	1	2.4%	100%	100.0%	100.0%	85%	100.0%	371,284
370	Lighting controls: occupancy sensors	0.25	0	0									
371	Lighting controls: on/off timer settings	3.00	1	1	18,524,974	1	2.4%	80%	100.0%	100.0%	100%	100.0%	349,443
372	Air Curtains	0.14	0	0									
373	Air Source Heat Pump for Backup Generators	1.27	1	1	18,524,974	1	3.8%	80%	100.0%	100.0%	95%	100.0%	531,705
374	Automated Temperature Control	2.60	1	1	18,524,974	1	3.8%	80%	100.0%	100.0%	80%	100.0%	447,752
375	Destratification Fans	1.94	1	1	18,524,974	1	3.8%	20%	100.0%	100.0%	95%	100.0%	132,926
376	Free cooling	23.66	1	1	18,524,974	1	3.8%	10%	100.0%	100.0%	100%	100.0%	69,961
377	Ground Source Heat Pump	0.57	0	0									
378	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
379	High efficiency non-packaged HVAC equipment	0.08	0	0									
380	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	18,524,974	1	3.8%	80%	100.0%	100.0%	60%	100.0%	335,814
381	Optimized duct design to improve efficiency	0.28	0	0									
382	Preventative Packaged HVAC Maintenance	66,810.86	1	1	18,524,974	1	3.8%	100%	100.0%	100.0%	15%	100.0%	104,942
383	Radiant Heaters	0.03	0	0									
384	Reduced Temperature Settings	93,535.04	1	1	18,524,974	1	3.8%	80%	100.0%	100.0%	80%	100.0%	447,752
385	Seasonal Temperature Settings Adjustments	93,535.04	1	1	18,524,974	1	3.8%	100%	100.0%	100.0%	80%	100.0%	559,690
386	Ventilation Heat Recovery	0.13	0	0									
387	Warehouse Loading Dock Seals	0.36	0	0									
388	Match Motor Size to Load	0.55	0	0									
389	Motor Efficiency Upgrade	0.58	0	0									
390	Operations and maintenance	6.07	1	1	18,524,974	1	12.7%	5%	100.0%	100.0%	37%	100.0%	43,650

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MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
391	Variable Speed Drives	23.18	1	1	18,524,974	1	12.7%	35%	100.0%	100.0%	9%	100.0%	74,322
392	Improve Pump Components	1.24	1	1	18,524,974	1	47.8%	10%	100.0%	100.0%	4%	100.0%	35,392
393	Match Pump Size to Load	4.64	1	1	18,524,974	1	47.8%	20%	100.0%	100.0%	20%	100.0%	353,916
394	Operation and Maintenance	26,724.61	1	1	18,524,974	1	47.8%	5%	100.0%	100.0%	37%	100.0%	163,686
395	Reduce or Control Pump Speed	10.43	1	1	18,524,974	1	47.8%	35%	100.0%	100.0%	94%	100.0%	2,910,961
396	Reduce Overall System Requirements	4.78	1	1	18,524,974	1	47.8%	50%	100.0%	100.0%	82%	100.0%	3,627,641
397	Minimize operating air pressure	94,310.25	1	1	105,282,493	1	6.8%	80%	100.0%	100.0%	45%	100.0%	2,595,780
398	Optimized Distribution System	6.59	1	1	105,282,493	1	6.8%	90%	100.0%	100.0%	83%	100.0%	5,386,243
399	Optimized sizing of compressor system	1.48	1	1	105,282,493	1	6.8%	70%	100.0%	100.0%	93%	100.0%	4,694,035
400	Premium efficiency ASD compressor	0.57	0	0									
401	Impeller Trimming or Inlet Guide Vanes	3.59	1	1	105,282,493	1	6.2%	70%	100.0%	100.0%	98%	100.0%	4,496,729
402	Premium efficiency control, with ASD (Fans)	13.17	1	1	105,282,493	1	6.2%	70%	100.0%	100.0%	89%	100.0%	4,083,764
403	Preventative Fan Maintenance	0.12	0	0									
404	Synchronous Belts (Fans)	13.17	1	1	105,282,493	1	6.2%	40%	100.0%	100.0%	100%	100.0%	2,622,000
405	Efficient Lighting Design	3.53	1	1	105,282,493	1	8.2%	100%	100.0%	100.0%	93%	100.0%	8,039,849
406	High efficiency ballasts for lighting	13.15	1	1	105,282,493	1	8.2%	100%	100.0%	100.0%	85%	100.0%	7,348,249
407	High Efficiency Light fixtures	3.07	1	1	105,282,493	1	8.2%	100%	100.0%	100.0%	85%	100.0%	7,348,249
408	Lighting controls: occupancy sensors	0.25	0	0									
409	Lighting controls: on/off timer settings	3.00	1	1	105,282,493	1	8.2%	80%	100.0%	100.0%	100%	100.0%	6,915,999
410	Air Curtains	0.14	0	0									
411	Air Source Heat Pump for Backup Generators	1.27	1	1	105,282,493	1	11.6%	80%	100.0%	100.0%	95%	100.0%	9,251,192
412	Automated Temperature Control	2.60	1	1	105,282,493	1	11.6%	80%	100.0%	100.0%	80%	100.0%	7,790,477
413	Destratification Fans	1.94	1	1	105,282,493	1	11.6%	20%	100.0%	100.0%	95%	100.0%	2,312,798
414	Free cooling	23.66	1	1	105,282,493	1	11.6%	10%	100.0%	100.0%	100%	100.0%	1,217,262
415	Ground Source Heat Pump	0.57	0	0									
416	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
417	High efficiency non-packaged HVAC equipment	0.08	0	0									
418	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	105,282,493	1	11.6%	80%	100.0%	100.0%	60%	100.0%	5,842,858
419	Optimized duct design to improve efficiency	0.28	0	0									
420	Preventative Packaged HVAC Maintenance	66,810.91	1	1	105,282,493	1	11.6%	100%	100.0%	100.0%	15%	100.0%	1,825,893
421	Radiant Heaters	0.03	0	0									
422	Reduced Temperature Settings	93,535.09	1	1	105,282,493	1	11.6%	80%	100.0%	100.0%	80%	100.0%	7,790,477
423	Seasonal Temperature Settings Adjustments	93,535.09	1	1	105,282,493	1	11.6%	100%	100.0%	100.0%	80%	100.0%	9,738,096
424	Ventilation Heat Recovery	0.13	0	0									
425	Warehouse Loading Dock Seals	0.36	0	0									
426	Sub-Metering and Interval Metering	242,867.71	1	1	105,282,493	1	43.6%	100%	100.0%	100.0%	75%	100.0%	34,413,744
427	Correctly sized motors	0.92	0	0									
428	High/Premium Efficiency Motors	0.58	0	0									
429	Premium Efficiency Control with ASDs (Other motors)	4.64	1	1	105,282,493	1	21.8%	70%	100.0%	100.0%	72%	100.0%	11,482,719
430	Preventative Motor Maintenance	66,810.92	1	1	105,282,493	1	21.8%	100%	100.0%	100.0%	31%	100.0%	7,112,174
431	High efficiency battery charger (for forklifts)	3.98	1	1	105,282,493	1	1.9%	100%	100.0%	100.0%	85%	100.0%	1,695,750
432	Doors, Covers and Curtains	3.51	1	1	105,282,493	1	11.4%	10%	100.0%	100.0%	79%	100.0%	945,630
433	Floating head pressure controls	20.18	1	1	105,282,493	1	11.4%	10%	100.0%	100.0%	97%	100.0%	1,161,090
434	Free-cooling	5.84	1	1	105,282,493	1	11.4%	35%	100.0%	100.0%	100%	100.0%	4,189,499
435	High Efficiency Chiller	1.15	1	1	105,282,493	1	11.4%	10%	100.0%	100.0%	96%	100.0%	1,149,120
436	Improve insulation of refrigeration system	0.75	0	0									
437	Optimized chilled water temperature and/or optimized condenser temperature	27,392.76	1	1	105,282,493	1	11.4%	35%	100.0%	100.0%	87%	100.0%	3,644,864
438	Optimized condenser pressure	80,173.01	1	1	105,282,493	1	11.4%	35%	100.0%	100.0%	87%	100.0%	3,644,864
439	Premium efficiency refrigeration control system	0.33	0	0									
440	Preventative refrigeration/cooling system maintenance	66,810.93	1	1	105,282,493	1	11.4%	100%	100.0%	100.0%	15%	100.0%	1,795,500
441	Smart Defrost Controls	56.54	1	1	105,282,493	1	11.4%	10%	100.0%	100.0%	90%	100.0%	1,077,300
442	VSD on chiller compressor	4.35	1	1	105,282,493	1	11.4%	80%	100.0%	100.0%	87%	100.0%	8,331,119
443	Advanced water heater controls	8.93	1	1	105,282,493	1	18.9%	90%	100.0%	100.0%	60%	100.0%	10,772,998
444	Air Curtains (Dryer)	41.28	1	1	105,282,493	1	18.9%	9%	100.0%	100.0%	80%	100.0%	1,436,400
445	Air Curtains (Oven)	4.12	1	1	105,282,493	1	18.9%	9%	100.0%	100.0%	80%	100.0%	1,436,400
446	Insulation (Dryer)	21.87	1	1	105,282,493	1	18.9%	95%	100.0%	100.0%	40%	100.0%	7,580,999
447	Insulation (Oven)	2.18	1	1	105,282,493	1	18.9%	90%	100.0%	100.0%	40%	100.0%	7,181,999
448	Optimized Distribution System	1.72	1	1	105,282,493	1	18.9%	93%	100.0%	100.0%	76%	100.0%	14,100,658
449	Preventative Dryer Maintenance	66,810.94	1	1	105,282,493	1	18.9%	100%	100.0%	100.0%	15%	100.0%	2,992,500
450	Preventative Oven Maintenance	66,810.94	1	1	105,282,493	1	18.9%	100%	100.0%	100.0%	15%	100.0%	2,992,500
451	Process Heat Recovery to Preheat Makeup Water	2.13	1	1	105,282,493	1	18.9%	90%	100.0%	100.0%	75%	100.0%	13,466,248
452	Impeller Trimming (Pump)	8.80	1	1	105,282,493	1	8.7%	15%	100.0%	100.0%	95%	100.0%	1,307,722
453	Optimization of pumping system	3.62	1	1	105,282,493	1	8.7%	80%	100.0%	100.0%	92%	100.0%	6,754,271
454	Premium Efficiency Control with ASDs (Pumps)	6.69	1	1	105,282,493	1	8.7%	70%	100.0%	100.0%	54%	100.0%	3,468,905
455	Preventative Pump Maintenance	5.20	1	1	105,282,493	1	8.7%	100%	100.0%	100.0%	31%	100.0%	2,844,870

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MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
456	Eliminate air leaks	4.32	1	1	11,728,208	1	4.0%	100%	100.0%	100.0%	45%	100.0%	209,245
457	Minimize operating air pressure	94,310.27	1	1	11,728,208	1	4.0%	80%	100.0%	100.0%	45%	100.0%	167,396
458	Optimized Distribution System	6.59	1	1	11,728,208	1	4.0%	90%	100.0%	100.0%	83%	100.0%	347,347
459	Optimized sizes of air receiver tanks	2.20	1	1	11,728,208	1	4.0%	80%	100.0%	100.0%	40%	100.0%	148,796
460	Optimized sizing of compressor system	1.48	1	1	11,728,208	1	4.0%	70%	100.0%	100.0%	93%	100.0%	302,708
461	Premium Efficiency Air Dryer (compressors)	2.33	1	1	11,728,208	1	4.0%	80%	100.0%	100.0%	95%	100.0%	353,392
462	Premium efficiency ASD compressor	0.57	0	0									
463	Premium efficiency ASD compressor	0.94	0	0									
464	Replace compressed air use with mechanical or electrical	14.38	1	1	11,728,208	1	4.0%	10%	100.0%	100.0%	99%	100.0%	46,034
465	Sequencing Control	2.51	1	1	11,728,208	1	4.0%	75%	100.0%	100.0%	85%	100.0%	296,430
466	Synchronous Belts for Air Compressors	5.37	1	1	11,728,208	1	4.0%	40%	100.0%	100.0%	97%	100.0%	180,416
467	Use cooler air from outside for make up air	49.19	1	1	11,728,208	1	4.0%	60%	100.0%	100.0%	35%	100.0%	97,648
468	High/Premium Efficiency Motors (Fans)	0.52	0	0									
469	Impeller Trimming or Inlet Guide Vanes	3.59	1	1	11,728,208	1	16.9%	70%	100.0%	100.0%	98%	100.0%	1,362,925
470	Premium efficiency control, with ASD (Fans)	13.17	1	1	11,728,208	1	16.9%	70%	100.0%	100.0%	89%	100.0%	1,237,758
471	Preventative Fan Maintenance	0.12	0	0									
472	Synchronous Belts (Fans)	13.17	1	1	11,728,208	1	16.9%	40%	100.0%	100.0%	100%	100.0%	794,708
473	Efficient Lighting Design	3.53	1	1	11,728,208	1	4.6%	100%	100.0%	100.0%	93%	100.0%	497,551
474	High efficiency ballasts for lighting	13.15	1	1	11,728,208	1	4.6%	100%	100.0%	100.0%	85%	100.0%	454,751
475	High Efficiency Light fixtures	3.07	1	1	11,728,208	1	4.6%	100%	100.0%	100.0%	85%	100.0%	454,751
476	Lighting controls: occupancy sensors	0.25	0	0									
477	Lighting controls: on/off timer settings	3.00	1	1	11,728,208	1	4.6%	80%	100.0%	100.0%	100%	100.0%	428,001
478	Air Curtains	0.14	0	0									
479	Air Source Heat Pump for Backup Generators	1.27	1	1	11,728,208	1	5.2%	80%	100.0%	100.0%	95%	100.0%	465,169
480	Automated Temperature Control	2.60	1	1	11,728,208	1	5.2%	80%	100.0%	100.0%	80%	100.0%	391,722
481	Destratification Fans	1.94	1	1	11,728,208	1	5.2%	20%	100.0%	100.0%	95%	100.0%	116,292
482	Free cooling	23.66	1	1	11,728,208	1	5.2%	10%	100.0%	100.0%	100%	100.0%	61,207
483	Ground Source Heat Pump	0.57	0	0									
484	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
485	High efficiency non-packaged HVAC equipment	0.08	0	0									
486	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	11,728,208	1	5.2%	80%	100.0%	100.0%	60%	100.0%	293,791
487	Optimized duct design to improve efficiency	0.28	0	0									
488	Preventative Packaged HVAC Maintenance	66,810.98	1	1	11,728,208	1	5.2%	100%	100.0%	100.0%	15%	100.0%	91,810
489	Radiant Heaters	0.03	0	0									
490	Reduced Temperature Settings	93,535.16	1	1	11,728,208	1	5.2%	80%	100.0%	100.0%	80%	100.0%	391,722
491	Seasonal Temperature Settings Adjustments	93,535.16	1	1	11,728,208	1	5.2%	100%	100.0%	100.0%	80%	100.0%	489,652
492	Ventilation Heat Recovery	0.13	0	0									
493	Warehouse Loading Dock Seals	0.36	0	0									
494	Integrated control system	294,424.55	1	1	11,728,208	1	81.1%	92%	100.0%	100.0%	50%	100.0%	4,375,124
495	Sub-Metering and Interval Metering	242,867.98	1	1	11,728,208	1	81.1%	100%	100.0%	100.0%	75%	100.0%	7,133,354
496	Correctly sized motors	0.92	0	0									
497	High/Premium Efficiency Motors	0.58	0	0									
498	Optimized motor control	36.22	1	1	11,728,208	1	33.5%	70%	100.0%	100.0%	90%	100.0%	2,476,700
499	Premium Efficiency Control with ASDs (Other motors)	4.64	1	1	11,728,208	1	33.5%	70%	100.0%	100.0%	72%	100.0%	1,967,601
500	Preventative Motor Maintenance	66,810.99	1	1	11,728,208	1	33.5%	100%	100.0%	100.0%	31%	100.0%	1,218,694
501	Synchronous Belts	5.37	1	1	11,728,208	1	33.5%	40%	100.0%	100.0%	100%	100.0%	1,572,508
502	High efficiency battery charger (for forklifts)	3.98	1	1	11,728,208	1	1.0%	100%	100.0%	100.0%	85%	100.0%	101,056
503	HE Dry-Type Transformers	68,872.66	1	1	11,728,208	1	2.8%	100%	100.0%	100.0%	100%	100.0%	326,945
504	Doors, Covers and Curtains	3.51	1	1	11,728,208	1	1.5%	10%	100.0%	100.0%	79%	100.0%	14,088
505	Floating head pressure controls	20.18	1	1	11,728,208	1	1.5%	10%	100.0%	100.0%	97%	100.0%	17,298
506	Free-cooling	5.84	1	1	11,728,208	1	1.5%	35%	100.0%	100.0%	100%	100.0%	62,417
507	High Efficiency Chiller	1.15	1	1	11,728,208	1	1.5%	10%	100.0%	100.0%	96%	100.0%	17,120
508	Improve insulation of refrigeration system	0.75	0	0									
509	Optimized chilled water temperature and/or optimized condenser temperature	27,392.84	1	1	11,728,208	1	1.5%	35%	100.0%	100.0%	87%	100.0%	54,303
510	Optimized condenser pressure	80,173.09	1	1	11,728,208	1	1.5%	35%	100.0%	100.0%	87%	100.0%	54,303
511	Optimized Distribution System	1.72	1	1	11,728,208	1	1.5%	80%	100.0%	100.0%	97%	100.0%	138,387
512	Premium efficiency refrigeration control system	0.33	0	0									
513	Preventative refrigeration/cooling system maintenance	66,811.01	1	1	11,728,208	1	1.5%	100%	100.0%	100.0%	15%	100.0%	26,750
514	Smart Defrost Controls	56.54	1	1	11,728,208	1	1.5%	10%	100.0%	100.0%	90%	100.0%	16,050
515	VSD on chiller compressor	4.35	1	1	11,728,208	1	1.5%	80%	100.0%	100.0%	87%	100.0%	124,120
516	Advanced water heater controls	8.93	1	1	11,728,208	1	3.3%	90%	100.0%	100.0%	60%	100.0%	208,651
517	Air Curtains (Dryer)	41.28	1	1	11,728,208	1	3.3%	9%	100.0%	100.0%	80%	100.0%	27,820
518	Air Curtains (Oven)	4.12	1	1	11,728,208	1	3.3%	9%	100.0%	100.0%	80%	100.0%	27,820
519	Insulation (Dryer)	21.87	1	1	11,728,208	1	3.3%	95%	100.0%	100.0%	40%	100.0%	146,828
520	Insulation (Oven)	2.18	1	1	11,728,208	1	3.3%	90%	100.0%	100.0%	40%	100.0%	139,100

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MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
521	Preventative Dryer Maintenance	66,811.02	1	1	11,728,208	1	3.3%	100%	100.0%	100.0%	15%	100.0%	57,958
522	Preventative Oven Maintenance	66,811.02	1	1	11,728,208	1	3.3%	100%	100.0%	100.0%	15%	100.0%	57,958
523	Process Heat Recovery to Preheat Makeup Water	2.13	1	1	11,728,208	1	3.3%	90%	100.0%	100.0%	75%	100.0%	260,813
524	High/Premium Efficiency Motors (Pumps)	1.27	1	1	11,728,208	1	26.7%	80%	100.0%	100.0%	94%	100.0%	2,352,337
525	Impeller Trimming (Pump)	8.80	1	1	11,728,208	1	26.7%	15%	100.0%	100.0%	95%	100.0%	445,755
526	Optimization of pumping system	3.62	1	1	11,728,208	1	26.7%	80%	100.0%	100.0%	92%	100.0%	2,302,287
527	Premium Efficiency Control with ASDs (Pumps)	6.69	1	1	11,728,208	1	26.7%	70%	100.0%	100.0%	54%	100.0%	1,182,425
528	Preventative Pump Maintenance	5.20	1	1	11,728,208	1	26.7%	100%	100.0%	100.0%	31%	100.0%	969,713
529	Compressor Control	8.37	1	1	154,563,979	1	6.1%	25%	100.0%	100.0%	72%	100.0%	1,698,821
530	Improve Compressor Components	1.01	1	1	154,563,979	1	6.1%	15%	100.0%	100.0%	92%	100.0%	1,302,430
531	Match Compressor Size to Load	0.78	0	0									
532	Operation and Maintenance	19.93	1	1	154,563,979	1	6.1%	75%	100.0%	100.0%	37%	100.0%	2,619,016
533	Reduce Overall System Requirements	34.42	1	1	154,563,979	1	6.1%	30%	100.0%	100.0%	85%	100.0%	2,406,663
534	Improve Fan Components	0.81	0	0									
535	Operation and Maintenance	26,724.77	1	1	154,563,979	1	5.4%	50%	100.0%	100.0%	37%	100.0%	1,552,009
536	Reduce or Control Fan Speed	48.27	1	1	154,563,979	1	5.4%	10%	100.0%	100.0%	90%	100.0%	755,032
537	Reduce Overall System Requirements	4.39	1	1	154,563,979	1	5.4%	15%	100.0%	100.0%	75%	100.0%	943,789
538	Efficient Lighting Design	3.53	1	1	154,563,979	1	15.7%	100%	100.0%	100.0%	93%	100.0%	22,570,052
539	High efficiency ballasts for lighting	13.15	1	1	154,563,979	1	15.7%	100%	100.0%	100.0%	85%	100.0%	20,628,542
540	High Efficiency Light fixtures	3.07	1	1	154,563,979	1	15.7%	100%	100.0%	100.0%	85%	100.0%	20,628,542
541	Lighting controls: occupancy sensors	0.25	0	0									
542	Lighting controls: on/off timer settings	3.00	1	1	154,563,979	1	15.7%	80%	100.0%	100.0%	100%	100.0%	19,415,098
543	Air Source Heat Pump for Backup Generators	1.27	1	1	154,563,979	1	22.2%	80%	100.0%	100.0%	95%	100.0%	26,125,209
544	Automated Temperature Control	2.60	1	1	154,563,979	1	22.2%	80%	100.0%	100.0%	80%	100.0%	22,000,176
545	Destratification Fans	1.94	1	1	154,563,979	1	22.2%	20%	100.0%	100.0%	95%	100.0%	6,531,302
546	Ground Source Heat Pump	0.57	0	0									
547	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
548	High efficiency non-packaged HVAC equipment	0.08	0	0									
549	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	154,563,979	1	22.2%	80%	100.0%	100.0%	60%	100.0%	16,500,132
550	Optimized duct design to improve efficiency	0.28	0	0									
551	Preventative Packaged HVAC Maintenance	66,811.05	1	1	154,563,979	1	22.2%	100%	100.0%	100.0%	15%	100.0%	5,156,291
552	Radiant Heaters	0.03	0	0									
553	Reduced Temperature Settings	93,535.23	1	1	154,563,979	1	22.2%	80%	100.0%	100.0%	80%	100.0%	22,000,176
554	Seasonal Temperature Settings Adjustments	93,535.23	1	1	154,563,979	1	22.2%	100%	100.0%	100.0%	80%	100.0%	27,500,220
555	Ventilation Heat Recovery	0.13	0	0									
556	Warehouse Loading Dock Seals	0.36	0	0									
557	Match Motor Size to Load	0.55	0	0									
558	Motor Efficiency Upgrade	0.58	0	0									
559	Operations and maintenance	6.07	1	1	154,563,979	1	17.6%	5%	100.0%	100.0%	37%	100.0%	504,403
560	Variable Speed Drives	23.18	1	1	154,563,979	1	17.6%	35%	100.0%	100.0%	9%	100.0%	858,848
561	High efficiency battery charger (for forklifts)	3.98	1	1	154,563,979	1	3.7%	100%	100.0%	100.0%	85%	100.0%	4,911,558
562	HE Dry-Type Transformers	68,873.00	1	1	154,563,979	1	3.7%	100%	100.0%	100.0%	100%	100.0%	5,778,303
563	Doors, Covers and Curtains	3.51	1	1	154,563,979	1	5.2%	10%	100.0%	100.0%	79%	100.0%	639,080
564	Floating head pressure controls	20.18	1	1	154,563,979	1	5.2%	10%	100.0%	100.0%	97%	100.0%	784,694
565	Free-cooling	5.84	1	1	154,563,979	1	5.2%	35%	100.0%	100.0%	100%	100.0%	2,831,368
566	High Efficiency Chiller	1.15	1	1	154,563,979	1	5.2%	10%	100.0%	100.0%	96%	100.0%	776,604
567	Improve insulation of refrigeration system	0.75	0	0									
568	Optimized chilled water temperature and/or optimized condenser temperature	27,392.91	1	1	154,563,979	1	5.2%	35%	100.0%	100.0%	87%	100.0%	2,463,291
569	Optimized condenser pressure	80,173.16	1	1	154,563,979	1	5.2%	35%	100.0%	100.0%	87%	100.0%	2,463,291
570	Premium efficiency refrigeration control system	0.33	0	0									
571	Preventative refrigeration/cooling system maintenance	66,811.07	1	1	154,563,979	1	5.2%	100%	100.0%	100.0%	15%	100.0%	1,213,444
572	Smart Defrost Controls	56.54	1	1	154,563,979	1	5.2%	10%	100.0%	100.0%	90%	100.0%	728,066
573	Advanced water heater controls	8.93	1	1	154,563,979	1	10.5%	90%	100.0%	100.0%	60%	100.0%	8,736,794
574	Air Curtains (Dryer)	41.28	1	1	154,563,979	1	10.5%	9%	100.0%	100.0%	80%	100.0%	1,164,906
575	Air Curtains (Oven)	4.12	1	1	154,563,979	1	10.5%	9%	100.0%	100.0%	80%	100.0%	1,164,906
576	Insulation (Dryer)	21.87	1	1	154,563,979	1	10.5%	95%	100.0%	100.0%	40%	100.0%	6,148,114
577	Insulation (Oven)	2.18	1	1	154,563,979	1	10.5%	90%	100.0%	100.0%	40%	100.0%	5,824,529
578	Optimized Distribution System	1.72	1	1	154,563,979	1	10.5%	93%	100.0%	100.0%	76%	100.0%	11,435,493
579	Preventative Dryer Maintenance	66,811.08	1	1	154,563,979	1	10.5%	100%	100.0%	100.0%	15%	100.0%	2,426,887
580	Preventative Oven Maintenance	66,811.08	1	1	154,563,979	1	10.5%	100%	100.0%	100.0%	15%	100.0%	2,426,887
581	Process Heat Recovery to Preheat Makeup Water	2.13	1	1	154,563,979	1	10.5%	90%	100.0%	100.0%	75%	100.0%	10,920,993
582	Improve Pump Components	1.24	1	1	154,563,979	1	7.5%	10%	100.0%	100.0%	4%	100.0%	46,141
583	Match Pump Size to Load	4.64	1	1	154,563,979	1	7.5%	20%	100.0%	100.0%	20%	100.0%	461,408
584	Operation and Maintenance	26,724.82	1	1	154,563,979	1	7.5%	5%	100.0%	100.0%	37%	100.0%	213,401
585	Reduce or Control Pump Speed	10.43	1	1	154,563,979	1	7.5%	35%	100.0%	100.0%	94%	100.0%	3,795,082

MEASURE DESCRIPTION		MEASURE SELECTION			APPLICABILITY								
Measure ID	Measure Name	Measure TRC calculated for 2020	Passed Measure Screening? (1=Yes, 0=No)	Program-Measure Inclusion (if Passed Measure Screening)	Total Sub-Sector Units	Measure Units per Sub-Sector Unit	Applicability	Technical Feasibility	Distribution of Measure Permutation by Measure Size	Distribution of Measure Permutation by Efficiency Level	Not Yet Adopted Rate	Annual Replacement Eligibility	Total Applicable Measure Units
586	Reduce Overall System Requirements	4.78	1	1	154,563,979	1	7.5%	50%	100.0%	100.0%	82%	100.0%	4,729,434
587	Compressor Control	8.37	1	1	173,661,286	1	8.7%	25%	100.0%	100.0%	72%	100.0%	2,721,640
588	Improve Compressor Components	1.01	1	1	173,661,286	1	8.7%	15%	100.0%	100.0%	92%	100.0%	2,086,591
589	Match Compressor Size to Load	0.78	0	0									
590	Operation and Maintenance	19.93	1	1	173,661,286	1	8.7%	75%	100.0%	100.0%	37%	100.0%	4,195,862
591	Reduce Overall System Requirements	34.42	1	1	173,661,286	1	8.7%	30%	100.0%	100.0%	85%	100.0%	3,855,657
592	Improve Fan Components	0.81	0	0									
593	Operation and Maintenance	26,724.83	1	1	173,661,286	1	7.5%	50%	100.0%	100.0%	37%	100.0%	2,419,901
594	Reduce or Control Fan Speed	48.27	1	1	173,661,286	1	7.5%	10%	100.0%	100.0%	90%	100.0%	1,177,249
595	Reduce Overall System Requirements	4.39	1	1	173,661,286	1	7.5%	15%	100.0%	100.0%	75%	100.0%	1,471,561
596	Efficient Lighting Design	3.53	1	1	173,661,286	1	6.3%	100%	100.0%	100.0%	93%	100.0%	10,165,267
597	High efficiency ballasts for lighting	13.15	1	1	173,661,286	1	6.3%	100%	100.0%	100.0%	85%	100.0%	9,290,835
598	High Efficiency Light fixtures	3.07	1	1	173,661,286	1	6.3%	100%	100.0%	100.0%	85%	100.0%	9,290,835
599	Lighting controls: occupancy sensors	0.25	0	0									
600	Lighting controls: on/off timer settings	3.00	1	1	173,661,286	1	6.3%	80%	100.0%	100.0%	100%	100.0%	8,744,315
601	Air Source Heat Pump for Backup Generators	1.27	1	1	173,661,286	1	9.6%	80%	100.0%	100.0%	95%	100.0%	12,654,075
602	Automated Temperature Control	2.60	1	1	173,661,286	1	9.6%	80%	100.0%	100.0%	80%	100.0%	10,656,063
603	Destratification Fans	1.94	1	1	173,661,286	1	9.6%	20%	100.0%	100.0%	95%	100.0%	3,163,519
604	Ground Source Heat Pump	0.57	0	0									
605	Heat Recovery from Processes to Heat Ventilation Make-up Air	0.02	0	0									
606	High efficiency non-packaged HVAC equipment	0.08	0	0									
607	High-efficiency rooftop AC with an EER of 13.5	2.02	1	1	173,661,286	1	9.6%	80%	100.0%	100.0%	60%	100.0%	7,992,048
608	Optimized duct design to improve efficiency	0.28	0	0									
609	Preventative Packaged HVAC Maintenance	66,811.11	1	1	173,661,286	1	9.6%	100%	100.0%	100.0%	15%	100.0%	2,497,515
610	Radiant Heaters	0.03	0	0									
611	Reduced Temperature Settings	93,535.29	1	1	173,661,286	1	9.6%	80%	100.0%	100.0%	80%	100.0%	10,656,063
612	Seasonal Temperature Settings Adjustments	93,535.29	1	1	173,661,286	1	9.6%	100%	100.0%	100.0%	80%	100.0%	13,320,079
613	Ventilation Heat Recovery	0.13	0	0									
614	Warehouse Loading Dock Seals	0.36	0	0									
615	Match Motor Size to Load	0.55	0	0									
616	Motor Efficiency Upgrade	0.58	0	0									
617	Operations and maintenance	6.07	1	1	173,661,286	1	21.7%	5%	100.0%	100.0%	37%	100.0%	698,269
618	Variable Speed Drives	23.18	1	1	173,661,286	1	21.7%	35%	100.0%	100.0%	9%	100.0%	1,188,945
619	High efficiency battery charger (for forklifts)	3.98	1	1	173,661,286	1	2.3%	100%	100.0%	100.0%	85%	100.0%	3,439,149
620	HE Dry-Type Transformers	68,873.33	1	1	173,661,286	1	2.1%	100%	100.0%	100.0%	100%	100.0%	3,683,724
621	Doors, Covers and Curtains	3.51	1	1	173,661,286	1	7.4%	10%	100.0%	100.0%	79%	100.0%	1,011,394
622	Floating head pressure controls	20.18	1	1	173,661,286	1	7.4%	10%	100.0%	100.0%	97%	100.0%	1,241,838
623	Free-cooling	5.84	1	1	173,661,286	1	7.4%	35%	100.0%	100.0%	100%	100.0%	4,480,858
624	High Efficiency Chiller	1.15	1	1	173,661,286	1	7.4%	10%	100.0%	100.0%	96%	100.0%	1,229,035
625	Improve insulation of refrigeration system	0.75	0	0									
626	Optimized chilled water temperature and/or optimized condenser temperature	27,392.97	1	1	173,661,286	1	7.4%	35%	100.0%	100.0%	87%	100.0%	3,898,346
627	Optimized condenser pressure	80,173.22	1	1	173,661,286	1	7.4%	35%	100.0%	100.0%	87%	100.0%	3,898,346
628	Premium efficiency refrigeration control system	0.33	0	0									
629	Preventative refrigeration/cooling system maintenance	66,811.14	1	1	173,661,286	1	7.4%	100%	100.0%	100.0%	15%	100.0%	1,920,368
630	Smart Defrost Controls	56.54	1	1	173,661,286	1	7.4%	10%	100.0%	100.0%	90%	100.0%	1,152,221
631	Advanced water heater controls	8.93	1	1	173,661,286	1	11.3%	90%	100.0%	100.0%	60%	100.0%	10,598,255
632	Air Curtains (Dryer)	41.28	1	1	173,661,286	1	11.3%	9%	100.0%	100.0%	80%	100.0%	1,413,101
633	Air Curtains (Oven)	4.12	1	1	173,661,286	1	11.3%	9%	100.0%	100.0%	80%	100.0%	1,413,101
634	Insulation (Dryer)	21.87	1	1	173,661,286	1	11.3%	95%	100.0%	100.0%	40%	100.0%	7,458,031
635	Insulation (Oven)	2.18	1	1	173,661,286	1	11.3%	90%	100.0%	100.0%	40%	100.0%	7,065,503
636	Optimized Distribution System	1.72	1	1	173,661,286	1	11.3%	93%	100.0%	100.0%	76%	100.0%	13,871,938
637	Preventative Dryer Maintenance	66,811.14	1	1	173,661,286	1	11.3%	100%	100.0%	100.0%	15%	100.0%	2,943,960
638	Preventative Oven Maintenance	66,811.15	1	1	173,661,286	1	11.3%	100%	100.0%	100.0%	15%	100.0%	2,943,960
639	Process Heat Recovery to Preheat Makeup Water	2.13	1	1	173,661,286	1	11.3%	90%	100.0%	100.0%	75%	100.0%	13,247,819
640	Improve Pump Components	1.24	1	1	173,661,286	1	13.7%	10%	100.0%	100.0%	4%	100.0%	94,889
641	Match Pump Size to Load	4.64	1	1	173,661,286	1	13.7%	20%	100.0%	100.0%	20%	100.0%	948,894
642	Operation and Maintenance	26,724.89	1	1	173,661,286	1	13.7%	5%	100.0%	100.0%	37%	100.0%	438,863
643	Reduce or Control Pump Speed	10.43	1	1	173,661,286	1	13.7%	35%	100.0%	100.0%	94%	100.0%	7,804,652
644	Reduce Overall System Requirements	4.78	1	1	173,661,286	1	13.7%	50%	100.0%	100.0%	82%	100.0%	9,726,162

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Appendix E: Program Assumptions

Sector	Program Name	Measure Bundle	Participation Approach	Payback Acceptance Curve	Net To Gross Ratio
Residential	Appliance Recycling	Fridge recycling	B	Not Applicable	0.63
		Freezer recycling	B	Not Applicable	0.73
	Heating & Cooling	Central AC	A	Residential - HVAC	0.72
		ASHP (all other)	A	Residential - HVAC	0.72
		DFHP	A	Residential - HVAC	0.72
		Duct insulation/sealing	A	Residential - HVAC	0.72
		Duct replacement	A	Residential - HVAC	0.72
		Tune-up	A	Residential - HVAC	0.72
		ASHP (elec res retrofit)	A	Residential - HVAC	0.72
	Home Energy Check-up	LEDs (HEC)	B	Not Applicable	0.80
		Faucet aerators (HEC)	B	Not Applicable	0.80
		Low flow showerheads (HEC)	B	Not Applicable	0.80
		Home insulation	A	Residential - HVAC	0.80
		Other shell	A	Residential - HVAC	0.80
		Home air sealing	A	Residential - HVAC	0.90
	Home Energy Reports	Home Energy Reports	B	Not Applicable	1.00
	Neighborhood Energy Efficiency Program	HVAC filters (NEEP)	B	Not Applicable	1.00
		LEDs (NEEP)	B	Not Applicable	1.00
		Smart strips (NEEP)	B	Not Applicable	1.00
		Faucet aerators (NEEP)	B	Not Applicable	1.00
		Water heater pipe wrap & blanket (NEEP)	B	Not Applicable	1.00
		Water heater temp adjustment (NEEP)	B	Not Applicable	1.00
		Window AC winterization kits (NEEP)	B	Not Applicable	1.00
		Digital plate wall t-stat (mobile)	B	Not Applicable	1.00
		Duct sealing (mobile)	B	Not Applicable	1.00
		Air sealing (mobile)	B	Not Applicable	1.00
		Attic plug & fill insulation (mobile)	B	Not Applicable	1.00
		Other (mobile)	B	Not Applicable	1.00
	Online Store	LEDs (online)	B	Not Applicable	0.70
		Low income kits	B	Not Applicable	1.00
		Smart Thermostats	A	Residential - HVAC	0.80
		Smart Strips	A	Residential - Generic	0.80
		Other	A	Residential - Generic	0.80
	Water Heating	HPWH	A	Residential - HVAC	0.80
		Solar WH	A	Residential - HVAC	0.80
	Multifamily	In-unit DI WH	B	Not Applicable	0.90
		In-unit DI LEDs	B	Not Applicable	0.90
		Common area LED lamps & fixtures	B	Not Applicable	0.90
		Common area other	B	Not Applicable	0.90

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Appendix E: Program Assumptions

Commercial	EnergyWise	Lighting	A	Comm Major Planned	0.70
		Food Service	A	Comm Major Planned	0.70
		Unitary HVAC	A	Comm Major Planned	0.70
		Chillers	A	Comm Minor Planned	0.70
		VFDs	A	Comm Major Planned	0.70
		Refrigeration	A	Comm Major Planned	0.70
		Hot Water	A	Comm Major Planned	0.70
		Prescriptive Other	A	Comm Major Planned	0.70
		Custom Lighting	A	Comm Major Planned	0.70
		Custom Non-Lighting	A	Comm Major Planned	0.70
		Ag Lighting	A	Comm Major Planned	0.90
		Ag Ventilation	A	Comm Major Planned	0.90
		Ag Irrigation	A	Comm Major Planned	0.90
		New Construction	A	Comm Major Planned	0.90
		RCx	A	Comm Major Planned	0.8
	Small Business	SB Lighting	A	Comm Major Planned	0.95
		SB Non-Lighting	A	Comm Major Planned	0.95
	Municipal LED Lighting	Municipal LED Fixture Replacement	B	Not Applicable	1.00
Industrial	Industrial efficiency	IS_Bundle	A	Industrial	0.80
		IPC_Bundle_Ltg	A	Industrial	0.80
		IPC_Bundle_HVAC	A	Industrial	0.80
	Strategic Energy Management	SEM_Bundle	A	Industrial	0.80

Avoided Costs

Data Item	Value
Avoided Capacity Cost [Real] ($/kW-year)	$65.93
Avoided Energy Cost [Real] [$/kWh]	$0.04
Discount Rate	5.99%
Line Losses	15.21%
Reserve Margin (Winter)	21.00%

Measure Level Data

Measures				Participation		Cost Data	
Measure ID	Sector	Program	Measure Name	Eligible Customers* % of Sector	Maximum Participation (in 2029) (% of eligible customers)	Recruitment Costs ($/participant)	Incentive ($/MW)
1	Residential	DLC	Smart Thermostat	31.00%	20.00%	$55.00	$36.00
2	Residential	DLC	Water Heater	69.00%	23.00%	$200.00	$42.00
3	Commercial	DLC	Smart Thermostat	24.00%	20.00%	$70.00	$60.00
4	Commercial	DLC	Water Heater	37.00%	10.00%	$250.00	$72.00
5	Industrial	Interruptible	N/A	N/A	N/A	$0.00	$4.50
6	Commercial	Standby Generation	N/A	N/A	N/A	$0.00	$2.25
9	Residential	ToU	N/A	0.13%	9.93%	$0.00	$0.00
10	Commercial	ToU	N/A	7.90%	10.44%	$0.00	$0.00
12	Industrial	ToU	N/A	24.77%	93.16%	$0.00	$0.00

*Source: Opinion Dynamics Survey, RECS, CBECS and ICF expert opinion

Notes:

1. Participation and Cost data is obtained from multiple sources that include potential studies and DR programs/pilots across the US, along with data supported by ICF program implementation experience
2. Participation numbers for ToU were obtained from program tracking data. The eligibility number comes from the AMI installations (prior to merger with Dominion).
3. Industrial and Standby generation customers are fixed and their participation curves were not modeled

Program Cost Data

Admin Costs				
Sector	Program	Fixed upfront cost (1000 $'s)	Fixed annual costs (1000 $'s)	Variable Admin Costs ($/MW)
Residential	DLC	$180	$120	$0
Residential	CPP	$120	$120	$0
Commercial	DLC	$180	$120	$0
Commercial	CPP	$120	$120	$0
Industrial	Interruptible	$0	$0	$50
Commercial	Standby Generation	$0	$0	$25
Residential	ToU	$0	$0	$0
Commercial	ToU	$0	$0	$0
Industrial	ToU	$0	$0	$0

Notes:

1. Residential DLC program upfront costs do not account for cost-effectiveness results, which would remove a measure from the program
2. ToU program costs are assumed to be incremental to existing program and hence there are no additional costs
3. Existing program - interruptible and standby generation - do not incur any upfront costs

DR Events Assumption

Program	No. of events	Duration of events
DLC	Maximum 10 per season	4 hour events
CPP	Maximum 12 per season	3-4 hour events
Standby Generation	Maximum 10 per season	4-hour events
Interruptible	Maximum 10 per season	4-hour events

Sample Time of Use Modified Prices

	Sector	Rate Code	Peak ($/kWh)	Off-Peak ($/kWh)	Peak to Off-Peak
Existing Rates	Residential	Rate 5	$0.28	$0.10	2.71
	Commercial	Rate 16	$0.19	$0.10	1.79
	Industrial	Rate 21	$0.10	$0.05	1.97
Modified Rates	Residential	N/A	$0.32	$0.09	3.50
	Commercial	N/A	$0.22	$0.09	2.50
	Industrial	N/A	$0.10	$0.05	2.00

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