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Technical Potential for Electric Energy and Peak Demand Savings in Progress Energy Florida

FINAL REPORT

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Executive Summary

In anticipation of the current round of goal-setting for demand-side management (DSM) programs, the seven Florida utilities subject to the Florida Energy Efficiency and Conservation Act (FEECA) formed a collaborative to conduct an assessment of the technical potential for energy and peak demand savings from energy efficiency (EE), demand response (DR), and customer-scale photovoltaic (PV) in each of their respective service territories. This technical potential study will in turn serve as the foundation for estimating economic and achievable potential for each FEECA utility, the latter of which will provide direct input into each utility's proposed DSM goals for 2010-2019.

ES.1 Key Caveats

Since the focus of this study is to estimate technical potential, it is important to note several key caveats to interpreting and evaluating technical potential estimates. First, it should be understood that technical potential is a theoretical construct that represents the upper bound of EE, DR, and PV potential from a technical feasibility sense, *regardless of cost or acceptability to customers*. Specifically, technical potential does not account for other important real-world constraints such as product availability, contractor/vendor capacity, cost-effectiveness, or customer preferences. In this way, technical potential *does not* reflect the amount of EE, DR, or PV potential that is achievable through voluntary, utility programs and should not be evaluated as such. Additionally, it should be noted that the technical potential analyses conducted in this study do not attempt to quantify or account for interactions between EE, DR, and PV measures. As such, the technical potential estimates for EE, PV, and DR are not strictly additive, since efficiency improvements and rooftop PV generation reduce the baseline peak demand available to be reduced in DR programs. Such interactions will be addressed in the economic and achievable potential forecasting phases of this study.

ES.2 Technical Potential for Energy Efficiency

To estimate technical potential for EE in the service territory of Progress Energy Florida (PEF), this study used a bottom-up approach where costs and savings were assessed at the measure level in order to form a true bottom-up estimate of potential that captures important differences in energy efficiency opportunities, impacts, costs, and benefits across end uses, building types, and market segments. Based on this approach, the total technical potential for electric energy savings in the service territory of PEF is estimated to be approximately 12,351 GWh which equates to 35% of current baseline annual electricity consumption. The total technical potential for summer peak demand savings is estimated to be 2,942 MW or

43% of current baseline summer system peak demand. Finally, the total technical potential for winter peak demand savings is estimated to be 1,897 MW or 29% of current baseline winter system peak demand. As Table ES-1 shows below, efficiency opportunities in the residential sector account for well over half of total technical potential for electric energy savings and more than 70% of total technical potential for summer and winter peak demand savings in PEF.

Table ES-1: Summary of the Technical Potential Results for Energy Efficiency by Sector

Sector:	Annual Energy			Summer System Peak			Winter System Peak		
	Baseline	Technical		Baseline	Technical		Baseline	Technical	
	(GWh)	(GWh)	*(%)*	(MW)	(MW)	*(%)*	(MW)	(MW)	*(%)*
Residential	20,645	8,232	*39.9%*	4,698	2,140	*45.5%*	5,175	1,479	*28.6%*
Commercial	11,544	3,648	*31.6%*	1,757	743	*42.3%*	1,166	371	*31.8%*
Industrial	2,670	471	*17.6%*	389	60	*15.3%*	282	47	*16.8%*
Total	**34,859**	**12,351**	***35.4%***	**6,844**	**2,942**	***43.0%***	**6,622**	**1,897**	***28.7%***

The technical potential results for energy efficiency reflect several unique aspects of PEF's customer base and the corresponding energy efficiency opportunities considered for analysis. First, the residential sector in PEF is nearly all-electric, with currently very little natural gas use. This aspect of PEF's residential customer base drives much of the winter system peak demand and corresponding technical potential for winter peak demand savings. This aspect also explains why total technical potential for energy and peak demand savings is largely concentrated in the residential sector. Second, while the relative share of potential savings from HVAC measures primarily reflects the relative share of HVAC loads, the results presented for HVAC measures also reflect the larger number of HVAC measures considered in the analysis compared to measures affecting other end uses. This slight bias towards HVAC measures in the final measure list was a direct result of the availability of previous independent and utility-sponsored research that supported a larger number of HVAC measures compared to other end use measures. Finally, it should be understood that the technical potential results for energy efficiency include savings estimates for several advanced technologies that are likely to face significant near-term constraints in market availability and distributor/contractor capacity. These advanced technologies include SEER 19 central air conditioners, SEER 17 air-source heat pumps, geothermal heat pumps, heat pump water heaters, hybrid desiccant-DX systems, and PV-powered pool pumps.

ES.3 Technical Potential for Demand Response

To estimate technical potential for DR in PEF's service territory, this study used a bottom-up, engineering-based approach that allowed for explicit accounting of the end-use peak loads and DR-enabling technologies that are most relevant to reducing customer load in response to DR events and/or incentives. In this analysis, three key factors were used to determine DR technical potential – the availability of communication networks, the availability and end-use demand reduction capabilities of advanced DR-enabling technologies, and the availability of dynamic pricing tariffs. Because of the emerging nature of advanced DR technologies, dynamic tariffs, and advanced communications networks, Itron developed an assumption-driven approach in order to develop the DR measure data required to estimate technical potential. The final input values for each factor were developed from a combination of utility estimates, data from the literature, and evaluations of current DR programs in Florida. To account for the uncertainty embedded in these input values, particularly the availability of dynamic pricing tariffs across various customer segments, Itron developed "high" and "low" scenarios of DR technical potential.

Table ES-2 shows the estimated DR technical potential by sector, season, scenario, DR-enabling technology, and tariff, presented in both absolute figures and as a percentage of baseline system peak demand. Note that the peak savings estimates are designed to be incremental to the existing DR resource such that only customers that are not currently enrolled in any existing DR program were considered eligible for the DR programs modeled in this analysis. In addition to the existing DR resource of 496 MW, the technical potential estimated from new DR programs ranges from 1,006 MW (high scenario) to 741 MW (low scenario). Total incremental DR technical potential ranges from 10% to 14% of current baseline peak demand across the summer and winter peak seasons and the high and low scenarios modeled in this analysis. The majority of the DR technical potential is available from residential customers and ranges from 73% to 92% across the two scenarios and the two peak seasons.

The size of the estimated DR technical potential resource presented here is highly dependent on the assumed penetration of dynamic pricing tariffs. Air conditioner (A/C) cycling and A/C shedding technologies are likely to be used only in combination with a flat rate, whereas strategies such as smart thermostats and in-home displays are likely to be used only with a dynamic pricing tariff. Additionally, the end-use load reductions from A/C shedding (100%) are substantially higher than that from smart thermostats (~36%) and in-home displays (~36%). This dynamic results in higher levels of DR technical potential when lower penetration of dynamic pricing tariffs is assumed.

Table ES-2: Summary of the DR Technical Potential for Demand Response by Sector, Technology, and Scenario

Sector:	DR-enabling technology and tariff:	Summer System Peak					Winter System Peak				
		Baseline	Technical Potential				Baseline	Technical Potential			
			High		Low			High		Low	
		(MW)	(MW)	(%)	(MW	(%)	(MW)	(MW)	(%)	(MW)	(%)
Residential	A/C Cycling Switch w/ flat rate		97	2.1%	175	3.7%		105	2.0%	189	3.6%
	A/C Shedding Switch w/flat rate		157	3.3%	282	6.0%		169	3.3%	304	5.9%
	Smart Thermostats for A/C w/ CPP		282	6.0%	56	1.2%		304	5.9%	61	1.2%
	On-Off Switching via low-power wireless networks for water heating		65	1.4%	13	0.3%		180	3.5%	36	0.7%
	On-Off Switching via low-power wireless networks for pool systems		51	1.1%	10	0.2%		10	0.2%	2	0.0%
	In-home displays and pre-set control strategies w/CPP		82	1.7%	16	0.3%		89	1.7%	18	0.3%
	Total Residential	4,698	734	15.6%	553	11.8%	5,175	856	16.5%	609	11.8%
Commercial	Automated control strategies w/CPP		109	6.2%	31	1.8%		55	4.7%	16	1.3%
	Direct load control system		144	8.2%	144	8.2%		31	2.7%	31	2.7%
	Total Commercial	1,757	252	14.4%	175	9.9%	1,166	86	7.4%	47	4.0%
Industrial	Automated control strategies w/CPP		9	1.6%	3	0.5%		4	1.0%	1	0.3%
	Direct load control system		11	2.0%	11	2.0%		2	0.4%	2	0.4%
	Total Industrial	550	20	3.6%	13	2.4%	433	6	1.4%	3	0.7%
TOTAL		**7,005**	**1,006**	**14.4%**	**741**	**10.6%**	**6,773**	**948**	**14.0%**	**659**	**9.7%**

ES.4 Technical Potential for Solar Photovoltaic Systems

The analytic methodology for estimating the technical potential of PV systems in PEF's service territory consisted of first estimating the total roof area suitable for siting PV systems and then translating this roof area into estimates of annual electricity generation and power output coincident with the system summer and winter peaks. Table ES-3 summarizes annual energy and system coincident peak demand impacts by sector and building type and benchmarks these impacts relative to current baseline energy consumption and peak demand in PEF. As the table shows, the total estimated technical potential of the PV systems considered in this study is 13,591 GWh of annual electricity generation, 5,000 MW of summer system peak capacity, and 819 MW of winter system peak capacity. Over 65% of total electricity generation and system peak capacity is derived from residential rooftop PV systems, 77% of which are from rooftop systems on single-family residential homes. Relative to current baseline electricity consumption and system coincident peak demand in the residential and commercial sectors of PEF, the total estimated technical potential for PV is equivalent to 42% of annual electricity consumption, 77% of summer system peak demand (assuming hour 3-4pm EDT), and 13% of winter system peak demand (assuming hour 8-9am EST).

In this study, one of most significant assumptions is that the PV arrays eligible to be installed on residential and commercial rooftops and shading structures in commercial parking lots are based on crystalline silicon PV material rather than amorphous silicon PV material. If amorphous silicon PV material had been assumed, the technical potential results would be significantly lower. However, the assumption of 100% crystalline PV is consistent with the concept and definition of technical potential used in the EE and DR analyses, i.e. a theoretical upper bound of the potential PV resource. Another key sensitivity in the PV analysis is the timing of summer and winter system peak demand. PV power production is particularly dynamic during the times of system peak in Florida. Depending on the exact hour of future system peak demand, the level of potential PV generation could vary significantly. The winter system peak illustrates this point particularly well. During the hour from 8-9am, the sun is very low in the sky and PV systems tilted to the east are likely to not contribute any generation at the time of peak. If for some reason the winter peak occurred an hour earlier the historic winter peak, generation might be 100% less than the results of this study indicate. Summertime peak generation is subject to similar sensitivities. During the period during which summer peaks are likely to occur, the position of the sun in the sky is changing quite rapidly. If the summer peak occurred one hour later from 4-5pm, the peak generation would be approximately 15-20% less.

Table ES-3: Summary of PV Technical Potential Results by Sector and Building Type

Sector:	Building Type:	Annual Energy			Summer System Peak (3-4pm EDT)			Winter System Peak (8-9am EST)		
		Baseline	Technical Potential		Baseline	Technical Potential		Baseline	Technical Potential	
		(GWh)	(GWh)	*(%)*	(MW)	(MW)	*(%)*	(MW)	(MW)	*(%)*
Residential	Single-family	14,353	7,071	49%	3,263	2,566	79%	3,622	467	13%
	Multi-family	4,208	1,402	33%	926	509	55%	976	93	9%
	Mobile Homes	2,085	742	36%	510	269	53%	577	49	8%
	Total	20,645	9,214	45%	4,698	3,344	71%	5,175	609	12%
Commercial	College	912	443	49%	467	168	36%	310	21	7%
	School	641	310	48%	314	117	37%	143	15	10%
	Hospital	354	67	19%	223	26	11%	96	3	3%
	Other Health	484	103	21%	152	39	26%	103	5	5%
	Lodging	1,251	527	42%	85	199	234%	86	25	29%
	Restaurant	2,119	318	15%	128	120	94%	87	15	18%
	Grocery	1,161	123	11%	47	46	98%	34	6	18%
	Retail	1,281	504	39%	97	191	197%	76	24	32%
	Warehouse	513	749	146%	66	283	430%	78	36	46%
	Office	2,699	1,166	43%	162	441	272%	117	56	48%
	Other	130	68	52%	16	26	161%	36	3	9%
	Total	11,544	4,377	38%	1,757	1,657	94%	1,166	210	18%
Total		**32,189**	**13,591**	**42%**	**6,455**	**5,000**	**77%**	**6,341**	**819**	**13%**

1

Introduction

Under the terms of the Florida Energy Efficiency and Conservation Act (FEECA), all Florida utilities with annual electric sales over 2,000 GWh are required to pursue cost-effective demand-side management (DSM) programs. In total, the following seven utilities are currently subject to FEECA requirements:

- Florida Power & Light (FPL)
- Progress Energy Florida (PEF)
- Gulf Power Company (Gulf)
- Tampa Electric Company (TECO)
- JEA
- Orlando Utilities Commission (OUC)
- Florida Public Utilities Company (FPU)

The Florida Public Service Commission (PSC) is responsible for setting numeric goals for DSM programs for each utility subject to FEECA. These numeric goals establish annual savings targets over a 10-year period and are revised every five years. The current savings goals were established by the PSC in August 2004 and run through 2014. In June 2008, the PSC established dockets 080407-EG through 080413-EG to review and revise the numeric DSM goals for 2010-2019.

In anticipation of the current round of DSM goal setting, the seven FEECA utilities formed a collaborative (the Florida Collaborative) to conduct an assessment of the technical potential for energy and peak demand savings from energy efficiency, demand response, and customer-scale renewable energy in each of their respective service territories. Additionally, the FEECA utilities also invited the Southern Alliance for Clean Energy (SACE) and the Natural Resources Defense Council (NRDC) to participate in the study collaborative as project advisors. The members of the collaborative developed a request for proposals (RFP)

that was issued on March 21, 2008. Vendor responses were then evaluated by the collaborative. Based upon these evaluations, the study collaborative selected the Itron/KEMA team to conduct the technical potential study.

As defined in the RFP, the primary objective of this study is to assess the technical potential for reducing (avoiding) electricity use and peak demand by implementing a wide range of end-use energy efficiency and demand response measures, as well as customer-scale solar photovoltaic and solar thermal installations, in the service territories of each of the seven FEECA utilities. This technical potential study will in turn serve as the foundation for estimating economic and achievable potential for each FEECA utility, the latter of which will provide direct input into each utility's proposed DSM goals for 2010-2019.

This report presents the methods, data sources, assumptions, and results of the technical potential analysis for PEF. The remainder of this report is organized as follows:

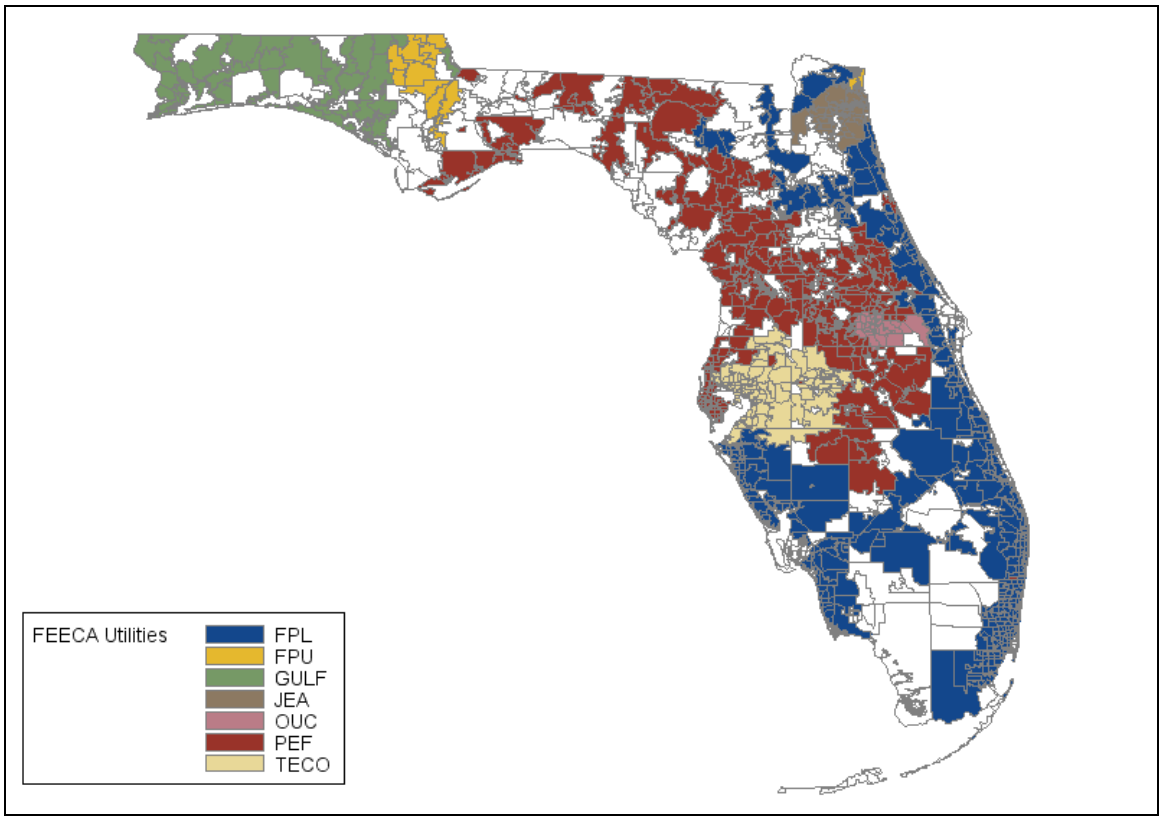
- **Chapter 2** describes the analytic scope of the study
- **Chapter 3** presents the concepts, methodology, input data, and results of the technical potential analysis for energy efficiency
- **Chapter 4** presents the concepts, methodology, input data, and results of the technical potential analysis for demand response
- **Chapter 5** presents the concepts, methodology, input data, and results of the technical potential analysis for customer-scale solar PV
- **Chapter 6** provides a comprehensive list of key data sources and references
- **Appendix A** provides brief descriptions for each energy efficiency measure analyzed in this study
- **Appendix B** provides detailed tables of the measure inputs used in the study
- **Appendix C** provides a detailed summary of the non-additive results for energy efficiency measures
- **Appendix D** provides a detailed summary of the supply-curve adjusted results for energy efficiency measures

2

Study Scope

This study provides estimates of energy and peak demand savings opportunities available to electric customers in each of the seven FEECA utilities. As Figure 2-1 shows, the service territories of the seven FEECA utilities encompass nearly the entirety of the state of Florida. Indeed, when taken together, these seven utilities account for over 85% of total annual electric sales in the state of Florida in 2007 (~190 TWh/yr).

Figure 2-1: The Service Territories of the FEECA Utilities by Zip Code



The scope of this study includes the assessment of the potential energy and peak demand savings from energy efficiency (EE), demand response (DR), and customer-scale solar PV and solar thermal opportunities currently available to customers in the residential,

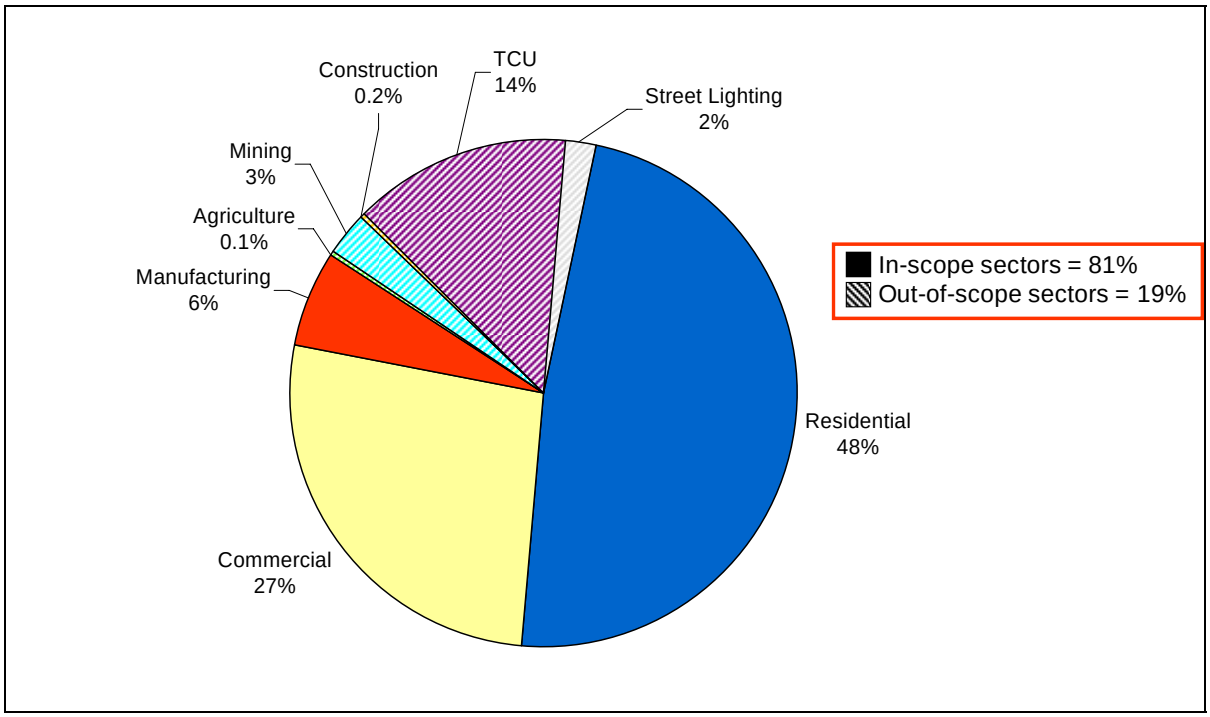
commercial, and industrial sectors. It should be noted, however, these technical potential analyses do not attempt to quantify interactions between EE, DR, and PV measures. As such, the technical potential estimates for EE, PV, and DR are not strictly additive, since efficiency improvements and rooftop PV generation reduce the baseline peak demand available to be reduced in DR programs. Such interactions will be addressed in the economic and achievable potential forecasting phases of this study.

It should also be noted that energy and peak savings opportunities in a few end-use sectors were specifically excluded from this study. These sectors were agriculture, transportation, communications and utilities (TCU), construction, and outdoor/street lighting. In the agriculture and TCU sectors, there is a lack of comprehensive primary research on both end-use baselines and energy/peak savings opportunities that would allow development of reliable technical potential estimates. In the case of the construction sector, end-use electric loads are temporary by nature and often ill-suited as targets for utility-administered resource acquisition programs. In the case of outdoor and street lighting, these markets are already saturated with efficient equipment (e.g. LED traffic signals and metal halide or high-pressure sodium lamps) in most regions of the country (USDOE, 2004). More importantly for traffic signals, the Energy Star product specification (based on LED performance levels) was subsumed by revised federal efficiency standards which require all new traffic signals to meet LED-equivalent performance criteria.[1]

As Figure 2-2 shows, the in-scope sectors accounted for over 80% of total annual electric sales in PEF in 2007, while the out-of-scope sectors accounted for less than 20% of total sales.

[1] See final rulemaking published in USDOE Federal Register Notice, October 18, 2005: http://www1.eere.energy.gov/buildings/appliance_standards/pdfs/technical_amendment_101805.pdf

Figure 2-2: 2007 Electric Sales in PEF by End-use Sector



3

Technical Potential for Energy and Peak Demand Savings from Energy Efficiency

In this chapter, we first provide an overview of the concepts and methodology used to estimate energy efficiency potential. We then describe the data sources and methods used to develop comprehensive, end-use baselines. Finally, we present and analyze the resulting energy efficiency potential estimates and delineate key analytic caveats.

3.1 Characterizing the Energy Efficiency Resource

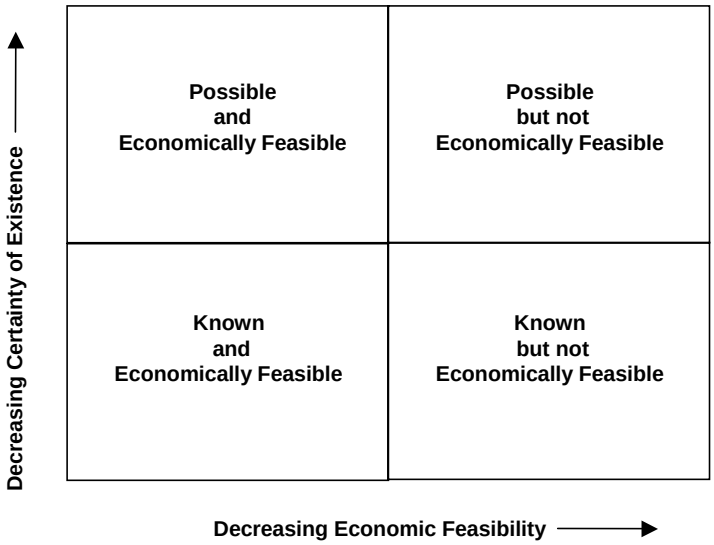
Energy efficiency has been characterized for some time now as an alternative to energy supply options such as conventional power plants that produce electricity from fossil or nuclear fuels. In the early 1980s, researchers developed and popularized the use of conservation supply curves to characterize the potential costs and benefits of energy conservation and efficiency. Under this framework, technologies or practices that reduced energy use through efficiency were characterized as "liberating 'supply' for other energy demands" and could therefore be thought of as a resource and plotted on an energy supply curve. The energy-efficiency resource paradigm argued simply that the more energy efficiency, or "nega-watts" produced, the fewer new plants needed to meet end users' power demands.

Energy-efficiency potential studies were popular throughout the utility industry from the late 1980s through the mid-1990s. This period coincided with the advent of what was called least-cost or integrated resource planning (IRP). Energy-efficiency potential studies became one of the primary means of characterizing the resource availability and value of energy efficiency within the overall resource planning process.

Like any resource, there are a number of ways in which the energy-efficiency resource can be estimated and characterized. Definitions of energy-efficiency potential are similar to definitions of potential developed for finite fossil fuel resources like coal, oil, and natural gas. For example, fossil fuel resources are typically characterized along two primary dimensions: the degree of geologic certainty with which resources may be found and the

likelihood that extraction of the resource will be economic. This relationship is shown conceptually in Figure 3-1.

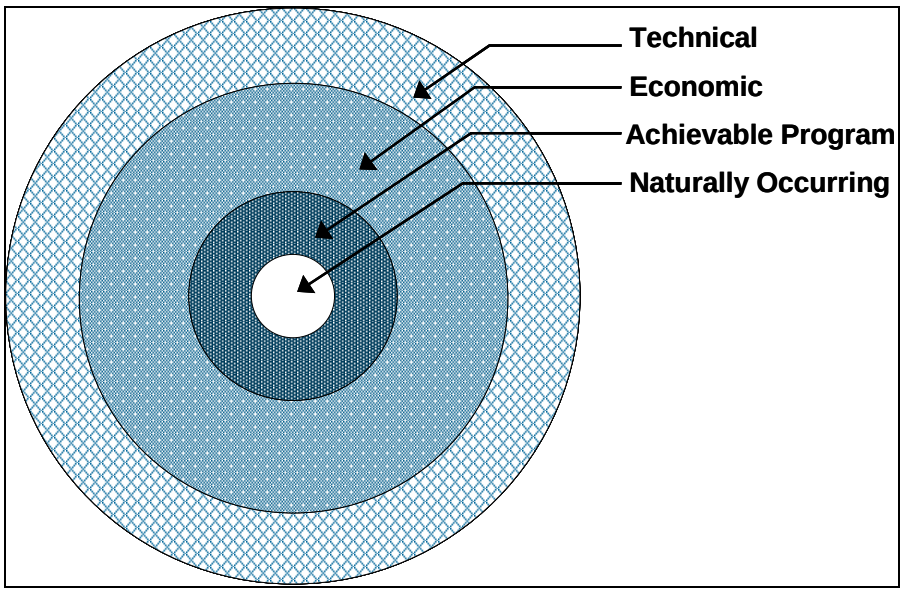
Figure 3-1: Conceptual Framework for Estimates of Fossil Fuel Resources



Somewhat analogously, this energy-efficiency potential study defines several different *types* of energy-efficiency *potential*, namely: technical, economic, achievable, program, and naturally occurring. These potentials are shown conceptually in Figure 3-2 and described below.

Technical potential is defined in this study as the complete penetration of all measures analyzed in applications where they were deemed technically feasible from an engineering perspective. **Economic potential** refers to the technical potential of those energy conservation measures that are cost-effective when compared to supply-side alternatives. **Achievable program potential** refers to the amount of savings that would occur in response to specific utility program funding and measure incentive levels. Savings associated with program potential are savings that are projected beyond those that would occur naturally in the absence of any utility programs. In this sense, **naturally occurring potential** refers to the amount of savings estimated to occur as a result of normal market forces, that is, in the absence of any utility programs.

Figure 3-2: Conceptual Relationship among Definitions of Energy Efficiency Potential



The focus of this study is to produce estimates of technical potential that will then form the basis for estimates of economic and achievable potential in a follow-on study. In this respect, it is important to note several key caveats to interpreting and evaluating technical potential estimates. First, it should be understood that technical potential is a theoretical construct that represents the upper bound of energy efficiency potential from a technical feasibility sense, *regardless of cost or acceptability to customers*. Specifically, feasibility limits measure installation to opportunities where installation is feasible from an engineering perspective and physically practical with respect to constraints such as available space, noise considerations, and lighting level requirements, among other things. However, technical potential does not account for other important real-world constraints such as product availability, contractor/vendor capacity, cost-effectiveness, or customer preferences. In this way, technical potential *does not* reflect the amount of energy efficiency potential that is achievable through voluntary, utility programs and should not be evaluated as such.

3.2 Energy Efficiency Forecasting Methodology

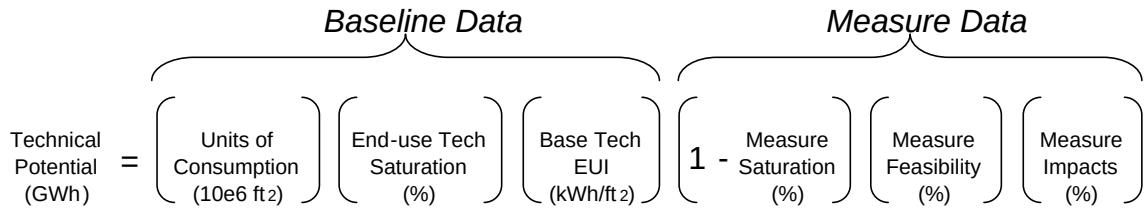
Our method for estimating energy efficiency potential is a bottom-up approach, utilizing DSM ASSYST, KEMA's MS-Excel-based DSM potential model for energy efficiency. In this approach, costs and savings are assessed at the measure level in order to form a true bottom-up estimate of potential that captures important differences in energy efficiency opportunities, impacts, costs, and benefits across end uses, building types, and market segments. The results of this bottom-up analysis can then be analyzed along a wide range of

dimensions, including: 1) time (in terms of annual or cumulative costs and savings), 2) utility service territory, 3) building or business type, 4) building vintage, 5) end use, and 6) individual efficiency measure.

In the remainder of this section, we provide a detailed description of the bottom-up approach used to forecast technical potential in this study.

3.2.1 Core Equation

In its most basic form, total technical potential is developed from estimates of the technical potential of individual measures as they are applied to discrete market segments (commercial building types, residential dwelling types, etc). The core equation used to calculate the technical potential for energy savings from each individual efficiency measure is shown below (using a commercial measure example).



As the equation shows, technical potential is estimated by interacting "baseline data" that describe current, end-use energy consumption in a given market segment with "measure data" that describe the energy savings impacts, feasibility, and current saturation of a given measure in a given market segment.

The key types of data used to develop baseline end-use energy consumption are:

- **Units of consumption –** this variable quantifies the total square feet of floor area (in the commercial analysis) or total number of dwellings (in the residential analysis) for a given market segment (e.g. office buildings in commercial or single-family dwellings in residential).
- **Base technology end-use intensity (EUI) –** this variable quantifies the annual energy used per square foot for each base-case end-use technology in each market segment. This is the consumption of the energy-using equipment that the efficient technology replaces or effects. For example, if the efficient measure were a CFL, the base EUI would be the annual kWh per square foot of an equivalent incandescent lamp. For the residential analysis, annual unit energy consumption (UECs) or energy used per dwelling, are substituted for EUIs.

- **End-use technology saturation –** this variable quantifies the fraction of the floor space (or dwelling units) in which a given base-case end-use technology is currently installed. In commercial lighting, for example, this would be the percentage of floor space lit by incandescent bulbs (in the case of a CFL analysis) or the percentage of floor space lit by linear fluorescent lamps (in the case of a premium T8 analysis).

The key types of data used to describe energy efficiency measures are:

- **Measure saturation –** this variable is the fraction of applicable floor space (or dwelling units) that has already been converted to the efficient measure. One minus the measure saturation thus provides an estimate of the size of remaining eligible market for any given measure.

- **Measure feasibility –** this variable is the fraction of the applicable floor space (or dwelling units) where it is technically feasible for conversion to the efficient technology from an engineering perspective.

- **Measure impacts –** this variable is the percentage reduction in annual energy consumption that results from application of the efficient technology.

Estimates of the technical potential for peak demand savings (as opposed to annual energy savings) are calculated analogously simply by adding peak-to-energy ratios to the equation above. These peak-to-energy ratios are derived from end-use load shape data and translate annual end-use energy consumption (kWh) to demand (kW) at the time of system coincident peak load.

By treating measures independently, their relative cost-effectiveness is analyzed without making assumptions about the order or combinations in which they might be implemented in customer premises. However, total technical potential across measures cannot be accurately estimated by simply summing the individual measure potentials directly, since some savings would be double-counted. For example, the savings from a measure that reduces heat gain into a building, such as window film, are partially dependent on other measures that effect the efficiency of the system being used to cool the building, such as a high-efficiency chiller – the more efficient the chiller, the less energy saved from the application of the window film.

In the second step of the DSM ASSYST modeling framework, total cumulative technical potential is estimated using a supply curve approach. This method, which we describe in the next subsection, minimizes the double-counting problem.

3.2.2 Use of Supply Curves

Energy efficiency supply curves consist of two axes – one that captures the levelized cost per unit of savings (e.g., $/kWh saved) and the other that shows the amount of savings that could be achieved at each level of cost. These curves are built up by sorting individual measures (and their technical potential savings) on a least-cost basis.

The critical aspect of supply curves is that total potential savings from any given measure are calculated incrementally with respect to measures that precede them. This incremental accounting of measure costs and savings takes into account interactive effects between multiple measures applied to the same end use, such as those described above in the case of efficient chillers and window film measures.

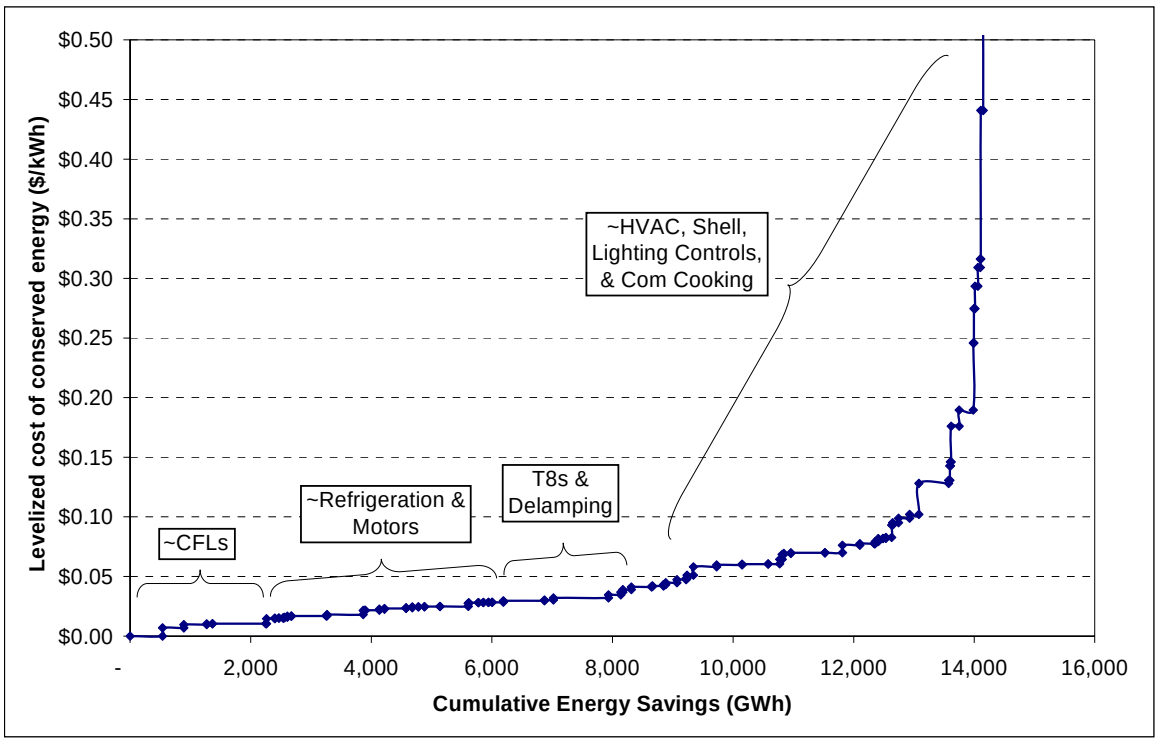
Table 3-1 shows a simplified numeric example of a supply curve calculation for several energy efficiency measures applied to commercial lighting for a hypothetical population of buildings. Measures are first sorted by cost – from least to most expensive – reflecting the assumption that measures are adopted and installed in a least-cost order. The basis for the cost sorting can be a measure-level cost-effectiveness test or the levelized cost of the measure per unit of energy or demand reduced. For this study, the Florida Collaborative chose to use the participant cost test as the basis for the least-cost ordering. Next, the base-case energy consumption of the end-use system being effected by the first efficiency measure is adjusted for the expected energy savings from that measure. For subsequent measures that effect the same end use, the expected energy savings are then re-estimated to account for the adjusted energy consumption baseline. In the example shown below, the occupancy sensor measure would save more per installation if it was applied to the base-case T12 lamp and magnetic ballast combination. However, because the T8 lamp-electronic ballast combination is more cost-effective, it is applied first, reducing the energy savings potential for the occupancy sensor. Thus, in a typical energy efficiency supply curve, the base-case end-use consumption is reduced with each unit of energy efficiency that is acquired. Notice that in Table 3-1 the total end-use GWh consumption is recalculated after each measure is implemented, thus reducing the base energy available to be saved by the next measure.

Table 3-1: Sample Technical Potential Supply Curve Calculation for Commercial Lighting (Note: Data are illustrative only)

Measure	Total End Use Consumption of Population (GWh)	Applicable, Not Complete and Feasible (1000s of ft^2)	Average kWh/ft^2 of population	Energy Savings (%)	Energy Savings (GWh)	Participant B-C Ratio
Base Case: T12 lamps with Magnetic Ballast	425	100,000	4.3	N/A	N/A	N/A
1. T8 w. Elec. Ballast	425	100,000	4.3	21%	89	3.2
2. Occupancy Sensors	336	40,000	3.4	10%	13	1.4
3. Perimeter Dimming	322	10,000	3.2	45%	14	0.5
With all measures	309		3.1	27%	116	

This least-cost ordering and accounting of interactive effects between measures is performed for all of the base-case technologies, market segments, and measure combinations in the scope of the study. The results are then summed to produce the technical energy efficiency potential for the entire sector. Supply curves typically, but not always, end up reflecting diminishing returns as shown in Figure 3-3, i.e. costs increase rapidly and savings decrease significantly at the end of the curve.

Figure 3-3: Example of Technical Potential Supply Curve for the Commercial Sector (Note: Data are illustrative only)



3.3 Development of Bottom-up, End-use Baselines

As implied in the previous discussion, the first step in estimating technical potential in this study involved constructing a bottom-up characterization of current energy use and peak demand at the end-use and technology level in the particular market segments of interest, e.g., existing single-family homes, office buildings, grocery stores, or metal fabrication facilities. The specific market segments and end uses defined for this study are summarized in Table 3-2 below.

Table 3-2: Summary of Analysis Segmentation Used in this Study

Segment Name	Segment Definition		
Sector	• Residential	• Commercial	• Industrial
Building type	• Single-family dwelling • Multi-family dwelling • Mobile Home	• College • Food Store • Hospital • Other Health Care • Office • Lodging • Restaurant • Retail • School • Warehouse • Miscellaneous	• Food Processing • Textiles • Lumber • Paper-Pulp • Printing • Chemicals • Petroleum • Rubber-Plastics • Stone-Clay-Glass • Primary Metals • Fab Metals • Ind Machinery • Electronics • Transp Equipment • Instruments • Miscellaneous
Building Vintage	• Existing construction • New construction	• Existing construction • New construction	• Existing construction
End Use	• HVAC • Lighting • Water Heating • Refrigerator • Freezer • Clothes Dryer • Clothes Washer • Dishwasher • Pool Pump • TV/VCR/DVD/STB/PC • Other Plug Loads	• Space Cooling • Ventilation • Water Heating • Commercial Cooking • Refrigeration • Exterior Lighting • Interior Lighting • Office Equipment • Miscellaneous	• Process Heating • Process Cooling • Pumps • Fans • Compressed Air • Process Drives • Lighting • HVAC • Refrigeration • Other

For each of the end uses and market segments defined above, the key data necessary to establish the bottom-up modeling baselines are: 1) population estimates of the number of customers, number of households, total square footage of built space, and/or kWh sales; 2) end-use technology saturations (e.g., the share of the market with a certain technology installed), 3) end-use technology densities (e.g., the average number of technology units installed per household or per square foot of floor area), 4) end-use energy intensities (e.g., per household or per square foot of floor area), and 5) end-use load shapes (e.g. distribution of energy use over time of the day and season). Residential baseline analyses also require data on the number of households by building type (e.g., single-family detached homes vs. multi-family buildings) in order to scale and calibrate residential end-use estimates to total

residential sales and peak demand. Similarly, commercial baseline analyses requires data on commercial floor space by building type (e.g., offices, retail stores, hospitals, or schools) in order to scale and calibrate commercial end-use estimates to total commercial sales and peak demand. Table 3-3 provides a summary of the key types of baseline data required for bottom-up potential studies.

Table 3-3: Summary of Key Baseline Data Required for Potential Studies

Data Type	Units
Units of Consumption	▪ Number of households or kWh sale (residential) ▪ Square feet of floor space or kWh sales (commercial) ▪ kWh sales (industrial)
End-use Technology Saturation	▪ Share of households with technology installed (residential) ▪ Share of floor space with technology installed (commercial) ▪ Share of load with technology installed (industrial)
End-use Technology Density	▪ Cost units per consumption unit (e.g., lamps/home, tons cooling/square foot, motor horsepower/kWh)
End-use Energy Intensity	▪ Annual kWh/household (residential) ▪ Annual kWh/square foot (commercial) ▪ kWh load (industrial)
End-use Load Shapes	▪ Distribution of end-use energy consumption across times of the day, days of the week, and season

In addition to the end-use baseline data described above, the other key data required for developing defensible, bottom-up baselines are data on actual total sales and system peak demand by customer class. These "top-down" data serve as controls totals in order to ensure that all of the bottom-up end-use energy and peak demand estimates correctly sum to actual sales and observed system peak demand. Indeed, the process of reconciling the bottom-up end-use energy and peak demand estimates with actual sales and system peak demand is critical to minimizing systematic bias embedded in technical potential assessment.

In the remainder of this section, we present and describe the data sources and methods used to develop residential, commercial, and industrial end-use baselines for this study and then summarize the resulting energy consumption and peak demand baselines by end use and market segment.

3.3.1 Residential Baseline Data Development

For the residential baseline analysis, PEF provided two key datasets that served as important benchmarks for the development of residential end-use baselines. First, PEF provided counts

of residential customers by type (i.e. single-family, multi-family, or mobile home) based on information extracted from their respective Customer Information Systems (CIS) databases. Second, PEF also provided billing data on actual residential electricity sales for calendar year 2007. This billing data served as control totals to help reconcile the bottom-up baseline estimates with actual total residential sales.

Data on end-use equipment saturations and technology densities were developed primarily from the results of the 2006 Home Energy Survey (HES). The 2006 HES consisted of just over 1,200 on-site surveys of residential homes conducted in six of the seven FEECA utilities.[2] Itron obtained the utility-specific survey results from the FPSC staff (via Progress Energy). It should be noted that outside of FPL's HES, the sample sizes from the other utilities were not large enough to produce statistically significant results by utility and building type. Itron thus aggregated the utility-specific results to produce population-weighted statewide averages by building type[3] and applied these values to utilities that did not have alternative sources of baseline saturation data (PEF, TECO, OUC, and FPU).

Data on baseline end-use UECs (kWh/household) were derived from a variety of sources. For HVAC and water heating, baseline UECs were derived from previous Itron analyses of in-situ heating, cooling, and water heating loads conducted in support of previous FPL program impact evaluations. These analyses provided separate estimates of HVAC and water heating UECs by FPL climate zone, building type, and base technology. These FPL-specific estimates also formed the basis for the HVAC and water heating estimates developed for the other six utilities, but Itron made two important adjustments. First, space heating loads were adjusted (in the form of a scalar) to account for significant differences in the average heating degree-days in the northern and central climate zones in FPL's service territory and the average heating-degree days in the north and central climate zones of the other FEECA utilities. Second, water heating loads were adjusted (again in the form of a scalar) to account for significant differences in average inlet water temperatures in FPL's service territory (often around 80° F) and the other FEECA utilities using weather station data on average ground water temperature differences.

Baseline UECs for lighting and appliances were derived from a variety of FL-specific sources. In the case of lighting, refrigerators, and freezers, Itron leveraged UEC estimates developed by the Florida Solar Energy Center (FSEC) that resulted from an end-use monitoring study of approximately 200 homes recently conducted for Progress Energy

[2] FPU was not required to participate in the 2006 HES.

[3] Itron developed weights using utility-specific shares of the 6-utility residential customer counts.

(Parker et al, 2000a). For clothes washers, clothes dryers, and dishwashers, Itron leveraged the Florida-specific estimates from the 2001 Residential Energy Consumption Survey (RECS) conducted by the Energy Information Administration (US Department of Energy, 2004).

For home electronics, Itron developed baseline UEC estimates for televisions, DVD players, VCRs, set-top boxes, and personal computers based on the results of the most recent national and regional studies on residential plug loads. Specifically, Itron leveraged the results of a comprehensive national assessment of energy consumption from consumer electronics recently conducted for the USDOE (Roth and McKenney, 2007) and field measurements of residential plug loads in 75 California homes recently conducted for the California Energy Commission (Porter et al, 2006).

3.3.2 Commercial Baseline Data Development

For the commercial baseline analysis, PEF again provided billing data on actual electricity sales to commercial customers in calendar year 2007 which served as control totals to help reconcile the bottom-up baseline estimates with actual total commercial sales. Itron also requested customer-level Standard Industrial Classification (SIC) information from utility billing/CIS databases in order to map total annual sales to the following 11 commercial building types defined for this study: Offices, Restaurants, Retail Stores, Grocery Stores, Schools, Colleges, Hospitals, Other Health Care, Hotels, Warehouses, and Miscellaneous Commercial.[4]

Data on baseline end-use EUIs (kWh/ft2), equipment saturations, and end-use load shapes were derived primarily from a previous survey of commercial customers conducted for FPL by Regional Economic Research (now a part of Itron) in 1997. That study consisted of 1,157 on-site surveys of commercial and industrial (C&I) customers in FPL's service territory and produced estimates of average equipment saturations, densities, and capacities as well as average building characteristics for 16 commercial building types and 7 industrial facility types. These data were also fed into DOE-2 building energy simulations in order to generate hourly demand profiles by end-use, which were then weighted and scaled to the population level for each building type. Given the vintage of these baseline data, Itron supplemented these data, where possible, with recent data from ongoing Itron evaluations of FPL's C&I programs and recent C&I market assessments in California.

[4] Military bases are mostly classified as Public Administration establishments and are thus considered Office buildings in this study. Two notable exceptions are sites that manufacture military goods (which are considered as part of the industrial sector) and military hospitals (which are grouped with other public and private hospitals).

It should be noted that robust baseline equipment and energy efficiency measure saturation data by commercial building type are the two types of input data that are often not readily available for specific utility service territories, and consequently tend to be the most uncertain inputs in potential studies. While this study was able to leverage FPL's previous commercial survey to help minimize this type of baseline uncertainty, the FEECA utilities recognized the need for updated commercial baseline data and included a base task of conducting 600-point on-site survey of commercial facilities in the service territories of FPL, Progress Energy, and Gulf Power. The development, testing, and implementation of this data collection task is being administered by KEMA (subcontractor to Itron for this study). The principle data being collected as part of this effort include building characteristics, baseline end-use equipment saturations, densities, and capacities, and current saturation of key energy efficiency measures. At the time of this report, the final survey results and project report were still being prepared by KEMA and could not be integrated into the current analysis. However, the results of the survey will be used to update the commercial baseline and technical potential analyses within the scope of the economic and achievable potential forecasting phases of this study.

3.3.3 Industrial Baseline Data Development

For the industrial baseline analysis, PEF again provided billing data on actual electricity sales to industrial customers in calendar year 2007 which served as control totals to help reconcile the bottom-up baseline estimates with actual total industrial sales. As in the commercial baseline analysis, Itron also requested customer-level Standard Industrial Classification (SIC) information from utility billing/CIS databases in order to map total annual sales to the 16 industrial subsectors defined for this study.

In order to develop industrial end-use estimates, KEMA (who conducted the industrial analysis as a subcontractor to Itron) leveraged subsector-specific end-use share estimates derived from the Energy Information Administration's 2002 Manufacturing Energy Consumption Survey (MECS). The 2002 MECS developed end-use consumption estimates for the manufacturing sector at the national level, broken out by primary industry types. KEMA translated these MECS data into end-use share estimates for each industry and combined those end-use shares with the total annual sales data provided by PEF to estimate subsector-specific end-use loads for PEF. The industrial motors end use was further broken down by application (pumps, fans, compressed air, other) using information from the USDOE's Motors Assessment Study (XENERGY, 1998). In that study, a survey of over 200 industrial facilities was conducted and analyzed to provide estimates of motor consumption and energy efficiency opportunities by industry and motor application type.

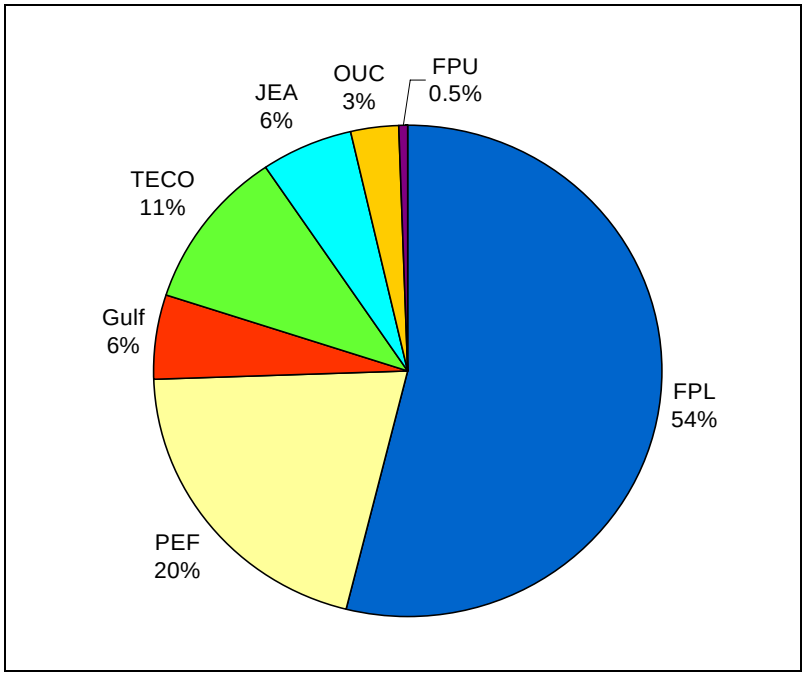
Finally, KEMA used data from utility rate load research and customer-level interval data provided by the FEECA utilities to develop subsector-specific load profiles.

3.3.4 Baseline results

Below, we present the key results of our baseline analyses of annual electricity sales and system peak demand the residential, commercial, and industrial sectors in PEF and highlight the key characteristics of PEF's customer base relevant to the assessment of electric energy efficiency potential.

Figure 3-4 shows the distribution of total, in-scope 2007 electricity sales across the FEECA utilities by utility.[5] As the Figure shows, the two utilities with the largest service territories – FPL and PEF – account for the vast majority of total annual sales across the FEECA utilities, with FPL accounting for just over half of total annual sales and PEF accounting for approximately 20%, with TECO, Gulf, JEA, OUC, and FPU collectively accounting for the remaining 25% of total sales.

Figure 3-4: Estimated Breakdown of Total Annual Sales (Excluding losses) by Utility (171,672 GWh)



[5] See Section 2 for a complete discussion of the end-use demand sectors that were excluded from the study scope.

Figure 3-5, Figure 3-6, and Figure 3-7 show the distribution of total, in-scope sales and total summer and winter system peak demand by end-use sector in PEF's service territory. Note that summer system peak demand in Florida historically occurs in the late afternoon (3-5pm), whereas winter system peak demand historically occurs in the early morning (7-9am). As these Figures show, residential customers were responsible for the largest share of total annual electricity consumption, accounting for more than half of total annual electricity sales in PEF's service territory. Residential customers were responsible for an even larger share of system peak demand, accounting for more than two thirds of summer system peak demand and nearly 80% of winter system peak demand. Commercial customers are responsible for the next largest share of annual electricity consumption and peak demand, accounting for approximately 33% of total annual electricity sales, 26% of summer system peak demand, and 18% of winter system peak demand. Industrial customers account for only 8% of total annual electricity sales and even smaller shares of summer and winter system peak demand (6% and 4%, respectively).

Figure 3-5: Estimated Breakdown of Total Annual Electricity Sales in PEF (Excluding losses) by Sector (34,859 GWh)

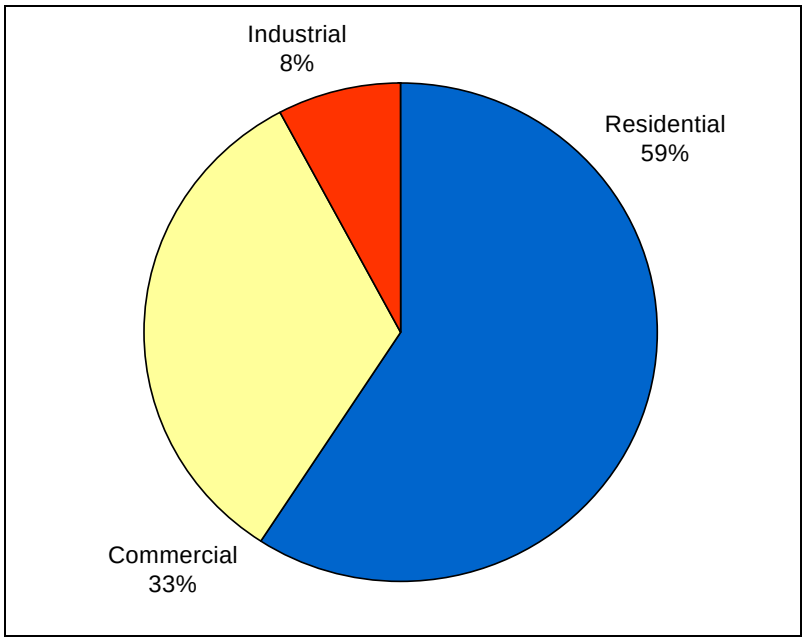


Figure 3-6: Estimated Breakdown of Total Summer System Coincident Peak Demand in PEF (Excluding losses) by Sector (6,844 MW)

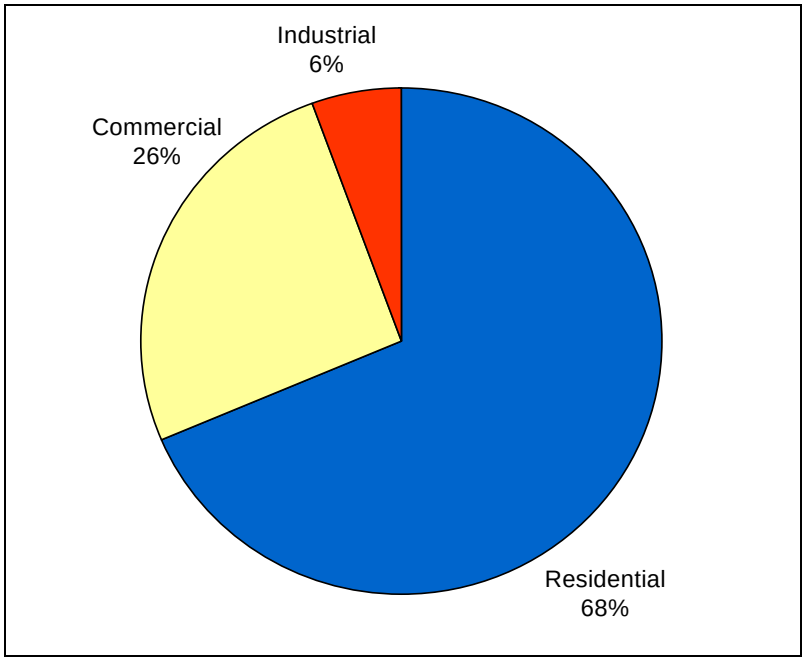


Figure 3-7: Estimated Breakdown of Total Winter System Coincident Peak Demand in PEF (Excluding losses) by Sector (6,622 MW)

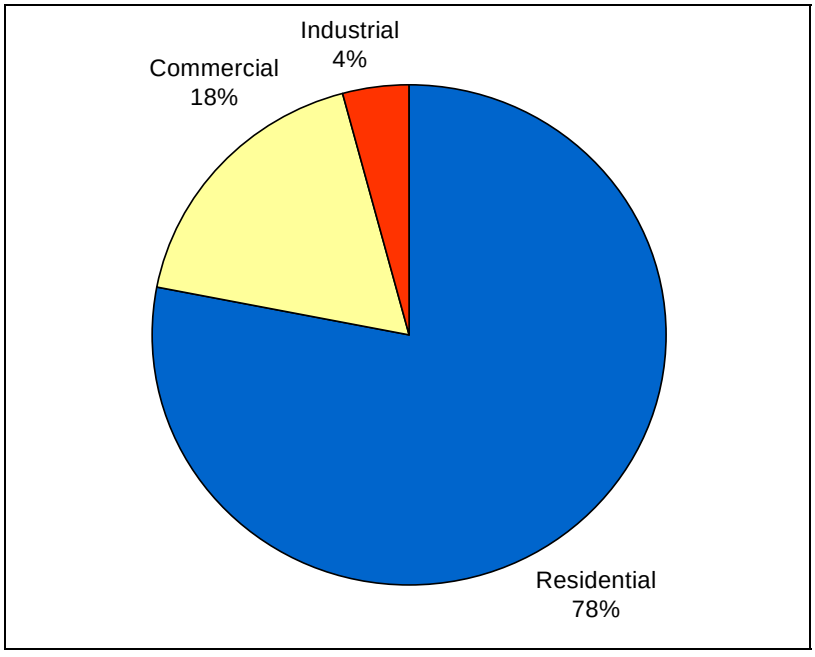


Figure 3-8 shows the breakdown of total annual electricity sales by building type in the residential sector. As the Figure shows, single-family detached homes account for more than two-thirds of total electricity consumption in the residential sector, with multi-family homes (including single-family attached homes) and mobile homes accounting for 20% and 10%, respectively, of total residential consumption. These shares of total electricity consumption largely reflect the relative number of single-family, multi-family, and mobile homes in the PEF's service territory.

Figure 3-8: Estimated Breakdown of Total Annual Residential Electricity Sales in PEF (Excluding losses) by Building Type (20,645 GWh)

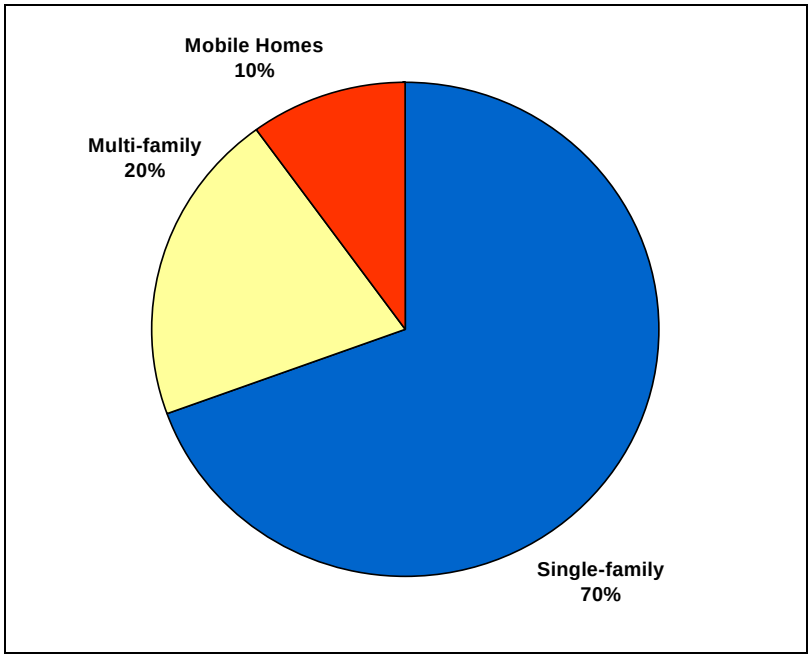
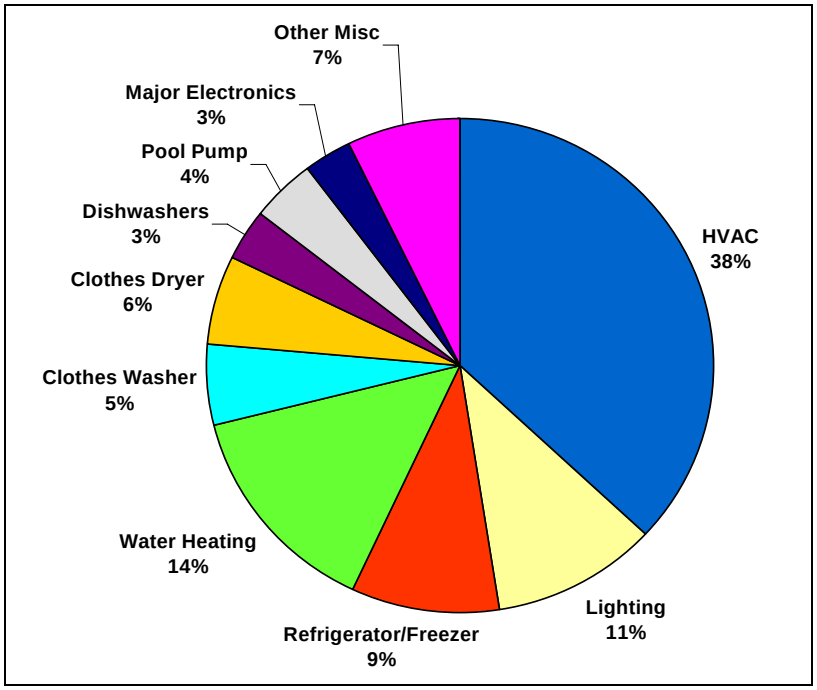


Figure 3-9, Figure 3-10, and Figure 3-11 show the breakdown of total annual residential electricity sales, summer system peak demand, and winter system peak demand by end use. As Figure 3-10 shows, heating, ventilation, and air-conditioning (HVAC) account for just over a third of residential electricity consumption, followed by water heating (14%), lighting (11%), and refrigerator-freezers (9%). The remaining third of residential consumption is split fairly evenly among other major appliances (clothes washers, clothes dryers, and dishwashers), major electronics (televisions, set-top boxes, DVD players, VCRs, and personal computers), and other miscellaneous plug loads.

Figure 3-9: Estimated Breakdown of Total Annual Residential Electricity Sales in PEF (Excluding losses) by End Use (20,645 GWh)



While annual electricity consumption is fairly distributed across residential end uses, both summer and winter peak demand is dominated by HVAC. As Figure 3-10 and Figure 3-11 show, HVAC accounts for more than two-thirds of summer and winter peak in the residential sector. During the summer peak, residential HVAC load is driven by central air-conditioners and heat pumps, whereas during winter peak, residential HVAC load is driven mostly by electric resistance heating. Outside of HVAC, the end-use contributions to system peak demand are largely similar between the summer and winter peak periods. There is one important exception to this observation, however. Water heating accounts for only 5% of residential load during the summer system peak period but accounts for 12% of residential load during the winter system peak load.

Figure 3-10: Estimated Breakdown of Total Residential Summer Peak Demand in PEF (Excluding losses) by End Use (4,698 MW)

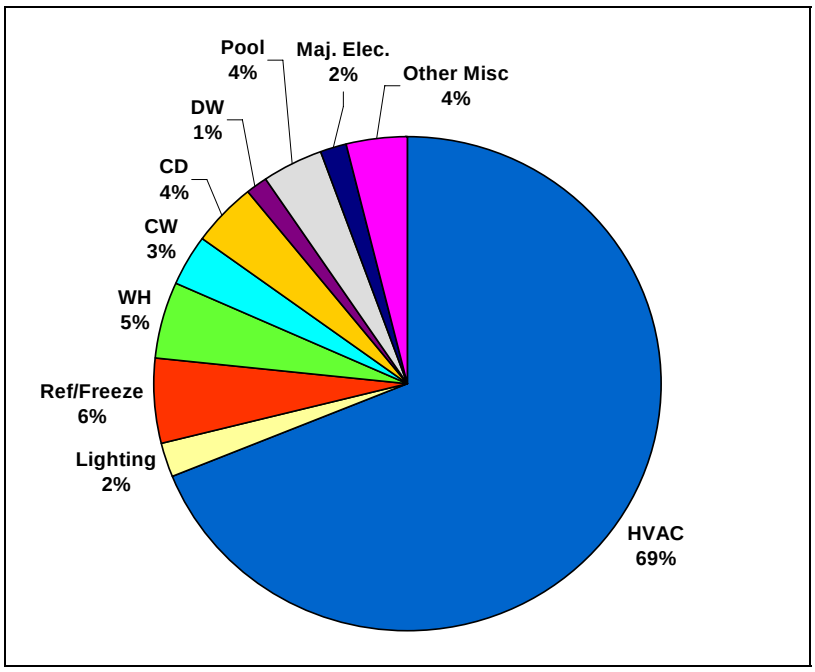


Figure 3-11: Estimated Breakdown of Total Residential Winter Peak Demand in PEF (Excluding losses) by End Use (5,175 MW)

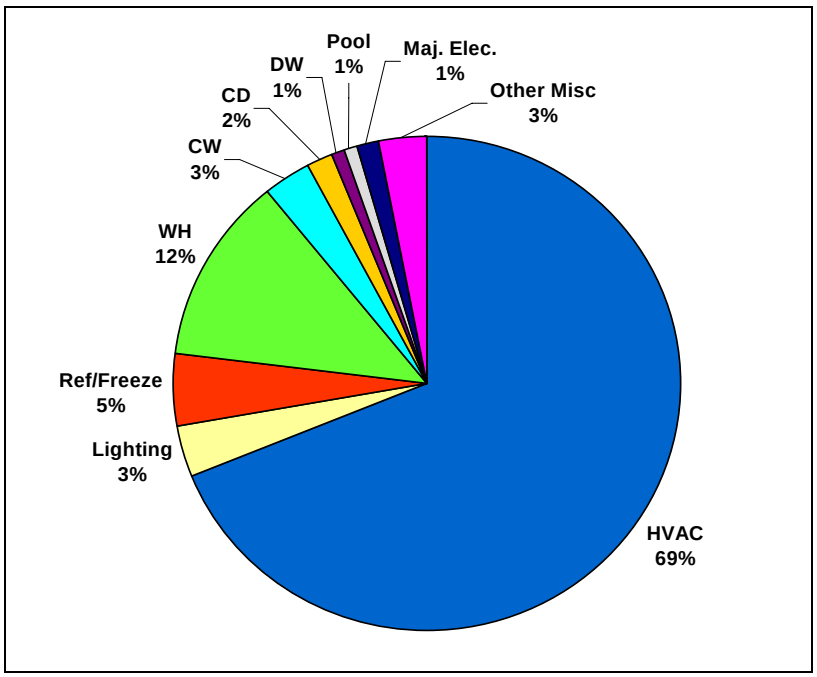


Figure 3-12 shows the breakdown of total annual electricity sales by building type in the commercial sector. As the Figure shows, office buildings and restaurants account for the largest shares of commercial electricity consumption (24% and 18%, respectively). Overall, however, total commercial electricity sales are fairly well distributed across the 11 building types defined for this study. Although the intensity of electricity use (in kWh per square foot of floor space) can differ significantly across commercial building types, the distribution of total commercial sales mostly reflects the estimated distribution of commercial floor stock across building types.

Figure 3-12: Estimated Breakdown of Total Annual Commercial Electricity Sales in PEF (Excluding losses) by Building Type (11,544 GWh)

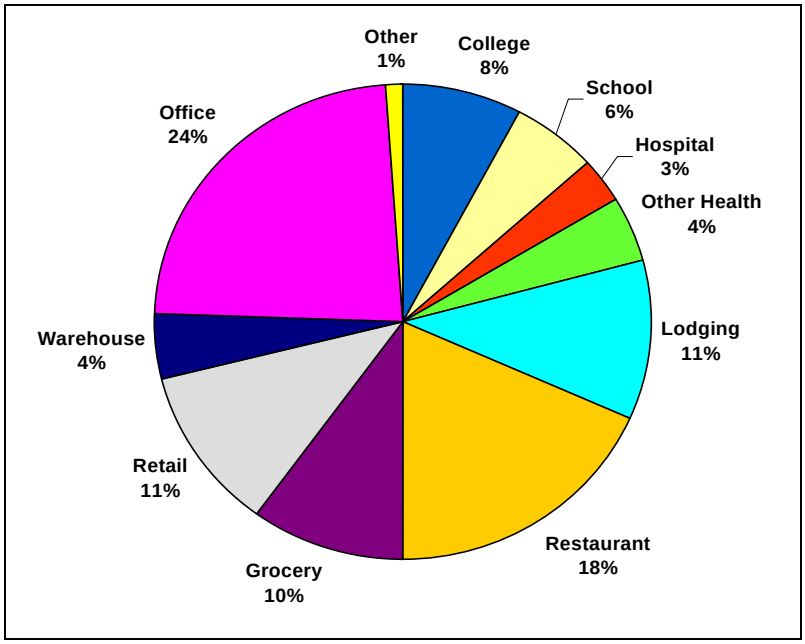


Figure 3-13, Figure 3-14, and Figure 3-15 show the breakdown of total annual commercial electricity sales, summer system peak demand, and winter system peak demand by end use. As Figure 3-13 shows, indoor lighting and space cooling account for the largest shares of total commercial electricity consumption (26% and 28%, respectively). At summer system peak, these end-use shares are mostly similar with the key exception that space cooling accounts for a significantly larger share of summer commercial peak demand (38%) compared to annual commercial consumption. At winter system peak, however, space cooling accounts for only 4% of peak demand from the commercial sector, and electric space heating (which accounts for the vast majority of winter peak demand in the 'miscellaneous' end-use category) accounts for 25% of commercial peak demand. It should also be noted that while overall commercial refrigeration loads are relatively small, these loads are the dominant loads within the Grocery and Restaurant segments.

Figure 3-13: Estimated Breakdown of Total Annual Commercial Electricity Sales in PEF (Excluding losses) by End Use (11,544 GWh)

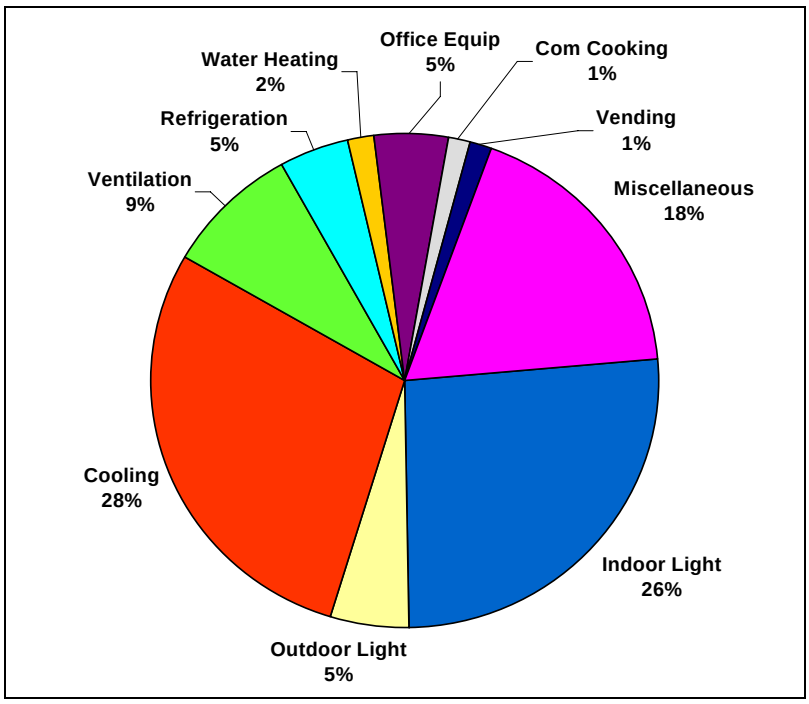


Figure 3-14: Estimated Breakdown of Total Commercial Summer Peak Demand in PEF (Excluding losses) by End Use (1,757 MW)

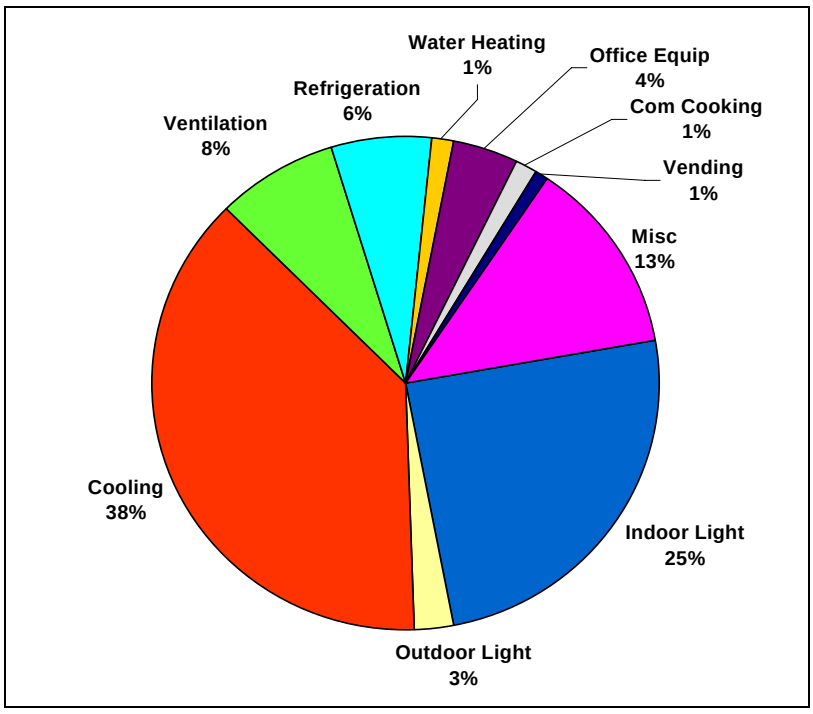


Figure 3-15: Estimated Breakdown of Total Commercial Winter Peak Demand in PEF (Excluding losses) by End Use (1,166 MW)

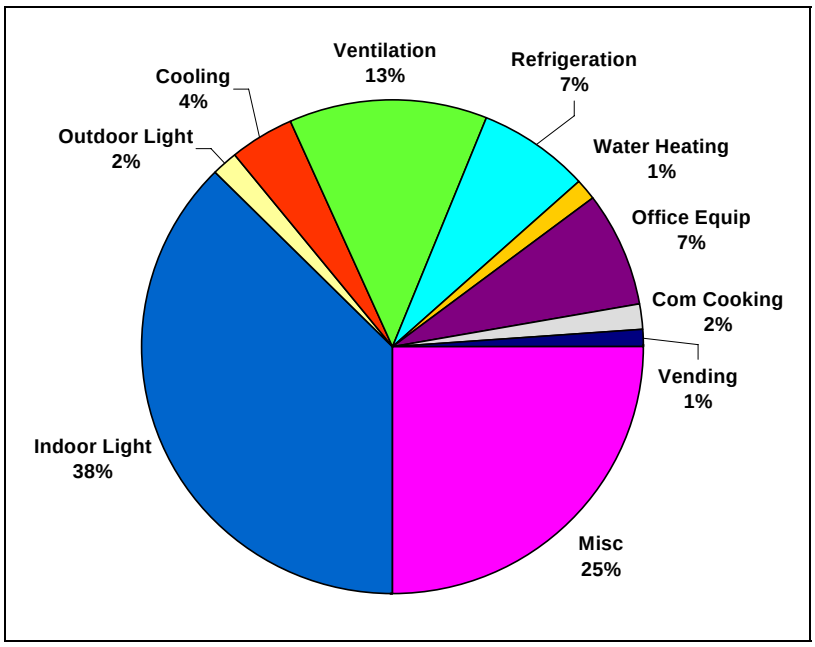


Figure 3-16 shows the breakdown of total annual electricity sales by subsector in the industrial sector. As the Figure shows, food processing accounts for the largest share of industrial electricity consumption (15%). Overall, however, total industrial electricity sales are fairly well distributed across the 16 subsectors defined for this study.

Figure 3-17, Figure 3-18, and Figure 3-19 show the breakdown of total annual industrial electricity sales, summer system peak demand, and winter system peak demand by end use. As Figure 3-17 shows, process drives, pumps, and HVAC account for the largest shares of total industrial electricity consumption (21%, 13%, and 13%, respectively). At summer system peak, Figure 3-18 shows that the end-use shares of total load are similar with the key exception that HVAC accounts for a significantly larger share of summer industrial peak demand compared to annual industrial consumption (16% compared to 13%). At winter system peak, however, Figure 3-19 shows that HVAC accounts for only 4% of coincident peak demand in the industrial sector. The relative stability of the energy and peak demand contributions from other industrial end uses largely reflects the relatively flat load profiles of process-related industrial end uses compared to the more dynamic load profiles of weather-sensitive and occupancy-driven end uses in the residential and commercial sectors.

Figure 3-16: Estimated Breakdown of Total Annual Industrial Electricity Sales in PEF (Excluding losses) by Subsector (2,670 GWh)

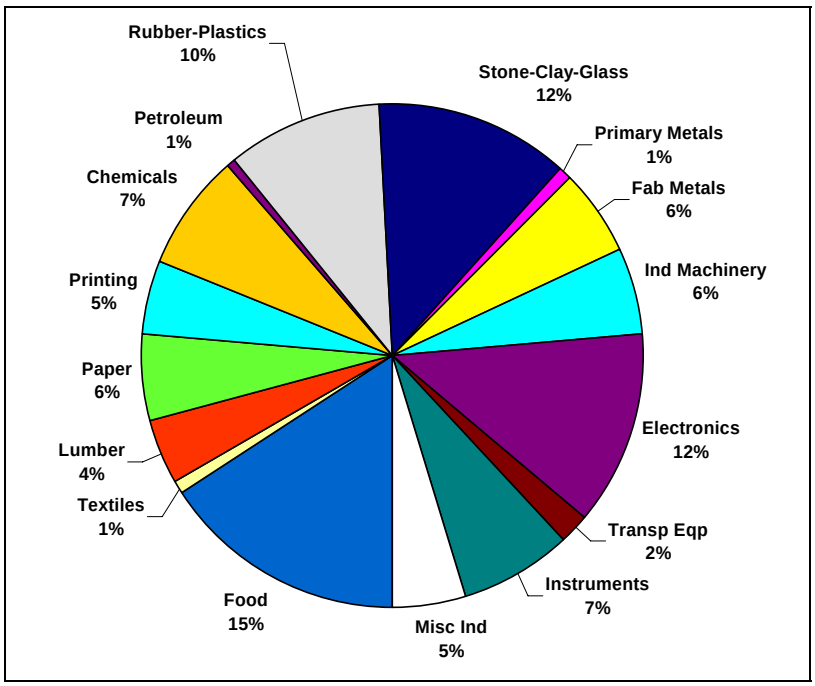


Figure 3-17: Estimated Breakdown of Total Annual Industrial Electricity Sales in PEF (Excluding losses) by End Use (2,670 GWh)

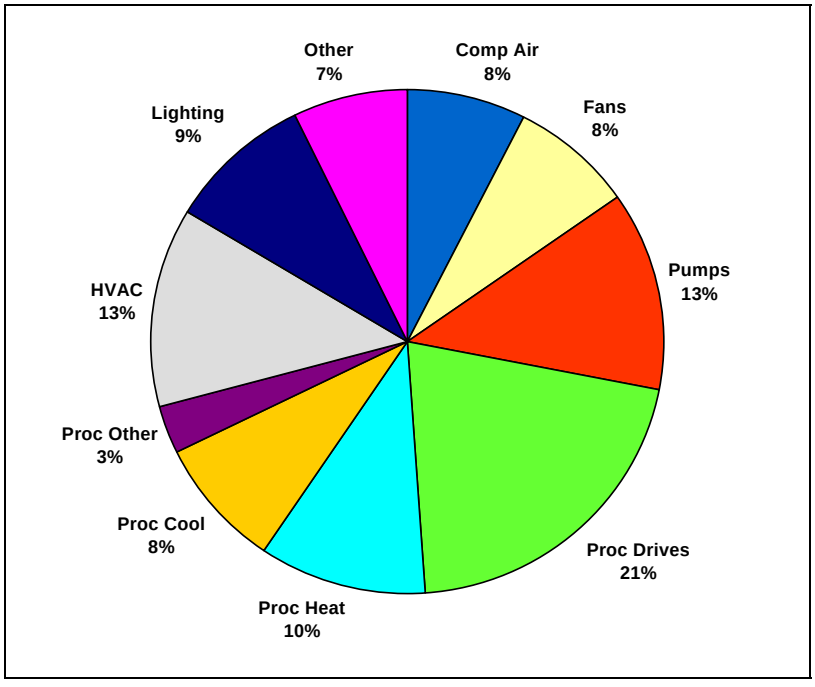


Figure 3-18: Estimated Breakdown of Total Industrial Summer Peak Demand in PEF (Excluding losses) by End Use (389 MW)

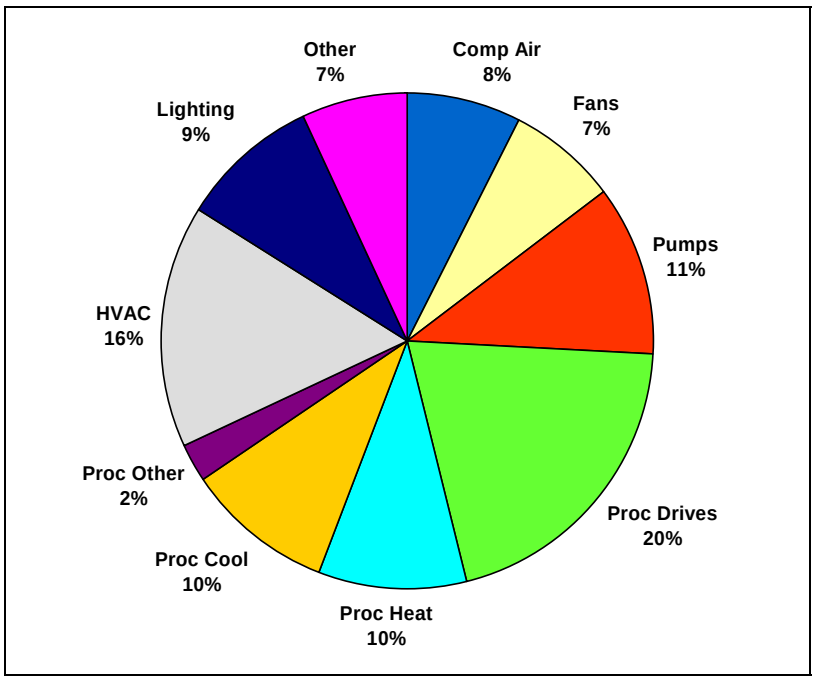
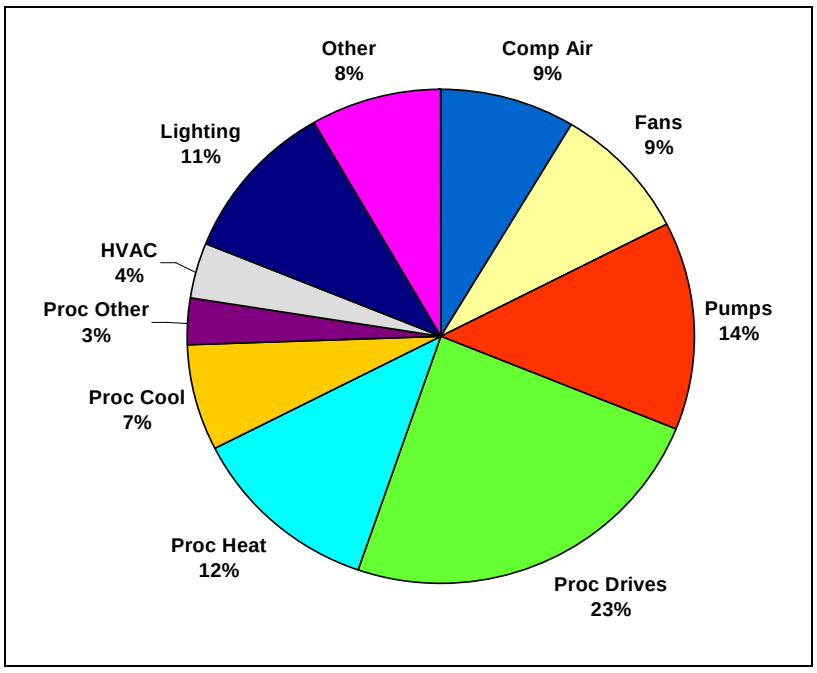


Figure 3-19: Estimated Breakdown of Total Industrial Winter Peak Demand in PEF (Excluding Losses) by End Use (282 MW)



3.4 Development of Energy Efficiency Measure Data

Along with baseline data on current energy use, the other key input data required in order to estimate technical potential are data that describe the energy efficiency measures being considered in the analysis. In this section, we describe the specific types of measure data collected for this study, the process used to determine the scope of the measures analyzed, and the key data sources used to develop the final measure data set.

The key measure data required to estimate technical potential are measure costs, measure savings, measure feasibility, and measure saturation. The definitions and units of each of these key measure data are summarized in Table 3-4 and described in more detail below.

Table 3-4: Summary of Key Measure Data Required to Estimate Technical Potential

Data Type	Units
Measure Costs	▪ $/cost unit (e.g. per lamp, per ton of cooling capacity, per square foot of insulation)
Measure Savings	▪ Savings relative to base case technology at equivalent level of service
Measure Saturation	▪ % of households with measure installed (residential) ▪ % of floor space with measure installed (commercial) ▪ % of load with measure installed (industrial)
Measure Feasibility	▪ % of eligible households where measure is technically and practically feasible (residential) ▪ % of eligible floor space where measure is technically and practically feasible (commercial) ▪ % of eligible load where measure is technically and practically feasible (industrial)

Measure costs are expressed as either full costs or incremental costs, depending on whether the measure is a retrofit (full cost, including any labor costs associated with installation) or replace-on-burnout measure (incremental first cost, relative to standard efficiency replacement, excluding any labor costs associated with installation). In Itron's approach, we also normalize measure costs to specific "cost units" in order to allow reasonable scaling of measure costs across segments that have different technology densities and equipment capacities (e.g. $/ton of cooling capacity). Measure savings are expressed as percentage savings relative to the base technology (in terms of kWh or kW). Measure saturation is defined as the share of total consumption units (e.g. households or commercial floor space) where a given measure is already installed. Measure feasibility is typically defined as the share of households, commercial floor space, or industrial load where a given measure is technically and practically feasible. Examples of barriers that limit measure feasibility include color requirements that limit the use CFLs as replacements for incandescent lamps

and the use of constant volume HVAC systems that limit the use of variable frequency drives with fan motors. Together, these two variables serve to avoid gross overestimates of efficiency potential by explicitly taking into account practical and technical barriers to particular measures and limiting the analysis to the share of the market where given efficiency measures have not yet been installed.

3.4.1 Development of Final Measure Scope

The first step in developing measure data for application in technical potential studies is to determine scope of the energy efficiency analysis by defining the specific list of measures to be considered. For this study, development of the final measure scope was an iterative process that began with the minimum list of measures defined by the FEECA utilities in Appendix A of the original Request for Proposals. Building on this minimum list, Itron then proposed additional measures that had been recently analyzed in previous potential studies conducted in other jurisdictions. Itron also proposed additional measures from knowledge of existing DSM programs administered by FPL. Similarly, the other FEECA utilities proposed additional measures based on their own current program offerings, and SACE/NRDC proposed additional measures based on reviews of the current technology research literature, pilot programs in other jurisdictions, and trade literature.

It should be noted that, in general, the scope of measures proposed for consideration in the study was limited to measures that are currently available in the Florida market for which independently-verified cost and savings data are available. In this sense, non-commercialized "emerging" technologies were specifically excluded from the study.

Once the master list of proposed measures was compiled, Itron conducted an initial assessment of data availability and measure-specific modeling issues associated with "new" measures, i.e. measures that Itron had not previously analyzed in past studies. The FEECA utilities and SACE/NRDC then submitted written responses to Itron's data assessment. These pieces formed the basis for a series of conference calls designed to either reach consensus among the study collaborative or determine further actions items required to finalize the data assessment. As a result of these conference calls, several individual FEECA utilities provided measure data from internal R&D and SACE/NRDC provided research briefs for selected measures.

The final list of the energy efficiency measures considered in this study is shown in Appendix A. In total, the study considered 257 unique measures, including 61 residential measures, 78 commercial measures, and 118 industrial measures. Importantly, the final measure list included 25 "new" measures in the residential sector and 24 "new" measures in the commercial sector. While the final measure list was constrained to measures that are

commercially available in the Florida market, the final list included some measures that are likely to face significant supply constraints in near term, e.g. SEER 19 central air conditioners (CAC), hybrid desiccant-direct expansion (DX) cooling systems, solar water heating, heat pump water heaters. The final measure list also included some end-use specific renewable energy measures, e.g. solar water heating and PV-powered pool pumps. These renewable measures were included in the EE analysis (rather than the PV analysis described later in Chapter 5) because they effect end-use specific loads, rather than whole building loads, and can therefore be treated the same as EE measures in the DSM ASSYST modeling framework.

One notable exclusion from the final measure list for the technical potential study was refrigerator/freezer recycling. This exclusion was based on the difficulty in comparing and benchmarking theoretical savings from recycling measures to efficiency measures. Since recycling programs play important roles in many current utility program portfolios across the U.S., however, estimated savings from recycling measures will be included in the achievable potential forecasts in the next phase of this project.

For each of the efficiency measures on the final measure list, Itron then developed corresponding measure cost, savings, and current saturation data from a variety of sources. To the extent possible, Itron leveraged Florida-specific data sources. The remainder of this section describes the key data sources used to develop the final inputs used for the residential, commercial, and industrial measures analyzed in this study. The full set of measure data used in this study is shown in Appendix B.

3.4.2 Residential Measure Data

For residential measure cost data, Itron leveraged a variety of Florida-specific, regional, and national data sources. For the majority of measures effecting weather-sensitive end uses, Itron leveraged measure cost data from FPL program tracking data and previous FPL program evaluations conducted by Itron. In the case of radiant barriers, Itron specifically leveraged measure cost estimates developed by the Florida Solar Energy Center (FSEC) based on a pilot study conducted for Progress Energy (Parker et al, 2001). For insulation, advanced windows, lighting, and appliance measures, Itron leveraged the measure cost estimates available from the Database for Energy Efficient Resources (DEER) (CPUC, 2001; CPUC, 2005, CPUC, 2008).[6] For ENERGY STAR home electronics measures, Itron used the

[6] The DEER database is a multi-year data development effort funded jointly by the California Public Utilities Commission and the California Energy Commission and contains average cost and energy savings data for over 250 energy efficiency measures currently available in the California market.

measure costs estimates embedded in the ENERGY STAR calculators developed by the US Environmental Protection Agency (EPA). Finally, for window tinting measures, Itron leveraged measure cost estimates contained in the *Energy Data Sourcebook for the U.S. Residential Sector* developed by Lawrence Berkeley National Laboratory (LBNL) (Wenzel et al, 1997).

For residential measure savings data, Itron also leveraged a variety of Florida-specific, regional, and national data sources, as well as engineering-based calculations. For the majority of measure effecting weather-sensitive end uses, Itron again leveraged measure savings estimates developed in previous FPL program evaluations and program R&D conducted by Itron for FPL. In the case of radiant barriers, sealed attics, and advanced windows, Itron leveraged measure savings estimates developed by FSEC (Parker et al, 2000b; Parker et al, 2001; Anello et al, 2001). To develop savings estimates from window screen measures, Itron conducted measure impact simulations using the RESFEN model developed by LBNL.[7] For high-efficiency lighting, water heating, clothes washer, and dishwasher measures, Itron used engineering calculations based on assumed differences in fixture wattages, energy factors, and modified energy factors to estimate average measure savings. For ENERGY STAR refrigerators and freezers, Itron used ENERGY STAR product specifications as the basis for measure savings estimates. Finally, for ENERGY STAR home electronics, Itron used ENERGY STAR product specifications regarding maximum standby and active power levels in combination with national averages of usage patterns and active/standby/off power mode draws developed by TIAX LLC for the USDOE (Roth and McKenney, 2007).

For current residential measure saturation, Itron was able to leverage largely Florida-specific data sources, primarily FPL's 2006 HES survey which contained the necessary detail to estimate the current market saturation of a variety of key residential measures, including high-SEER air conditioners and heat pumps, reflective roofs, ceiling and wall insulation, CFLs, and solar water heaters. For high-efficiency refrigerators, freezers, clothes washers, and dishwashers, Itron leveraged statewide estimates of current market saturation available from the 2005 RECS (USDOE, 2008). Finally, for Energy Star home electronics measures, Itron used current market saturation estimates developed by TIAX based on market tracking data from the USEPA (Roth and McKenney, 2007).

[7] RESFEN is publically available at: http://windows.lbl.gov/software/resfen/resfen.html and allows city-specific savings impacts to be estimated for a variety of fenestration measures in residential buildings.

3.4.3 Commercial Measure Data

For commercial measure cost data, Itron leveraged many of the same sources used to develop residential measure costs. For high-efficiency lighting, space cooling, refrigeration, and water heating equipment, Itron primarily leveraged the measure cost estimates available from the DEER database. These DEER cost estimates were supplemented with program-based cost estimates for occupancy sensors, high-efficiency chillers, and high-efficiency packaged rooftop DX systems from Progress Energy and program-based cost estimates for building shell measures from FPL. FPL also provided cost estimates derived from recent FPL-sponsored field tests of hybrid dessicant-DX cooling systems, occupancy sensors for hotel room HVAC, and variable speed exhaust and make-up air fan controls. For ENERGY STAR office equipment measures, Itron used the measure costs estimates embedded in the ENERGY STAR calculators developed by the USEPA.

For commercial measure savings data, Itron again leveraged many of the same sources used to develop residential measure savings, including Florida-specific, regional, and national data sources, as well as engineering-based calculations. For the building shell and ventilation measures, Itron leveraged measure savings estimates developed in previous FPL program evaluations and program R&D conducted by Itron for FPL. In the case of commercial cool roofs, Itron leveraged measure savings estimates developed by FSEC (Parker et al, 1997). For HVAC and lighting control and maintenance measures, Itron leveraged measure savings estimates available from the DEER database. For high-efficiency lighting, water heating, packaged air conditioners, and packaged heat pump measures, Itron used engineering calculations based on assumed differences in fixture wattages, energy factors, and EER ratings to estimate average measure savings. Finally, for ENERGY STAR office equipment, Itron used ENERGY STAR product specifications as the basis for measure savings estimates.

For commercial measure saturations, there are currently no comprehensive sources of Florida-specific estimates analogous to the 2006 HES or the 2005 RECS for residential measures. Indeed, development of measure saturation estimates in Florida's commercial sector is one of the primary objectives of the commercial on-site surveys being conducted by KEMA for the FEECA utilities. For the purposes of the current study, Itron developed assumptions, where necessary, based on Itron's experience evaluating FPL's programs over the past 10 years, experience with particular measures in other jurisdictions, and professional judgment. Once KEMA's project report and analysis of the survey results are finalized, Itron will update the corresponding measure saturation inputs used in this study. It is important to keep in mind, however, that for measures that are relatively new to the Florida market (e.g. geothermal heat pumps, occupancy sensors for PTACs, electronic ballasts for HID lamps) and/or are known to face significant market barriers in Florida or nationwide (e.g. heat pump

water heaters), it is highly unlikely that any primary data on current market penetration will differ significantly from our current assumptions.

3.4.4 Industrial Measure Data

For the industrial measures, Itron developed measure cost, savings, and current saturation data based on previous and on-going assessments of industrial energy efficiency potential in California. In 2001, KEMA developed an industrial energy-efficiency market characterization study that relied on numerous secondary sources to characterize baseline energy use and energy efficiency opportunities in the industrial sector (XENERGY, 2001a). Subsequent to this effort, KEMA developed an industrial energy-efficiency market assessment as a component of an overall California energy efficiency potential study prepared for the Energy Foundation (XENERGY, 2002). Finally, products from these two studies were combined with a series of industrial efficiency case studies conducted by LBNL to develop a more detailed industrial energy efficiency assessment for the California investor-owned utilities (Itron, 2006). This latest statewide assessment provides industrial energy efficiency potential estimates by industry type and key end uses. This body of work serves as the primary input into the industrial potential assessment conducted for the FEECA utilities.

3.4.5 Economic Data

The other key economic inputs required in this study were current and forecasted retail electricity rates, utility discount rates, customer discount rates, and inflation rates. For retail electricity rates, PEF submitted current average retail electricity rates for residential, commercial, and industrial customers in $/kWh terms, as well as 30-year forecasts of those retail rates. For utility discount rates, PEF also submitted discount rates consistent with the assumptions used in their respective system planning forecasts. For all sectors and all utilities, Itron used a customer discount rate of 15%/yr and a general inflation rate of 2%/yr.

The final baseline and measure input data developed for PEF are shown in Appendix B.

3.5 Energy and Peak Demand Savings Results

In this section, we present the results of Itron's assessment of the technical potential for energy and demand savings from energy efficiency measures in PEF. First we summarize the technical potential results for the residential sector, followed by those for the commercial and industrial sectors. For each sector, we present technical potential for energy savings and system peak demand savings (both summer and winter) by building type and end use. We also highlight key results for particular end uses and measures and present the final energy efficiency supply curves developed for each sector. The detailed, measure-level technical

potential results for PEF are provided in Appendices C and D. Appendix C contains the non-additive technical potential results without adjustments for measure interaction. Appendix D contains the additive, supply-curve adjusted technical potential results.

3.5.1 Residential Sector Results

The total technical potential for energy savings in PEF's residential sector is estimated to be 8,232 GWh, which equates to 40% of current baseline residential electricity consumption. As Figure 3-20 shows below, technically feasible energy efficiency opportunities in single-family detached homes account for just over 70% of the total technical potential for residential energy savings, while opportunities in multi-family homes and mobile homes account for 19% and 10%, respectively. This distribution of the total technical potential for residential energy savings largely reflects the distribution of baseline electricity consumption across residential building types. In this sense, the relative amount of technically feasible energy savings available in single-family, multi-family, and mobile homes were found to be largely similar on a per-home basis.

Figure 3-20: Estimated Breakdown of Total Technical Potential for Residential Energy Savings in PEF by Building Type (8,232 GWh)

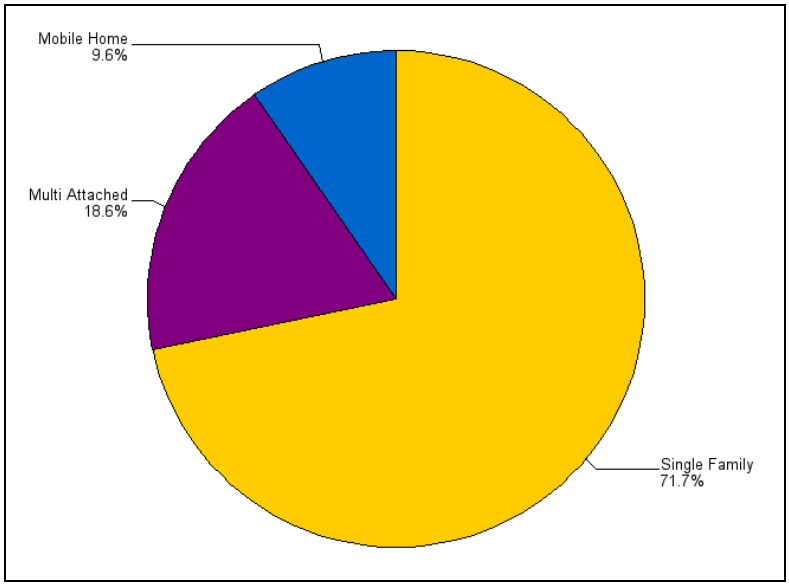
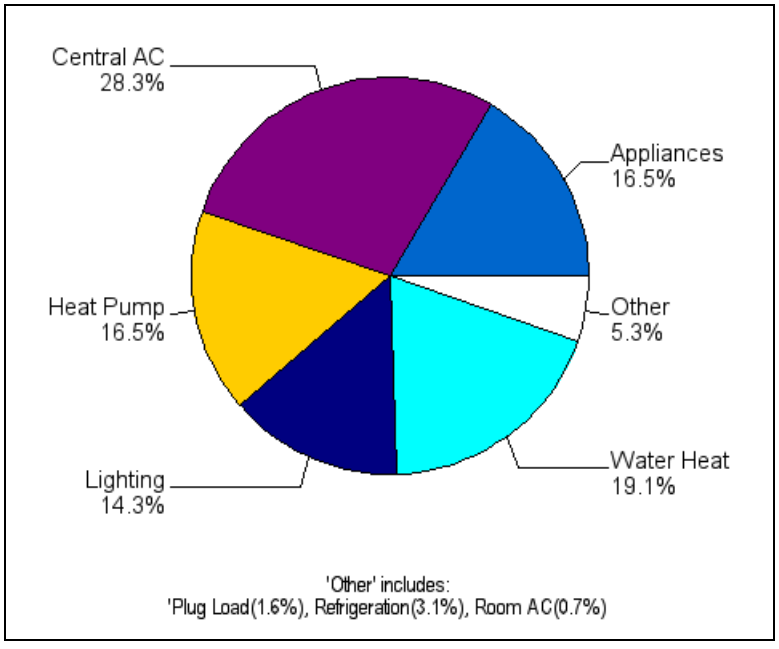


Figure 3-21 shows the breakdown of the total technical potential for energy savings in the residential sector by end use. As the Figure shows, nearly half of the total technical potential for residential energy savings is derived from measures effecting central HVAC systems, while measure effecting major appliances (clothes washers, dishwashers, and clothes dryers), water heating, and lighting account for roughly equal shares of the other half of total technical potential. Measures effecting room air conditioner systems, pool pumps,

refrigerators, and major home electronics (televisions, set-top boxes, VCRs, DVD players, and home office equipment) account for less than 6% of total technical potential for residential energy savings.

The key measures driving the technical potential results for central HVAC include high-SEER central air conditioners and heat pumps, system maintenance and optimization measures, duct repair, and building shell measures. In water heating, the key measures driving technical potential include heat pump water heaters, solar water heaters, AC heat recovery systems, water heater blankets, and measures to reduce hot water consumption (low-flow showerheads and faucet aerators). In contrast to these end uses where total technical potential reflects the combined potential savings from a wide variety of measures, it should be noted that total technical potential in residential lighting almost entirely reflects the potential energy savings from a single measure – integral ballast CFL lamps.

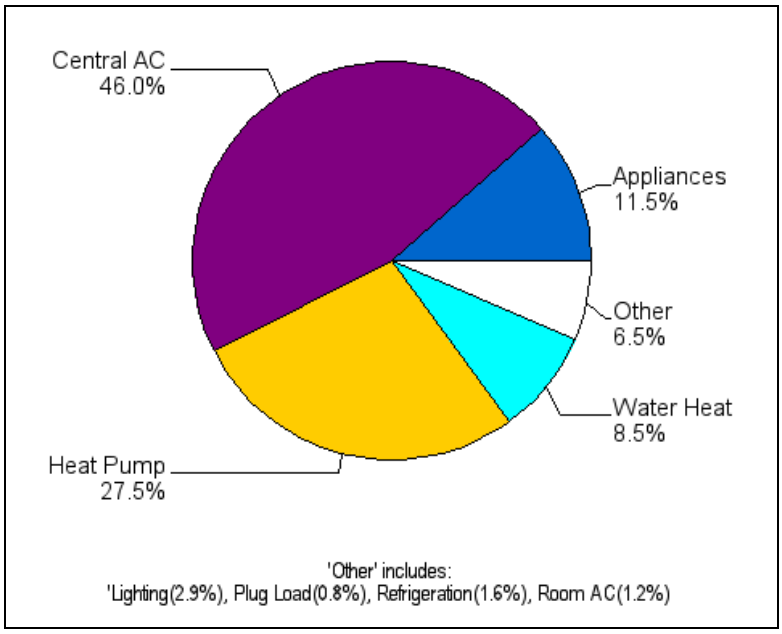
Figure 3-21: Estimated Breakdown of Total Technical Potential for Residential Energy Savings in PEF by End Use (8,232 GWh)



From a summer peak demand perspective, the total technical potential for system peak demand savings in the residential sector is estimated to be 2,140 MW, which equates to 45% of current baseline summer system peak demand. Figure 3-22 shows the breakdown of summer peak demand savings potential in the residential sector by end use. As the Figure shows, while central HVAC measures account for less than half of total energy savings potential, these measures account for nearly three-fourths of total summer peak demand savings potential in the residential sector. This result reflects the high coincidence of

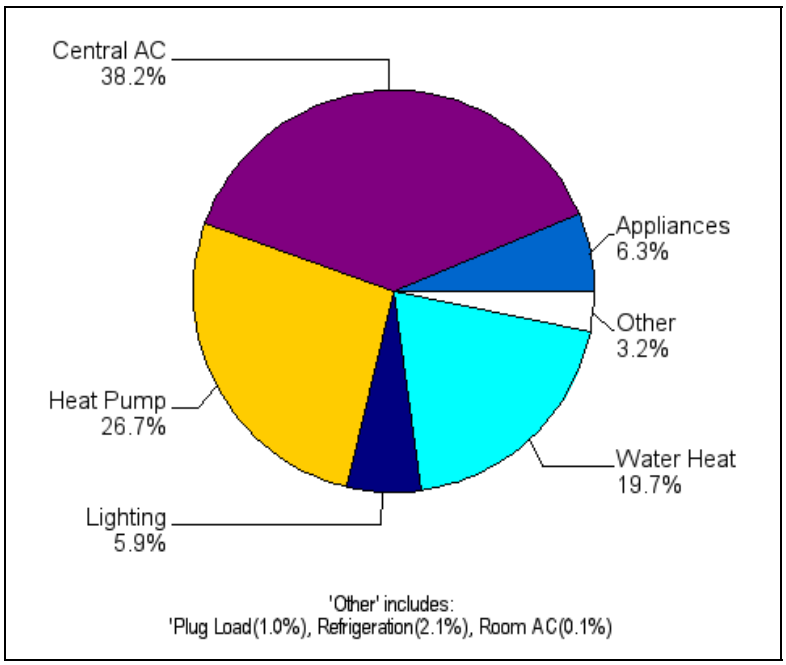
residential air conditioning loads with the summer system peak demand compared to other residential loads. Measure effecting residential HVAC therefore account for a proportionally larger share of total summer peak savings potential. In contrast, residential lighting loads have very low coincidence with summer system peak demand, and CFL measures therefore account for only a small share of total residential summer peak demand savings potential.

Figure 3-22: Estimated Breakdown of Total Technical Potential for Residential Summer System Peak Demand Savings in PEF by End Use (2,140 MW)



From a winter peak demand perspective, the total technical potential for system peak demand savings in the residential sector is estimated to be approximately 1,479 MW, which equates to 29% of current baseline winter system peak demand. Figure 3-23 shows the breakdown of winter peak demand savings potential in the residential sector by end use. As the Figure shows, central HVAC measures again account for the majority of total winter peak savings potential (largely from high-SEER heat pumps and insulation measures), with water heating measures accounting for 20%. These results again reflect the high coincidence of residential space heating and water heating loads with the winter system peak demand, which usually occurs in the early morning hours (7-9am).

Figure 3-23: Estimated Breakdown of Total Technical Potential for Residential Winter System Peak Demand Savings in PEF by End Use (1,479 MW)



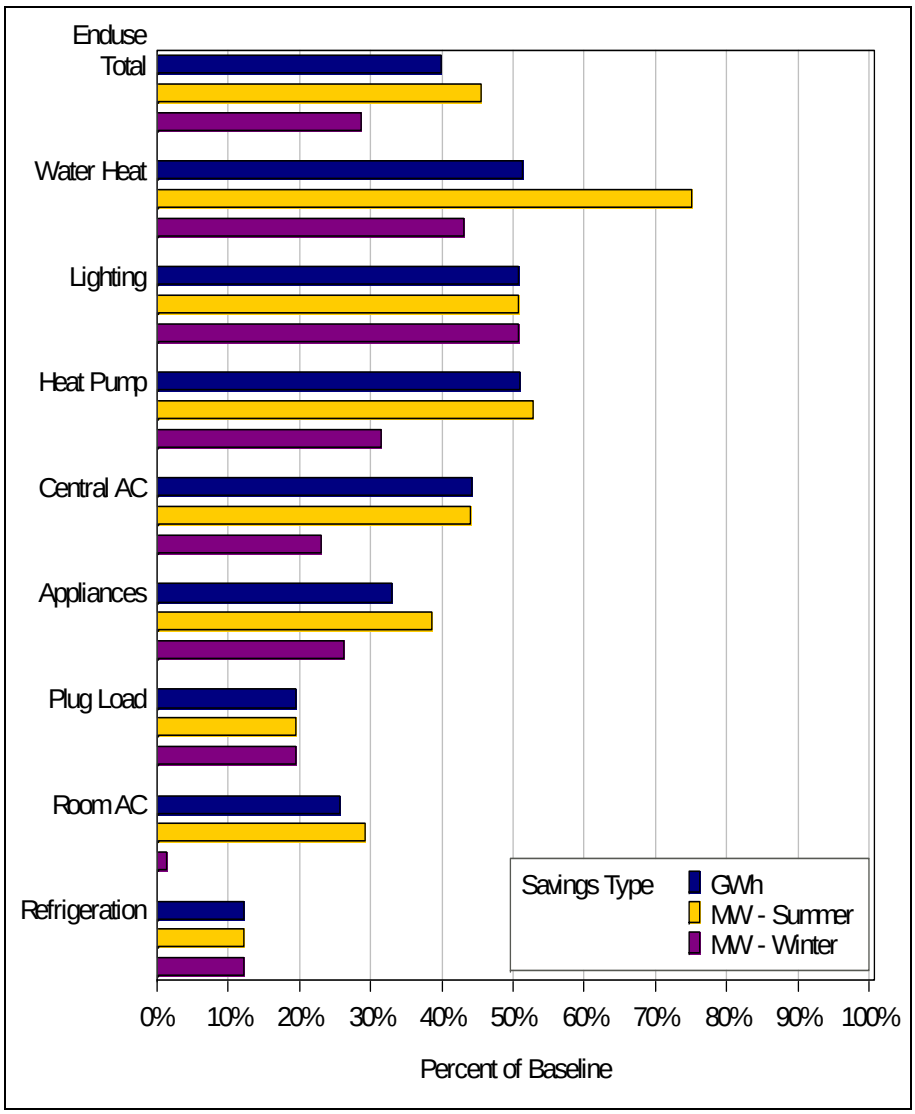
In the preceding figures, technical potential was displayed across end uses relative to total technical potential in the residential sector. Figure 3-24 again presents technical potential for energy and peak demand savings by end use, but this time relative to baseline energy consumption and peak demand for each respective end use in order to illustrate the relative size of potential end-use savings estimated in our residential analysis.

As the Figure shows, water heating displays the largest relative potential reduction in end-use baseline consumption and summer peak demand among residential end uses. This result largely reflects the potential savings from solar water heaters, which are highest during the summer peak period when conditions are sunny and outdoor temperatures are high. However, as noted earlier, because the coincidence between the summer system peak period and the demand for residential water heating is relatively low, these large potential summer peak demand savings reductions from solar water heaters in percentage terms translate to comparatively small system peak demand savings in kW terms.

For central air conditioner and heat pump systems, potential reductions in baseline consumption and summer peak demand are similar. This result reflects the fact that annual space conditioning loads in Florida are driven largely by the long summer cooling season, with only a very short winter heating season. Note that the relative winter peak demand reduction potential in central HVAC systems is significantly lower in comparison, reflecting the fact that some of the HVAC measure analyzed only effect space cooling loads (e.g. high-

SEER air conditioners) and that some HVAC measures targeting space cooling loads actually produce small space heating penalties during the heating season (e.g. window film and window treatments). In the case of lighting, the relative reductions in annual consumption, summer peak demand, and winter peak demand are virtually identical, reflecting the constant performance (i.e. the relative delivered savings) of CFL and T8 lamps, regardless of the time of day or season. The same dynamic is true in residential refrigeration, where ENERGY STAR refrigerators deliver the same relative savings regardless of the time of day or season.

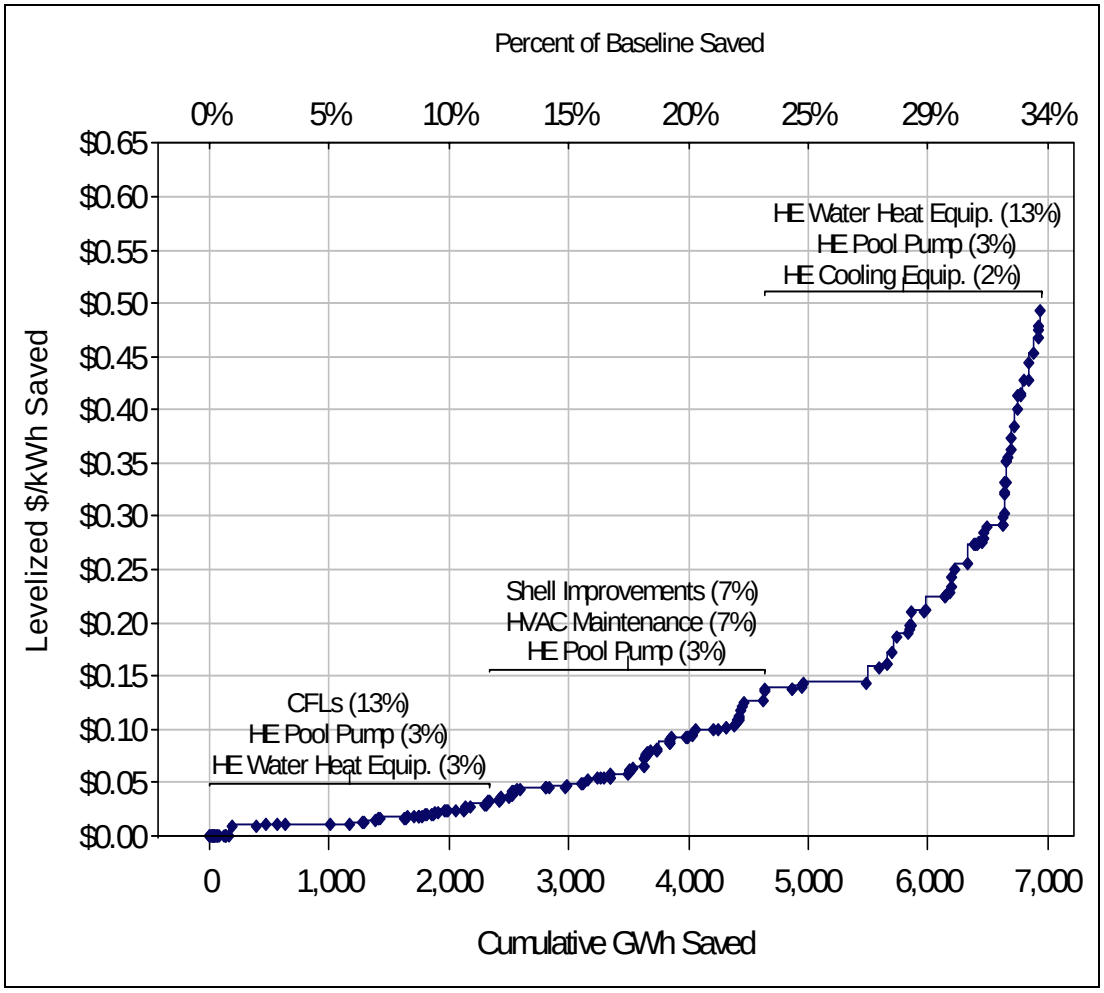
Figure 3-24: Total Technical Potential for End-use Energy and Peak Demand Savings in the Residential Sector Compared to Baseline Energy Consumption and Peak Demand in PEF



Finally, Figure 3-25 shows the marginal costs of residential energy efficiency measures and their relative contributions to total technical potential in the form of a supply curve. From a

levelized cost perspective (i.e. $/kWh saved), the Figure shows that CFLs are among the least expensive measures analyzed in this study from a levelized cost perspective (i.e. $/kWh saved) and alone account for 13% of total technical potential in the residential sector. The detailed marginal cost and savings data embedded in this Figure are shown for each measure in Appendix D.

Figure 3-25: Residential Energy Efficiency Supply Curve



It is important to recognize that cost-effectiveness, as defined by the Total Resource Cost (TRC) test or the Ratepayer Impact Measure (RIM) test, cannot be determined exclusively from these supply curves because the value of both energy and demand savings must be integrated when comparing to supply-side alternatives.

3.5.2 Commercial Sector Results

The total technical potential for energy savings in PEF's commercial sector is estimated to be approximately 3,648 GWh, which equates to 32% of current baseline commercial electricity consumption. As Figure 3-26 shows below, technically feasible energy efficiency opportunities in office buildings account for roughly 25% of the total technical potential for commercial energy savings, with the remaining potential fairly well distributed across the other 10 commercial building types analyzed. As was the case in the residential analysis, this distribution of the total technical potential for commercial energy savings largely reflects the distribution of baseline electricity consumption across commercial building types.

Figure 3-26: Estimated Breakdown of Total Technical Potential for Commercial Energy Savings in PEF by Building Type (3,648 GWh)

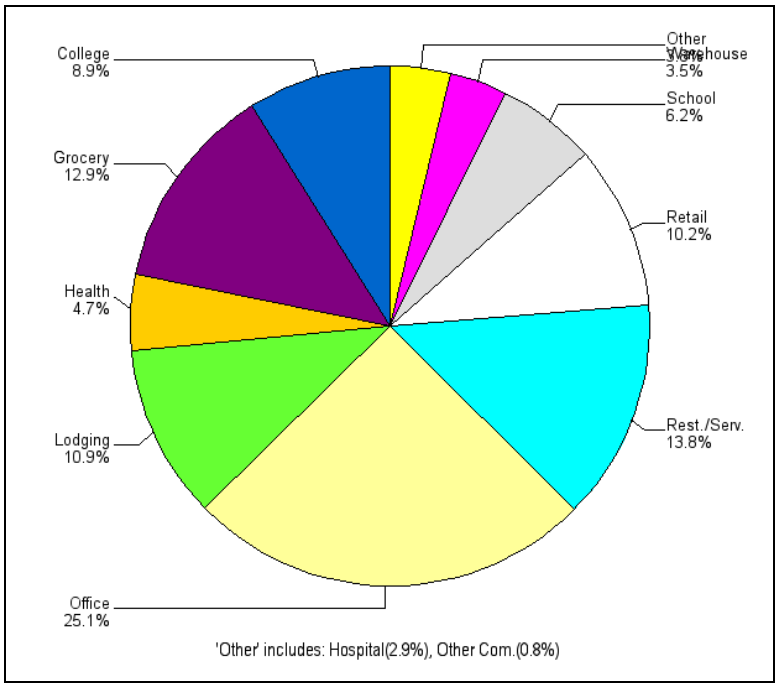
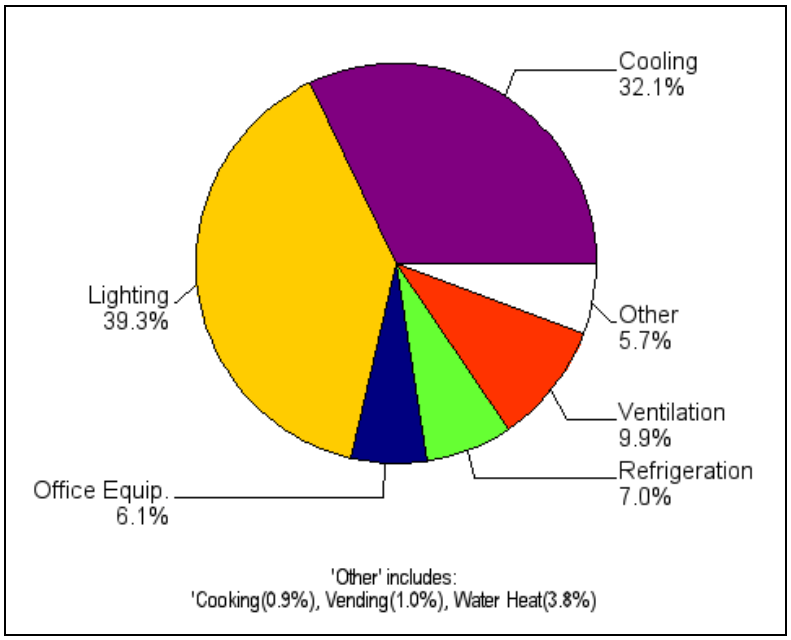


Figure 3-27 shows the breakdown of the total technical potential for energy savings in the commercial sector by end use. As the Figure shows, nearly 40% of the total technical potential for commercial energy savings is derived from measures effecting commercial lighting systems, while measures effecting space cooling systems account for roughly a third of total technical potential. Measures effecting ventilation, water heating, commercial refrigeration, office equipment, cooking, and vending account for the remaining shares of total technical potential for commercial energy savings. It should be noted that refrigeration loads in the commercial sector are largely concentrated in three particular commercial building types – grocery stores, restaurants, and refrigerated warehouses. Thus, potential

savings from refrigeration measures dominate total technical potential savings within those particular segments.

The key measures driving the technical potential results for lighting include CFLs, premium T8 lamps, electronic ballasts, occupancy sensors, and high-bay T5 lamps. In space cooling, the key measures driving technical potential include high-efficiency chillers and packaged DX systems, hybrid desiccant-DX systems, duct sealing, and cool roofs. In ventilation, just over half of technical potential savings are derived from two particular measures – variable-speed drive controls and electronically-commutated motors.

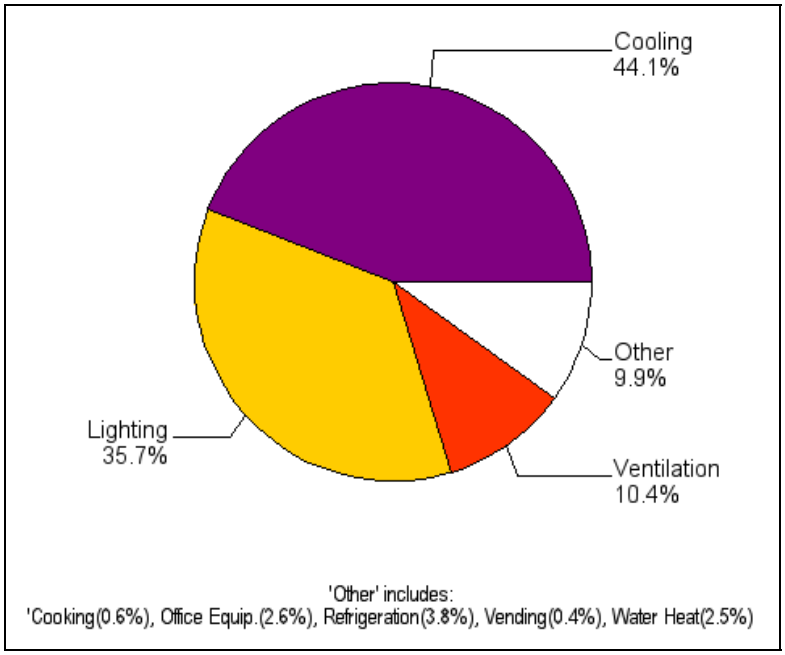
Figure 3-27: Estimated Breakdown of Total Technical Potential for Commercial Energy Savings in PEF by End Use (3,648 GWh)



From a summer peak demand perspective, the total technical potential for system peak demand savings in the commercial sector is estimated to be approximately 743 MW, which equates to 42% of current baseline summer system peak demand. Figure 3-28 shows the breakdown of summer peak demand savings potential in the commercial sector by end use. As the Figure shows, the end-use shares of summer peak savings potential are largely similar to the end-use shares of annual energy savings potential, with measures effecting lighting and space cooling accounting for nearly 80% of total technical potential. As is the case in the residential sector, space cooling measures account for a higher relative share of potential summer peak demand savings compared to potential annual energy savings due to high coincidence of space cooling loads with system summer peak period. In contrast to the residential sector, however, several other commercial end-uses also have relatively high

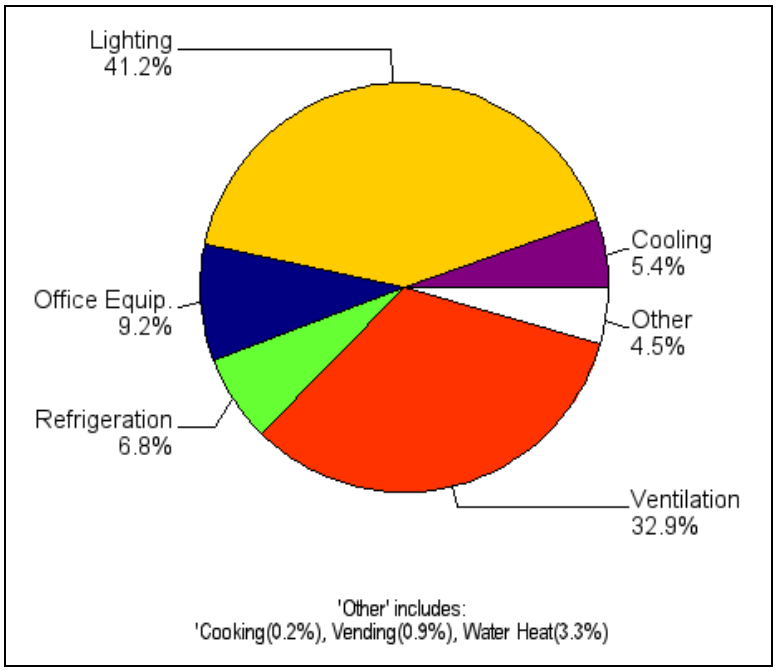
coincidence with the summer system peak period (e.g. ventilation, interior lighting, and water heating), which helps to explain why the distribution of potential summer peak savings is generally similar to the distribution of potential annual energy savings in the commercial sector.

Figure 3-28: Estimated Breakdown of Total Technical Potential for Commercial Summer System Peak Demand Savings in PEF by End Use (743 MW)



From a winter peak demand perspective, the total technical potential for system peak demand savings in the commercial sector is estimated to be approximately 371 MW, or 32% of current baseline winter system peak demand. Figure 3-29 shows the breakdown of winter peak demand savings potential in the commercial sector by end use. As the Figure shows, lighting measures again account for a large share of total peak savings potential. However, in contrast to the summer peak savings and annual energy savings results, measures effecting space cooling account for only a small share of total winter peak savings potential while measure effecting ventilation account for more than a third of the total. These results again largely reflect the relative coincidence of commercial end-use loads with winter system peak demand, which typically occurs in the morning hours when space cooling loads are relatively low.

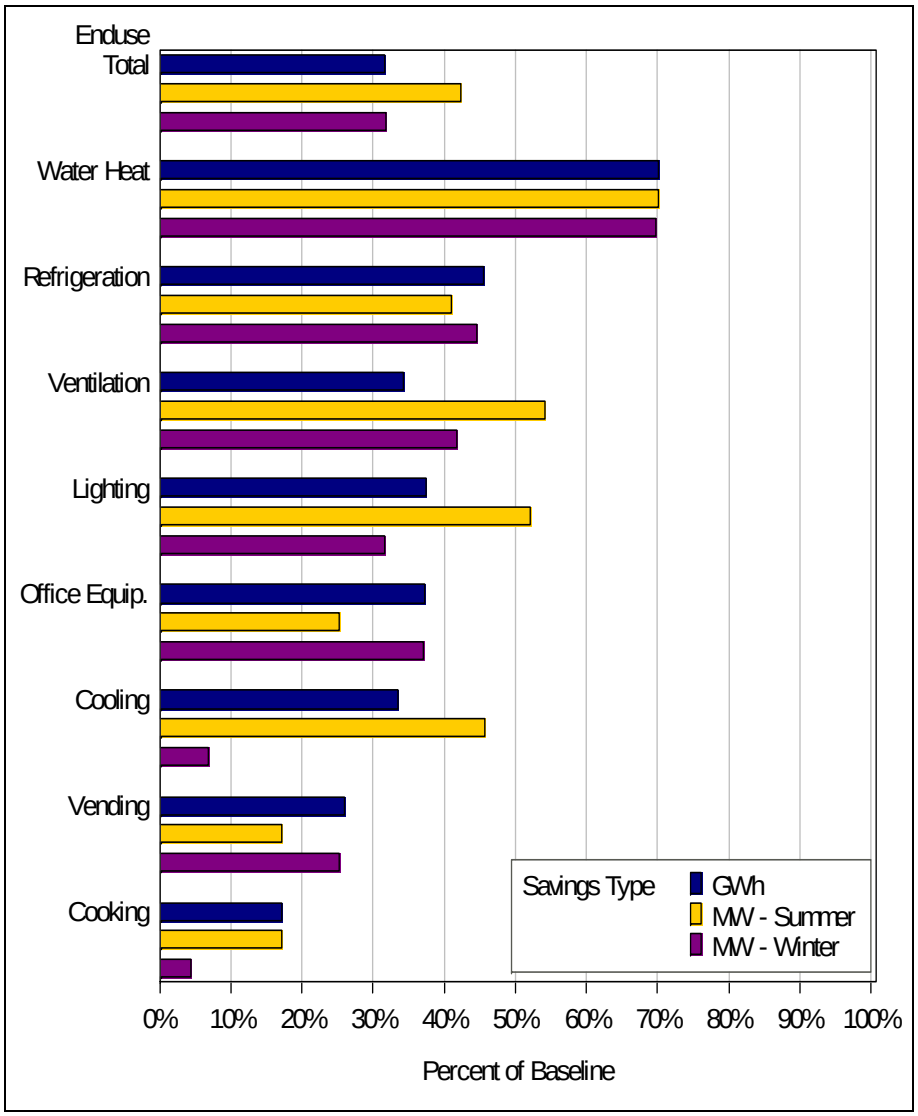
Figure 3-29: Estimated Breakdown of Total Technical Potential for Commercial Winter System Peak Demand Savings in PEF by End Use (371 MW)



In the preceding figures, technical potential was displayed across end uses relative to total technical potential in the commercial sector. Figure 3-30 again presents technical potential for energy and peak demand savings by end use, but this time relative to baseline energy consumption and peak demand for each respective end use in order to illustrate the relative size of potential end-use savings estimated in our commercial analysis.

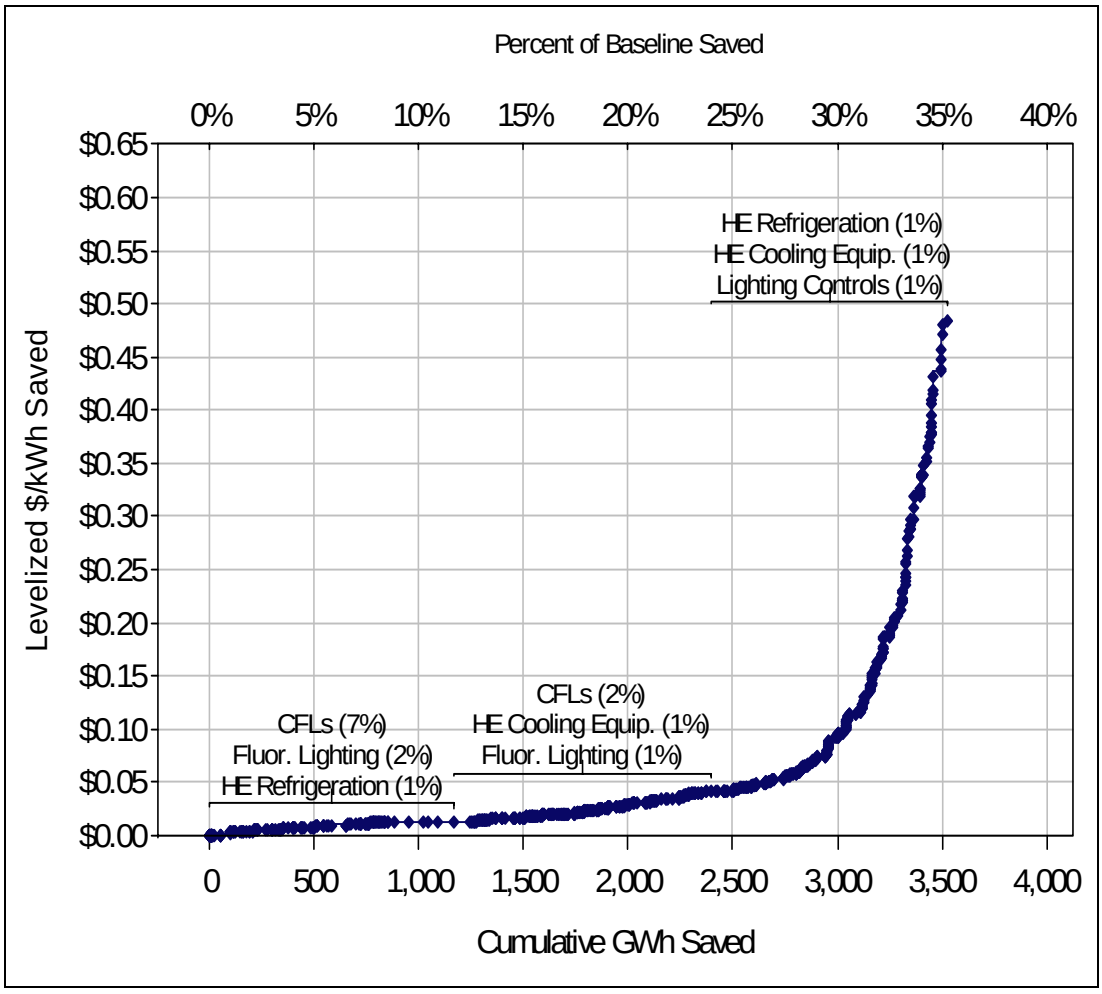
As the Figure shows, even though measure effecting water heating only contribute small shares of total technical potential energy and peak demand savings in the commercial sector, these measures produce the largest potential reduction in end-use baseline consumption and peak demand, driven principally by the potential associated with heat pump water heaters and heat recovery units. In contrast, Figure 3-30 shows that while measures effecting lighting and space cooling account for the largest shares of total technical potential savings, these measures produce more modest relative reductions in respective end-use baseline consumption and peak demand compared to the water heating measures analyzed for this study.

Figure 3-30: Total Technical Potential for End-use Energy and Peak Demand Savings in the Commercial Sector Compared to Baseline Energy Consumption and Peak Demand in PEF



Finally, Figure 3-31 shows the marginal costs of commercial energy efficiency measures and their relative contributions to total technical potential in the form of a supply curve. From a levelized cost perspective (i.e. $/kWh saved), the Figure shows that CFLs and premium T8 lamps with electronic ballasts are among the least expensive measures analyzed in this study from a levelized cost perspective (i.e. $/kWh saved) and together account for roughly 25% of total technical potential in the commercial sector. The detailed marginal cost and savings data embedded in this Figure are shown for each measure in Appendix D.

Figure 3-31: Commercial Energy Efficiency Supply Curve



Again it is important to recognize that cost-effectiveness, as defined by the Total Resource Cost (TRC) test or the Ratepayer Impact Measure (RIM) test, cannot be determined exclusively from these supply curves because the value of both energy and demand savings must be integrated when comparing to supply-side alternatives.

3.5.3 Industrial Sector Results

The total technical potential for energy savings in PEF's industrial sector is estimated to be approximately 471 GWh, which equates to 18% of current baseline industrial electricity consumption. As Figure 3-32 shows below, technically feasible energy efficiency opportunities in the food processing sector account for 17% of the total technical potential for industrial energy savings, with the remaining potential fairly well distributed across the other 15 industrial sectors analyzed. As was the case in the residential and commercial analyses,

this distribution of the total technical potential for industrial energy savings largely reflects the distribution of baseline electricity consumption across industrial subsectors.

Figure 3-32: Estimated Breakdown of Total Technical Potential for Industrial Energy Savings in PEF by Subsector (471 GWh)

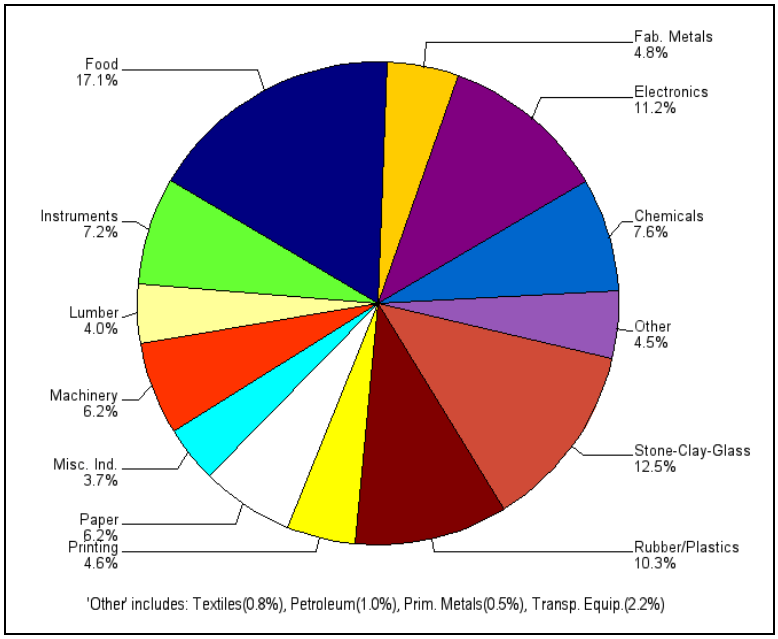
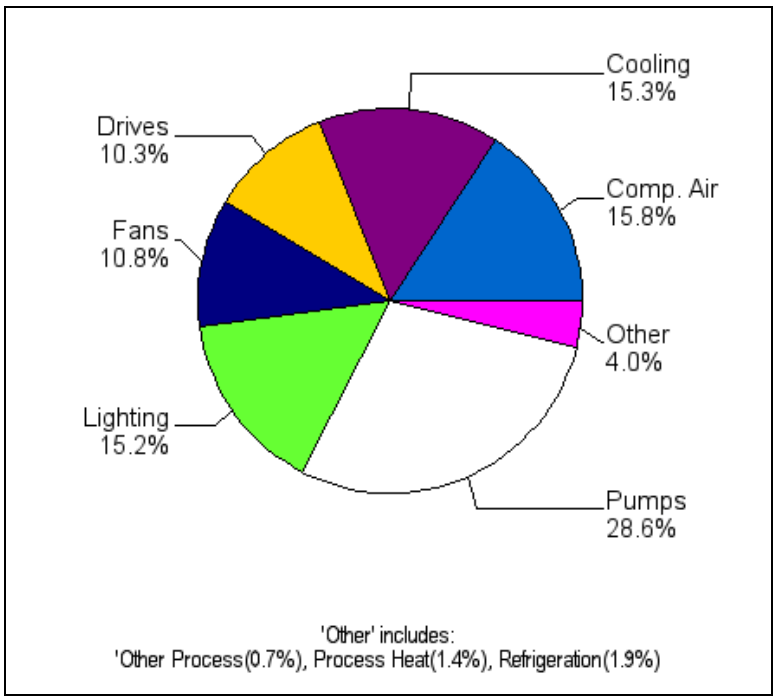


Figure 3-33 shows the breakdown of the total technical potential for energy savings in the industrial sector by end use. As the Figure shows, roughly 30% of the total technical potential for industrial energy savings is derived from measures effecting industrial pumping systems, while measures effecting lighting, space cooling, and compressed air systems each account for roughly 15% of total technical potential. Measures effecting fans and drive systems account for slightly smaller but still significant shares of total industrial technical potential, while measures effecting process heat, other process loads, and refrigeration account for the remaining 4% of total technical potential.

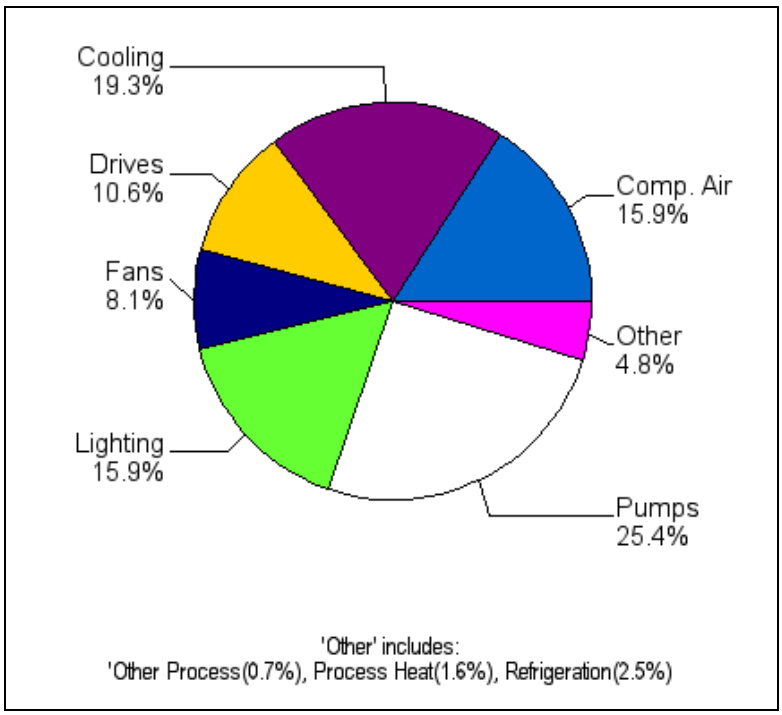
The key measures driving the technical potential results for industrial pumps include pump controls, adjustable-speed drives for pump motors, and pump system optimization measures. In lighting and space cooling, the key measures driving technical potential in the industrial sector are largely the same as those in the commercial sector – i.e. CFLs, premium T8 lamps, electronic ballasts, occupancy sensors, and high-bay T5 lamps in lighting and high-efficiency chillers, packaged DX systems, and hybrid desiccant-DX systems in space cooling. In compressed air and industrial fan systems, the key measures that drive technical potential are adjustable-speed drives, system controls, system optimization measures, and operation and maintenance (O&M) measures.

Figure 3-33: Estimated Breakdown of Total Technical Potential for Industrial Energy Savings in PEF by End Use (471 GWh)



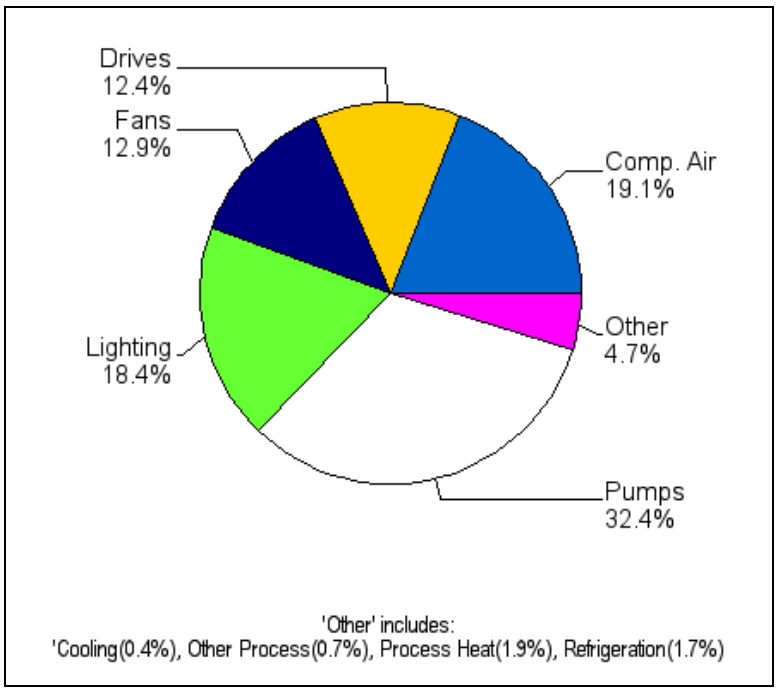
From a summer peak demand perspective, the total technical potential for system peak demand savings in the industrial sector is estimated to be 60 MW or 15% of current baseline summer system peak demand. Figure 3-34 shows the breakdown of summer peak demand savings potential in the industrial sector by end use. As the Figure shows, the end-use shares of summer peak savings potential are largely similar to the end-use shares of annual energy savings potential, with the exception that measure effecting lighting and space cooling account for slightly larger shares of potential summer peak demand savings compared to annual energy savings. In the industrial sector, this result reflects the relatively high coincidence of space cooling and interior lighting loads with the system summer peak period and the comparatively flat nature of most other industrial end-use loads which are driven principally by batch process scheduling and operations rather than occupancy or weather.

Figure 3-34: Estimated Breakdown of Total Technical Potential for Industrial Summer System Peak Demand Savings in PEF by End Use (60 MW)



From a winter peak demand perspective, the total technical potential for system peak demand savings in the industrial sector is estimated to be 47 MW or 17% of current baseline winter system peak demand. Figure 3-35 shows the breakdown of winter peak demand savings potential in the industrial sector by end use. As the Figure shows, pumping, lighting, and compressed air measures again account for the largest shares of total peak savings potential. However, in contrast to the summer peak savings and annual energy savings results, measures effecting space cooling account for an insignificant share of total winter peak savings potential. These results again largely reflect the comparatively flat nature of most industrial end-use loads in combination with the low coincidence between industrial space cooling loads and the winter system peak period, which typically occurs in the morning hours.

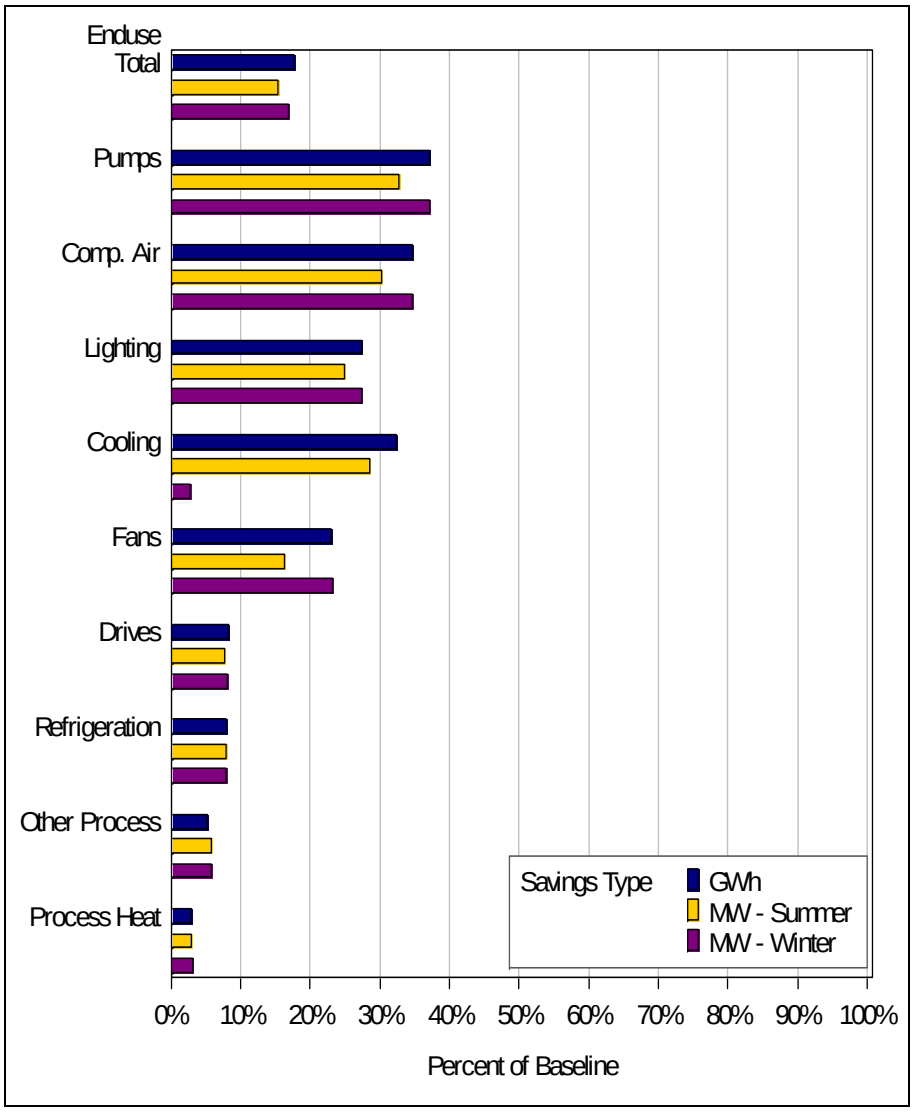
Figure 3-35: Estimated Breakdown of Total Technical Potential for Industrial Winter System Peak Demand Savings in PEF by End Use (47 MW)



In the preceding figures, technical potential was displayed across end uses relative to total technical potential in the industrial sector. Figure 3-36 again presents technical potential for energy and peak demand savings by end use, but this time relative to baseline energy consumption and peak demand for each respective end use in order to illustrate the relative size of potential end-use savings estimated in our industrial analysis.

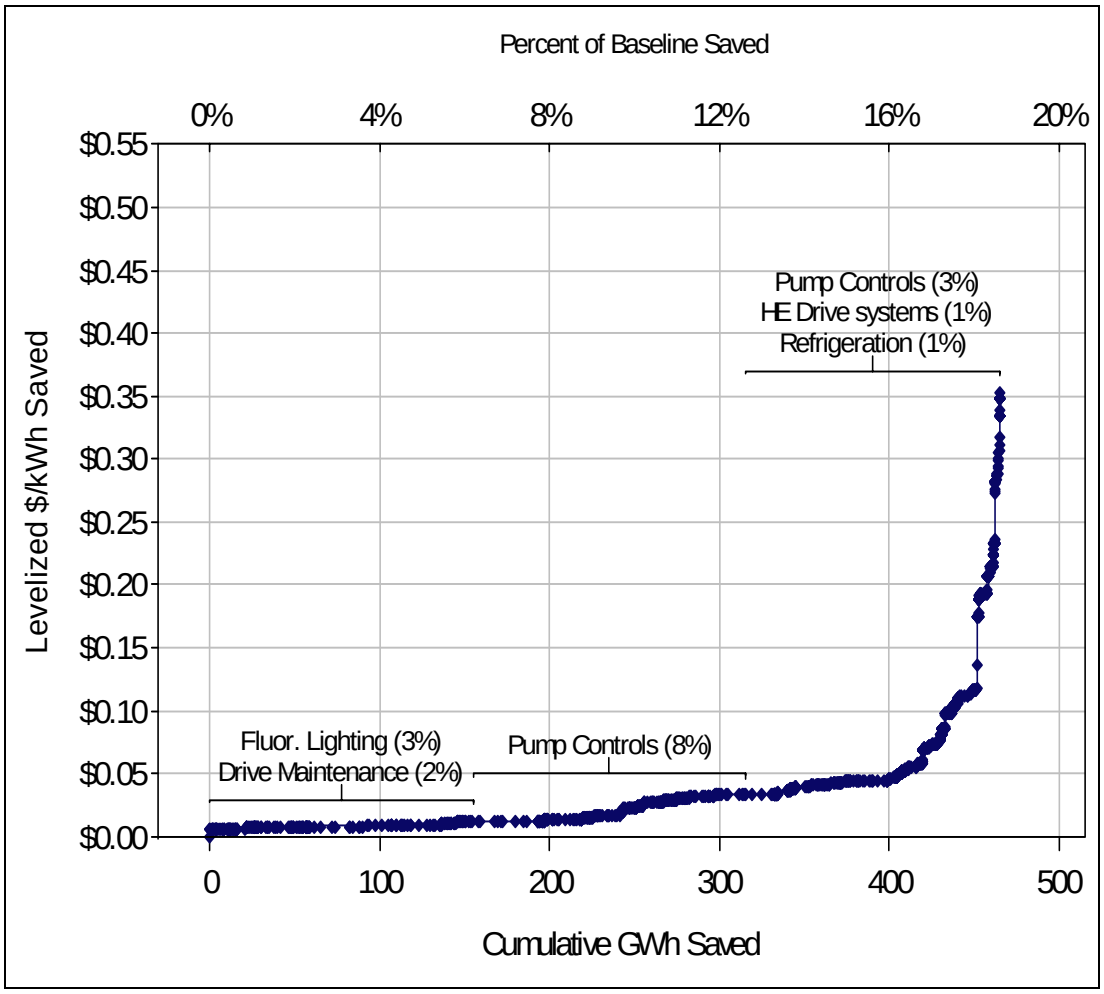
In contrast to the analogous results in the residential and commercial analyses, Figure 3-36 shows that the largest potential reductions in end-use baseline consumption and peak demand occur in the end uses that also contribute to the majority of total technical potential in the industrial sector, i.e. pumping, compressed air systems, lighting, and space cooling systems.

Figure 3-36: Total Technical Potential for End-use Energy and Peak Demand Savings in the Industrial Sector Compared to Baseline Energy Consumption and Peak Demand in PEF



Finally, Figure 3-37 shows the marginal costs of industrial energy efficiency measures and their relative contributions to total technical potential in the form of a supply curve. From a levelized cost perspective (i.e. $/kWh saved), the Figure shows that premium T8 lamps and pump controls are among the least expensive measures analyzed in this study, and together account for roughly 20% of total technical potential in the industrial sector. The detailed marginal cost and savings data embedded in this Figure are shown for each measure in Appendix D.

Figure 3-37: Industrial Energy Efficiency Supply Curve



Again it is important to recognize that cost-effectiveness, as defined by the Total Resource Cost (TRC) test or the Ratepayer Impact Measure (RIM) test, cannot be determined exclusively from these supply curves because the value of both energy and demand savings must be integrated when comparing to supply-side alternatives.

3.5.4 Aggregate Results

Across all the end-use demand sectors analyzed in this study, the total technical potential for electric energy savings in PEF's service territory is estimated to be approximately 12,351 GWh which equates to 35% of current baseline annual electricity consumption. The total technical potential for summer peak demand savings is estimated to be 2,942 MW or 43% of current baseline summer system peak demand. Finally, the total technical potential for winter peak demand savings is estimated to be 1,897 MW or 29% of current baseline winter system peak demand. As Table 3-5 shows below, energy efficiency opportunities in the residential

sector account for well over half of total technical potential for electric energy savings and more than 70% of total technical potential for summer and winter peak demand savings in PEF.

Table 3-5: Summary of the Technical Potential Results for PEF

	Annual Energy			Summer System Peak			Winter System Peak		
	Baseline	Technical Potential		Baseline	Technical Potential		Baseline	Technical Potential	
	(GWh)	(GWh)	*(%)*	(MW)	(MW)	*(%)*	(MW)	(MW)	*(%)*
Residential	20,645	8,232	*39.9%*	4,698	2,140	*45.5%*	5,175	1,479	*28.6%*
Commercial	11,544	3,648	*31.6%*	1,757	743	*42.3%*	1,166	371	*31.8%*
Industrial	2,670	471	*17.6%*	389	60	*15.3%*	282	47	*16.8%*
Total	**34,859**	**12,351**	***35.4%***	**6,844**	**2,942**	***43.0%***	**6,622**	**1,897**	***28.7%***

When interpreting the aggregate results of any bottom-up potential study, it is important to understand that the overall results are largely a reflection of the baseline end-use assumptions and the scope and characteristics of the specific energy efficiency measures analyzed. The same is true for this study, in that the results presented above reflect several unique aspects of Florida's customer base and the corresponding energy efficiency opportunities considered for analysis.

First, the residential sector in PEF is nearly all-electric, with currently very little natural gas use. This aspect of PEF's residential customer base drives much of the winter system peak demand and corresponding technical potential for winter peak demand savings. This aspect also explains why total technical potential for energy and peak demand savings is largely concentrated in the residential sector.

Second, while the relative share of potential savings from HVAC measures primarily reflects the relative share of HVAC loads, the results presented for HVAC measures also reflect the larger number of HVAC measures considered in the analysis compared to measures effecting other end uses. This slight bias towards HVAC measures in the final measure list was a direct result of the availability of previous independent and utility-sponsored research that supported a larger number of HVAC measures compared to other end use measures.

Third, it is important to understand that the fairly aggressive technical potential estimates for both electric energy savings and summer peak demand savings very much reflect the wide scope of the measures considered for this study. Specifically, it should be understood that the results include savings estimates for several advanced technologies that are likely to face significant near-term constraints in market availability and distributor/contractor capacity. These advanced technologies include SEER 19 central air conditioners, SEER 17 air-source heat pumps, geothermal heat pumps, heat pump water heaters, hybrid-desiccant DX systems, and PV-powered pool pumps.

3.5.5 Uncertainty in EE Potential Forecasts

In addition to understanding the unique aspects of PEF's customer base and the energy efficiency measures analyzed in this study, it is also important to understand the uncertainty associated with the technical potential savings estimates presented above. While quantitative assessments of uncertainty were beyond the scope of this study, we present a brief discussion of the nature of uncertainty in energy efficiency potential forecasts and provide qualitative assessment of the relative amount of uncertainty embedded in this study's results based on our assessment of the quality of the baseline and measure data developed for this project.

There are two principal classes of uncertainty underlying the technical potential results presented above and any assessment of technical potential. The first area is uncertainty associated with estimates of the current characteristics of end-use electricity consumption and energy efficiency measure data (hereafter, "current market" uncertainty). The second area concerns estimates of the future potential for energy efficiency, which is effected by the uncertainty in the first area, as well as uncertainty in future energy prices, electric load forecasts, and changes in market and energy efficiency measure characteristics over time (hereafter, "forecast" uncertainty). While there is considerable overlap in the underlying data associated with both types of uncertainty, it is useful to separate these classes of uncertainty for two reasons. First, this study attempts to reduce the effects of the two types of uncertainty through different approaches. Second, although both types of uncertainty could be reduced through further research, the types of research necessary are significantly different across the two classes.

With respect to the first class of uncertainty noted above – current market uncertainty – readers and users of this study should recognize that estimates of energy efficiency potential involve a process of modeling the substitution of energy efficiency equipment and systems in place of existing energy equipment and systems. As such, this process starts with estimates of current equipment characteristics and energy use by end use and market segment. These data typically are provided as inputs to energy efficiency potential studies and are, in the best of cases, developed from up-to-date and statistically accurate studies that involve detailed

collection of technology market shares and comprehensive modeling of end-use consumption and peak demand. When these data are absent, outdated, or inaccurate, the uncertainty in estimates of current equipment shares and associated consumption and peak demand directly impact estimates of energy efficiency potential because energy efficiency potential varies by equipment type and market segment. For this study, Itron was able to leverage considerable research previously conducted by the FEECA utilities to quantify and understand end-use energy consumption and peak demand. In this sense, there is considerably less uncertainty in the baseline end-use consumption and peak demand data compared to many recent bottom-up potential studies conducted by Itron.

Energy efficiency measure data are the second type of data associated with current market uncertainty. Examples of energy efficiency measure data include the current incremental costs and savings of energy efficiency measures, the useful lives of those measures, their current market saturation levels, and estimates of the fraction of the market for which energy efficiency equipment and systems could substitute for existing equipment and systems. Fortunately, considerable data on the costs and savings associated with energy efficiency measures were available for this study. This is attributable to the considerable number and quality of energy savings measurement and evaluation studies that have been conducted in Florida, both by the FEECA utilities themselves and by third parties such as Itron and FSEC. Nonetheless, uncertainties exist to varying degrees in estimates of costs and savings by individual technology. In general, new measures (e.g., those on the market for two years or less) have somewhat greater uncertainty in costs and savings than measures that have been on the market for longer periods (e.g., 3 years or more). The most significant uncertainty in the measure-level data is also in the area of measure saturation. Measure-level saturation data typically come from the same types of sources discussed above for baseline equipment consumption and saturation data.

With regard to forecasting uncertainty, it should be somewhat obvious that forecasts of energy efficiency potential end electricity demand are also effected by current market uncertainty. In any forecasting process, one wants to begin with as accurate an assessment of current conditions as possible; errors in estimates of current conditions are otherwise carried forward and exacerbated. However, even with perfect data on current market conditions, forecasts are subject to their own uncertainties by their very nature.

For this study, the key areas of forecast uncertainty are:

- future end-use consumption levels and equipment shares;
- future incremental costs and savings for measures on the market today;

- future incremental costs and savings for measures not on the market today but likely to be available over the ten-year forecast period (no such measures are included in this study);

- future benefit-cost ratios for energy efficiency measures, which, in addition to uncertainty in future measure costs and savings, are a function of uncertainty in:
  - future energy and capacity prices, both retail and wholesale, including those associated with constrained areas,
  - the future value of any environmental externalities, and
  - the future level of the discount rate used in financial analyses of efficiency measures

4

Technical Potential for Peak Demand Savings from Demand Response

In this chapter, we provide an overview of demand response (DR) concepts, program typology, and the various approaches that can be used to estimate DR potential. We then describe the specific approach and key assumptions used in this study. Finally, we present our estimates for technical potential from DR programs in PEF by customer class (i.e. residential, commercial, and industrial) and season (i.e. summer and winter). The estimates presented here are based on what could be done from a technical feasibility perspective with respect to installing DR-enabling equipment and communications infrastructure to reduce peak load, as opposed to what might be best to do optimally from an economic or operations perspective. Estimates for economic and achievable levels of DR will be developed in the next phase of this project.

4.1 Characterizing the Demand Response Resource

The U.S. Department of Energy (DOE) and Federal Energy Regulatory Commission (FERC) have defined DR as "changes in electric usage by end-use customers from their normal consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized" (FERC, 2008). In this section we provide an overview of the typology of DSM resources and their key characteristics and a discussion of the two commonly used methodologies for estimating DR potential.

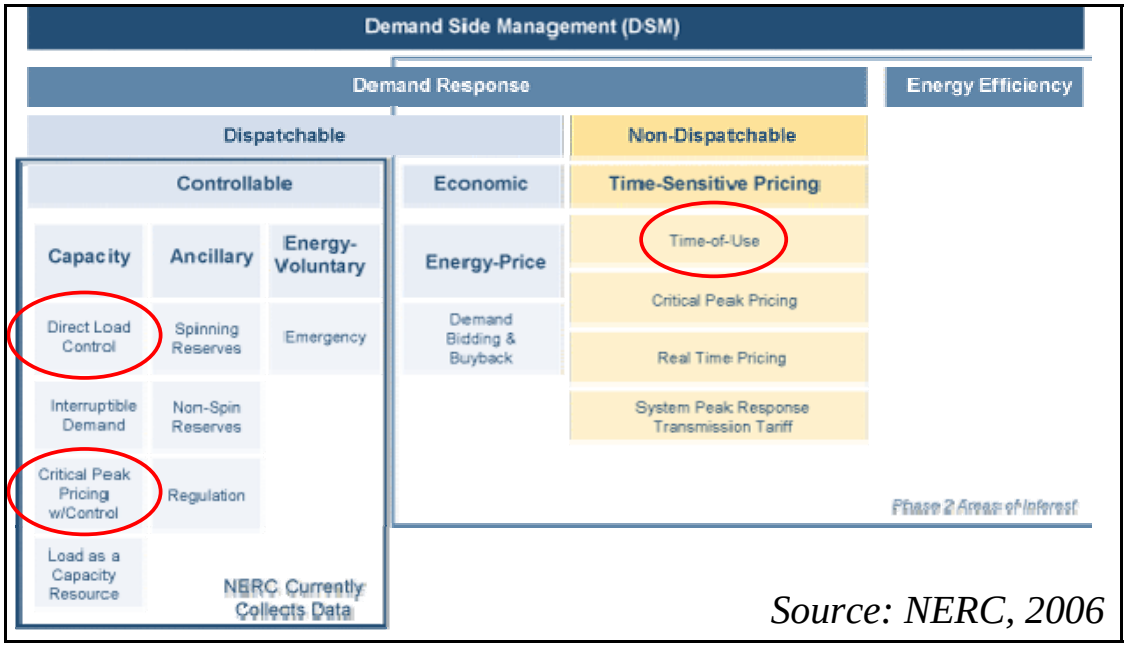
4.1.1 DR Program Typology

The North American Electric Reliability Corporation (NERC) has developed a typology of various DSM resources (see Figure 4-1). There are two main types of DSM resources – energy efficiency (EE) and DR. DR resources can be further classified in two categories – dispatchable and non-dispatchable. Dispatchable resources refer to those resources that can be deployed during a DR event triggered by the load-serving entity (LSE) or the system operator. In contrast, the use of non-dispatchable resources is based purely on the customer's decision with no input from the LSE or system operator.

Based on the discussions with stakeholders in the Florida study collaborative, three types of DR programs were considered for this analysis – direct load control (DLC), critical peak pricing (CPP) with control, and time-of-use (TOU) tariffs. DLC programs are defined as a demand response activity in which the program sponsor remotely shuts down or cycles a customer's electrical equipment (e.g. air conditioner or water heater) on short notice. TOU tariffs typically establish two or more periods within a day that reflect hours when the system load is higher (peak) or lower (off-peak), and charge a higher rate during peak hours. Some TOU tariffs may also have a third period with a "shoulder period" rate. A CPP tariff specifies a very high price for electricity use only when needed to manage critical peak problems such as system contingencies or when the LSE faces extremely high prices or cost of energy. Unlike TOU tariffs where the peak/off-peak periods and prices are in place every day of the year (or season), the critical peak events can occur on any day of the year (or season) as needed by the LSE.

One utility in Florida also offers real time pricing (RTP) tariff to its large customers. An RTP tariff consists of retail electricity prices that vary at least hourly during the day, directly reflecting the underlying cost of electricity. CPP and RTP tariffs are referred to as "dynamic" pricing tariffs given their uncertain (price levels and/or timing) nature.

Figure 4-1: DSM Resource Typology[8]



[8] http://www.nerc.com/page.php?cid=4|53|56

4.1.2 Difference Between Energy Efficiency and Demand Response

There are several key differences between EE and DR even though both are defined as DSM resources. These key differences manifest themselves in three specific dimensions of EE and DR interventions: 1) the nature of customer participation, 2) the nature of costs and benefits, and 3) the predictability of costs and benefits.[9] We provide more detailed description of each of these key differences below:

- **Nature of customer participation.** Fundamentally, DR consists of a two-step process where the customer has to decide whether to enroll in the DR program and, after enrolling, whether to reduce load in response to specific events, price signals, and/or incentives. In contrast, EE is a one-step process where the customer needs to make just one decision, whether to invest in more efficient technology and/or processes.

- **Nature of cost and benefits.** The costs and benefits of participating in DR programs and reducing load in response to specific events and/or incentives depend substantially on customer behavior. The opportunity costs and energy service tradeoffs can vary greatly depending on what the specific customer DR strategy is. In contrast, energy service levels are assumed to be constant for EE interventions, and therefore the costs and benefits of EE measures are relatively constant in nature assuming past consumption patterns continue going forward.

- **Predictability of costs and benefits.** In some types of DR programs, customer response may vary from event to event. Consequently, the stream of costs and benefits is inherently difficult to predict. In comparison, the first costs and the stream of benefits from EE measures are relatively predictable since they largely depend on equipment characteristics and known consumption patterns.

4.1.3 Approaches for Estimating DR Potential

Two approaches – "engineering" and "economic" – have been used for estimating the DR potential. The "engineering" approach relies on a bottom-up engineering accounting of DR potential by customer end-use and DR-enabling technology. It is analogous to the approach used for estimating EE potential and is readily applicable to utility-controlled DR resources (e.g. DLC). One potential drawback of the "engineering" approach is that the analysis does not explicitly model the customer's behavior and focuses on the end-uses and DR-enabling technologies.[10] For example, a customer may reduce lighting during one event and reduce

[9] For detailed description, see Goldman et al. (2007).

[10] It should be noted that customer behavior is a factor in most of Florida's DLC programs only as far as making the decision to participate and the choice of the level of cycling. In these programs, once the customer has made the decision to participate and agreed to a specific level of cycling customer behavior is not a factor in modeling the technical potential.

HVAC load for another event despite no change in the availability of DR-enabling technology between the two events. Consequently, the load reduction achieved may differ substantially between the two events.

Given the differences in EE and DR resources, especially, for customer-controlled DR resources (e.g. CPP) – the "economic" approach may provide more useful estimates of DR potential. The "economic" approach relies on empirical modeling of the customer's behavior in response to economic signals (e.g. dynamic prices, and incentives). The "economic" approach consists of estimating price elasticities from the consumption data of customers exposed to varying prices or incentives. The price elasticities are then used for developing load impact curves (i.e. load reductions expected at various price/incentive levels).[11] One potential drawback of the "economic" approach is that the analysis does not explicitly include end-use and DR-enabling technology information about the customer and focuses on the customer's overall consumption. However, customer surveys have suggested that level of load reduction achieved is, typically, correlated with the consumption of a subset of end-uses instead of the overall consumption.

Since we are focusing only on the technical potential from DR programs in this analysis, the "engineering" approach was used because it allows for explicit accounting of end-uses and DR-enabling technologies that are most relevant to reducing load in response to events and/or incentives.

Developing technical potential estimates for DR programs requires making judgments about the fraction of buildings that are likely to be integrated into new communications networks, (ranging from simple one-way paging to advanced communications networks) the rate choices available to these customers, and the advanced DR technologies likely to be available to each customer class. In this analysis, the availability of communication networks, advanced DR technologies, and dynamic pricing tariffs is driven by technical feasibility of deployment over a 10-year period without consideration of policy or economic factors.

The choice of communication technology decides how a DR event and/or price information is sent from the LSE/system operator to the customers. Three alternative communication technologies were considered – one-way, two-way, and advanced metering infrastructure (AMI). One-way technology relies on utility sending a signal to customer (or device on customer premises) that triggers a load reduction. There is no communication from customer

[11] The economic analysis approach is described in detail in Goldman et al. (2007). This methodology has been used routinely for evaluating CPP-type programs in many parts of the U.S. and various examples are discussed in detail in Faruqui and Sanem (2008).

to back to the LSE. For two-way technology, the communication goes both ways between LSE and the customers. However, there is no link to a smart meter. AMI is defined by FERC as a "metering system that records customer consumption (and possibly other parameters) hourly or more frequently and provides for daily or more frequent transmittal of measurements over a communication network to a central collection point".[12]

DR-enabling technologies considered in this analysis include switches for cycling or shedding space cooling/heating, smart thermostats of space cooling/heating, and automated control strategies for various end-uses. Cycling switches are a well-known technology that has been used by many utilities across the U.S. for the past three decades. Smart thermostat is a relatively new technology where the household thermostat can be programmed by the customer to raise or reduce the set-point automatically based on the signal received from the LSE. Automated control strategies have been developed recently and consist of link to a customer facility's energy management control systems (EMCS) with external utility-generated price or emergency signals. The signals initiate pre-programmed, customer-defined strategies to shift, reduce or shed loads for brief periods of time.

Three types of rate structures were considered in this analysis - flat rate, TOU, and CPP. In previous sections, the definitions for TOU and CPP tariffs have been provided.

The peak savings estimates for DR technical potential presented here are incremental to the existing DR resources – in other words, it is assumed that customers enrolled in existing DR programs will continue on those programs and only customers that are not currently enrolled in any existing DR program are eligible for the DR programs modeled in this analysis.

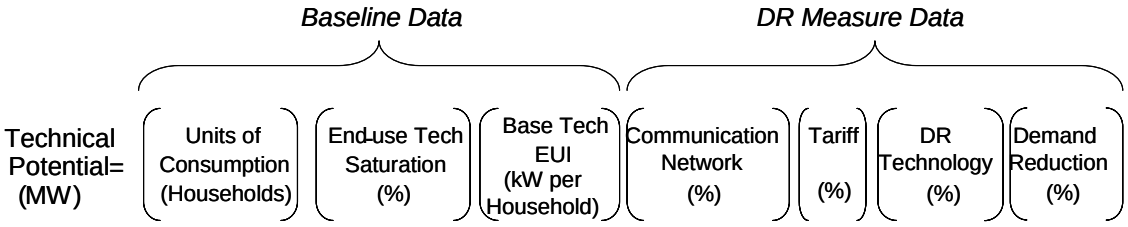
Strategies used by customers for responding to events and/or prices can include foregoing consumption or shifting consumption from event (or peak period) to off-peak period or a combination of the two. Some DR programs may allow the customer to respond to events and/or prices by shifting their consumption from the grid to an onsite generator. For this study, this strategy of using onsite generators was excluded from the analysis of DR technical potential. This decision was based primarily on the difficulty in meaningfully bounding the technical feasibility of using onsite generators as a DR strategy across large segments of the residential, commercial, and industrial sectors without introducing significant uncertainty to the analysis.

[12] FERC (2008).

4.2 Methodology and Assumptions

In this section we describe the approach used for developing the DR technical potential in this analysis, the key assumptions about DR measure data, and a brief description of the various DR-enabling technologies and the relevant tariff designs.

The core equation used for estimating DR technical potential is:



This equation is analogous to the equation used for estimation the EE technical potential. The baseline data used for estimating DR technical potential in PEF is the same as that used for estimating the EE technical potential. As such, it should be understood that the technical potential estimates for EE and DR are not strictly additive, since efficiency improvements reduce the baseline peak demand available to be reduced in DR programs. Such interactions will be addressed in the economic and achievable potential forecasting phases of this study. For details about the data sources and development of the end-use baseline data see Section 3.3.

In the previous section, we described the three key factors that determine the DR technical potential – the availability of communication networks, advanced DR technologies, and dynamic pricing tariffs. In order to estimate technical potential, therefore, it is necessary to develop estimates for each of these factors for each DR program analyzed. For DR programs and strategies beyond traditional DLC programs, however, comprehensive data to support such estimates was not readily available for this study, largely due to the relative newness of advanced DR technologies, dynamic tariffs, and advanced communications networks. Additionally, the scope of this study did not support primary data development for advanced DR measures. As such, Itron developed an assumption-driven approach in order to develop the DR measure data required to estimate technical potential. In this approach, Itron developed an initial set of straw-man values for each factor that were then presented to PEF for comment. Based on feedback, the final parameter values for each factor were then developed and carried forward in Itron's forecast. The analysis results were then presented to PEF and other stakeholders, and Itron incorporated these comments in the results shown in this chapter. The final set of key assumptions are presented and described in more detail below.

In terms of the availability of AMI, PEF indicated that it was technically feasible for 100% of the customers in their service territories to be on AMI networks by 2019 (the last year of the 10-year forecast period). From this perspective, utilities would then, in theory, have the ability to administer any type of dynamic pricing tariff to all of its customers.[13]

Access to DR-enabling technology depends on several factors such as promotion, awareness, technical assistance, and others. Table 4-1 and Table 4-2 show the assumed values of DR control technology penetration for DR-relevant end-uses developed for the residential and commercial and industrial (C&I) customer classes, respectively. Note that for industrial customers, it was assumed that only HVAC, lighting, and other non-process end-uses are available for demand response. Each of the DR control technologies analyzed in this study is described in more detail below.

In a traditional DLC program, LSEs or system operators can remotely control switches on A/C and space heating end-uses on residential customer premises "cycle" or completely shut-down the appliance for short periods of time. These types of devices have been available for several years.

In contrast to a manual thermostat where the customer has to manually change the set-point to change the space cooling/heating load, the smart (or programmable) thermostat allows the customer to program the thermostat (similar to programming a VCR to record TV shows automatically at pre-set times) to change set-points automatically in response to a signal from the LSE/system operator and/or prices. The smart thermostat has the capability to receive and process the signal from the LSE and/or prices. Various models of smart thermostats with varying capabilities are available in the market today.

[13] It is important to note that this assumption is not equivalent to the statement that all FEECA utilities will have 100% of their customers on AMI by 2019, but rather that it is technically feasible to have full-scale AMI networks deployed by 2019 in each of their respective territories.

Table 4-1: Assumed Availability of DR Control Technology for Residential Customers in PEF by End Use in 2019

End use	DR Control Technology	Percent of Eligible Customers with Access to DR Control Technology
A/C (in summer) and Space heating (in winter)[14]	Switch – Cycling Program	20%
	Switch – Shedding Program	10%
	Smart Thermostats	50%
	In home display with peak threshold warning system and pre-set control strategies	10%
Water heating	On-Off Switching via low-power wireless communication technology	65%
	In home display with peak threshold warning system and pre-set control strategies	10%
Pool Systems	On-Off Switching via low-power wireless communication technology	10%
	In home display with peak threshold warning system and pre-set control strategies	10%
Other Household Loads	In home display with peak threshold warning system and pre-set control strategies	10%

In-home displays that communicate emergency signals from LSEs to customers and can be programmed to control various household appliances such as A/C, space heaters, pool pumps, and others are relatively new technology. Similar to a smart thermostat, the in-home displays have the capability to receive and process signals from the LSE and/or prices. Unlike the smart thermostat that controls only the heating and cooling appliances, the in-home displays are capable of communicating with several appliances.

Various technologies are available today that enable reliable, cost-effective, low-power, wirelessly networked, monitoring, and control products. These technologies allow communication between the advanced electricity meters and specific end-uses such as water heaters and pool pumps. For example, a signal communicated to the customer's meter is relayed via the wireless technology to a device on the water heater that can then switch on or off the water heater in response to the signal.

[14] Note that some but not all of these DR-control technologies control both cooling and heating equipment.

Table 4-2: Assumed Availability of DR Control Technology for Commercial and Industrial (C&I) Customers in PEF by End Use in 2019

End use	DR Control Technology	Percent of Eligible Customers with Access to DR Control Technology
HVAC	Automated control strategies	60%
	Direct load control system	30%
Lighting	Automated control strategies	60%
Other	Automated control strategies	60%

Automated control strategies for C&I customers are designed to link facility energy management control systems (EMCS) with LSE signals and/or prices. The signals and/or prices initiate pre-programmed, customer-defined strategies to shift, reduce or shed loads for brief periods of time. The Demand Response Research Center at LBNL has developed and demonstrated automated control strategies for several types of C&I facilities in recent years.[15]

Direct load control systems for C&I customers are similar to A/C and space heating cycling systems used for residential customers. These systems have typically, targeted the HVAC end-use at C&I facilities and in some cases may also target other end-uses.

The DR technical potential estimates by DR technology are additive and exclusive. For example, it is assumed that customers with A/C load will have access to only one applicable DR-enabling technology – cycling/shedding switch or smart thermostat or in-home display. Similarly for commercial and industrial customers, we assume that the customer has either an automated control strategy or a direct load control system.

In Table 4-3, we present the assumed applicability of each DR-enabling technology with various types of tariffs. For example, smart thermostats are applicable only with dynamic pricing tariffs while A/C cycling switches are applicable mainly with a flat rate.[16] Although customer decisions about choice of DR-enabling technology and tariff are dependent on each other at least to some extent – for the sake of estimating the technical potential we treat them as independent decisions.

[15] http://drrc.lbl.gov/drrc-5.html

[16] One utility noted that the customer can choose to either enroll in a direct load control type program on a flat rate OR be on a time-varying tariff but not both.

Table 4-3: Assumptions about Combinations of DR Control Technologies and Tariffs in PEF in 2019

DR Control Technology	Compatible Tariffs
Residential:	
A/C Cycling	Flat rate
A/C Shedding	Flat rate
Smart Thermostats for A/C	CPP/TOU
On-Off Switching via low-power wireless communication technology for water heating and pool systems	CPP/TOU
In-home displays and pre-set control strategies	CPP/TOU
Commercial/Industrial:	
Automated control strategies	CPP/TOU
Direct load control system	Flat rate and CPP/TOU

At this point, most of the customers of all seven FEECA utilities are on flat rates. A few utilities have small portions of their customers on TOU, CPP, and RTP rates. In order to examine the effect of dynamic pricing tariffs on DR potential, we developed two scenarios – high and low – with respect to the availability of CPP tariffs – see Table 4-4. Five utilities indicated that the two main pricing tariffs that are likely to exist are CPP/TOU and flat rate. The two scenarios serve as bounds for this analysis and do not represent the likely market penetration of CPP tariffs.

Table 4-4: Scenarios for Penetration of Dynamic Pricing Tariffs by Customer Class in PEF in 2019

Sector	CPP Penetration	Flat Rate Penetration	Total
Low penetration of dynamic pricing tariffs			
Residential	10%	90%	100%
C&I	10%	90%	100%
High penetration of dynamic pricing tariffs			
Residential	50%	50%	100%
C&I	35%	65%	100%

Finally, the estimated average percent reduction in peak demand from each type of DR-enabling technology is shown in Table 4-5 and Table 4-6 and for residential and C&I

customers, respectively. The peak reduction estimates for AC cycling and shedding programs were derived from recent evaluations of DLC programs in Florida. For the other DR control technologies, Itron developed peak load reduction estimates from the available literature, primarily Faruqui and Sanem (2008).

Table 4-5: Average Percent Reduction in Residential Peak Demand Due to DR-Enabling Technology in PEF by End Use

End Use	DR Control Technology	Average Percent Reduction in End-use Peak Demand
A/C (in summer) and Space heating (in winter)[17]	Switch – Cycling Program	31%
	Switch – Shedding Program	100%
	Smart Thermostats	36%
	In home display with peak threshold warning system and pre-set control strategies	36%
Water heating	On-Off Switching via low-power wireless communication technology	90%
	In home display with peak threshold warning system and pre-set control strategies	36%
Pool Systems	On-Off Switching via low-power wireless communication technology	90%
	In home display with peak threshold warning system and pre-set control strategies	36%
Other Household Loads	In home display with peak threshold warning system and pre-set control strategies	36%

Table 4-6: Average Percent Reduction in Commercial/Industrial Peak Demand Due to DR-Enabling Technology in PEF by End Use

End Use	DR Control Technology	Average Percent Reduction in End-use Peak Demand
HVAC	Automated control strategies	34%
	Direct load control system	60%
Lighting	Automated control strategies	34%
Other	Automated control strategies	34%

[17] Note that some but not all of these DR-control technologies control both cooling and heating equipment.

The assumptions presented above describe a subset of scenarios that could be observed in reality. There are potentially large uncertainties associated with the predicted customer behavior or response to different types of program design, and levels of tariff (both structure and level) that can lead to wide range in actual load reductions from event to event. For example, Faruqui and Sanem (2008) compared 17 residential pricing programs across the U.S. and estimated that amount of load reduction from customers with enabling technologies and subject to TOU or CPP rate varies from 27 % to 44%.

4.3 Peak Demand Savings Results

In this section we provide the results of the analysis at an aggregate level. The DR technical potential is presented by customer class, season, scenario, and type of DR-enabling technology. We also provide a comparison of the forecasted DR technical potential with the actual 2007 system peak demand and the existing DR resources in PEF.

As Figure 4-1 and Figure 4-2 shows, the total estimated DR technical potential incremental to the existing DR resource in PEF ranges from 1,006 MW in the high scenario to 741 MW in the low scenario for summer peak season and 948 MW to 659 MW for the winter peak season. This incremental DR resource compares to 496 MW of existing DR resource reported by PEF. The residential sector accounts for approximately 75% of the total DR technical potential during summer under the “high” scenario. This trend is even more pronounced during winter and under the “low” scenario where residential sector accounts for ~90% of the incremental resource. Relative to baseline system peak demand in 2007, the total incremental DR technical potential for PEF ranges from 10.6% to 14.4% in summer and from 9.7% to 14% in winter. The existing DR resource is equivalent to 7.1% of 2007 summer system peak demand.

Figure 4-2: DR Technical Potential in PEF by Customer Class and Scenario

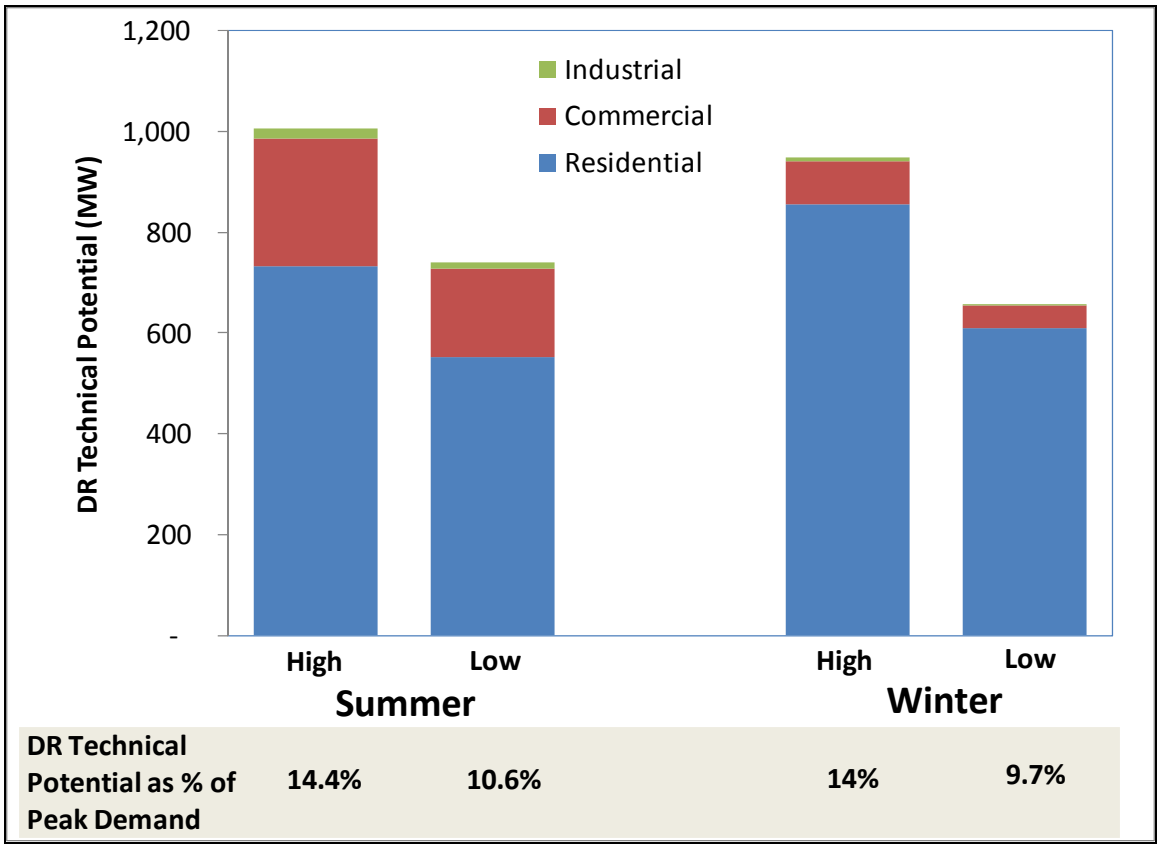
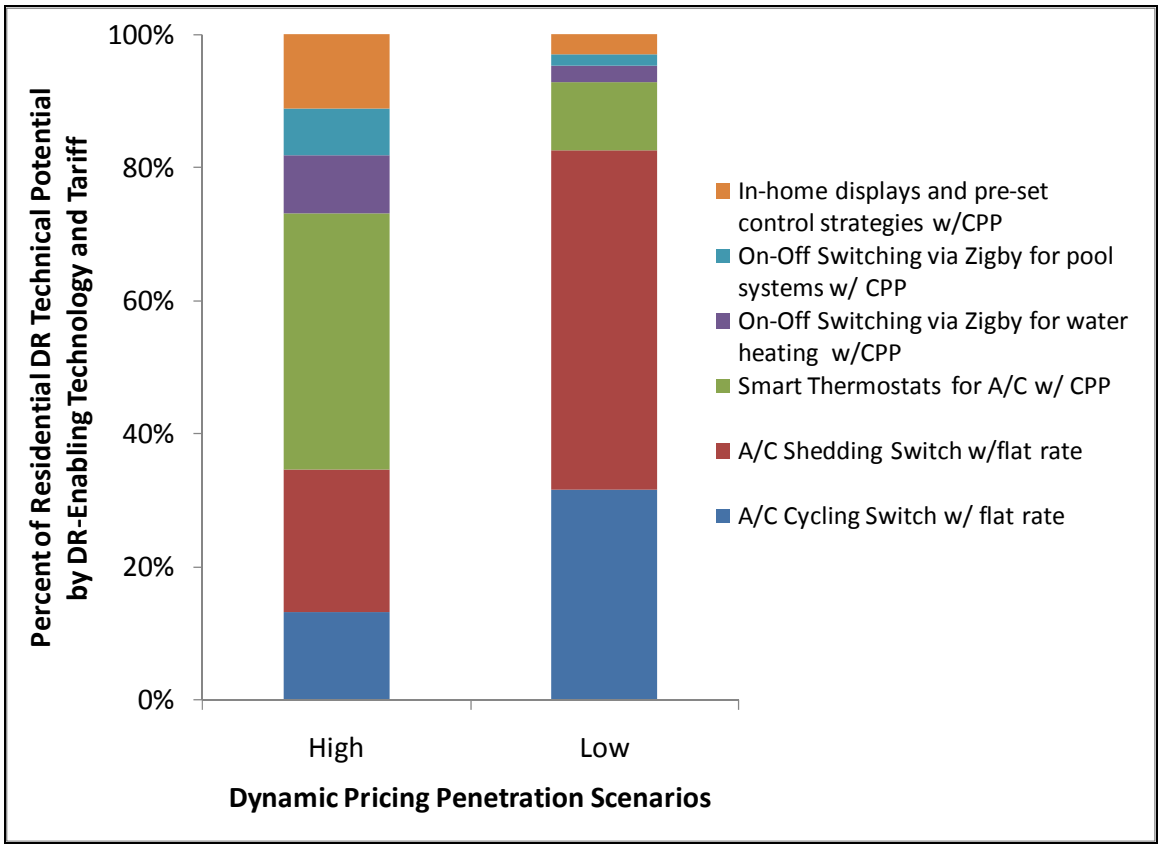


Figure 4-3 illustrates the relative contribution of the various DR control technologies/tariff combinations analyzed to the total DR technical potential estimated for the residential sector (for summer peak savings). Note that the high and low values shown in the Figure primarily reflect the range of assumed penetration rates of dynamic pricing tariffs presented in Table 4-4. Low penetration of dynamic pricing tariffs implies that a higher proportion of customers are on flat rates. Consequently, the technical potential associated with two DR-enabling technologies – A/C cycling switches and A/C shedding switches in combination with flat rates– will be larger for the "low" scenario as compared with the "high" scenario.

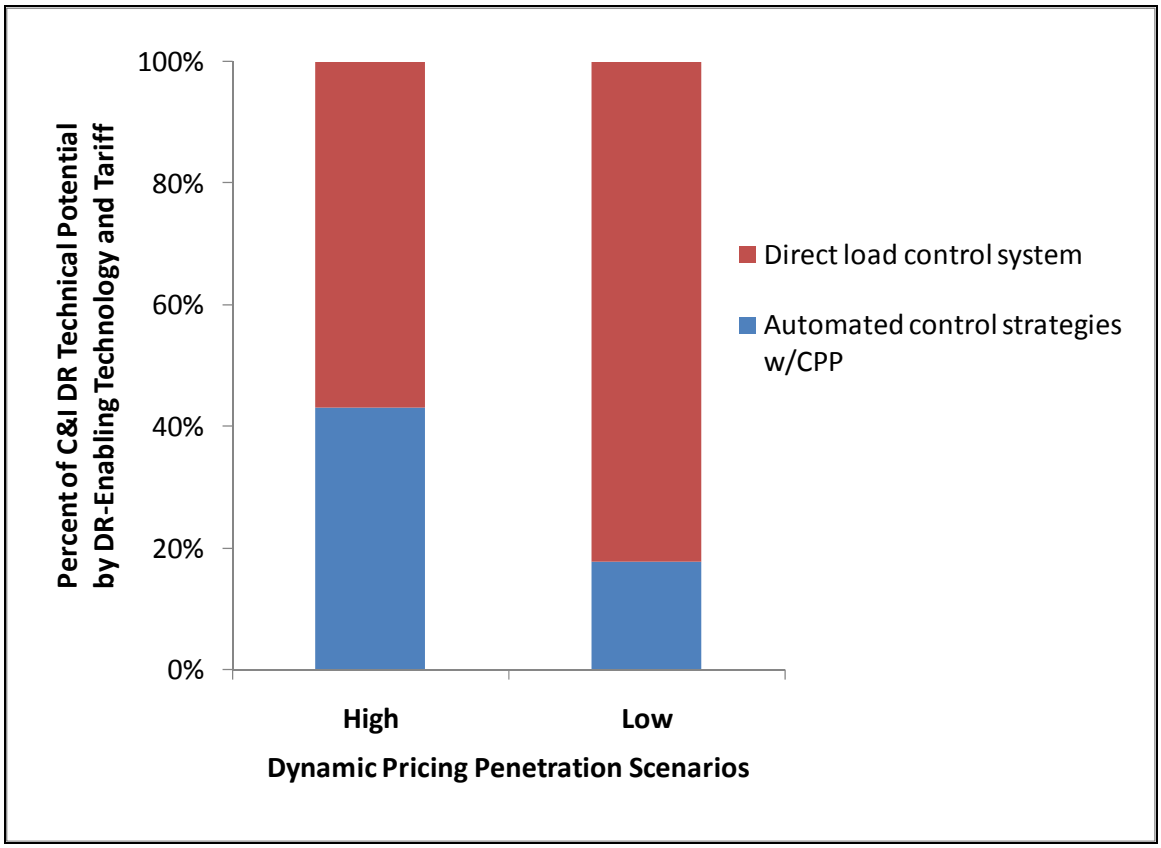
Figure 4-3 also shows that smart thermostats account for 43% of the resource under the high scenario with A/C cycling and A/C shedding together accounting for 39%. In contrast, under the low scenario A/C cycling and A/C shedding account for 83% of the total resource.

Figure 4-3: Composition of DR Technical Potential for Residential Customers in PEF by Control Technology and Tariff in the "High" and "Low" Scenarios (Summer Peak Savings)



In case of C&I customers, Figure 4-4 shows that the DLC systems account for a majority of the resource under both the high and low scenarios – 57% and 82%, respectively. The reason DLC systems dominate under both scenarios is because they can be used under both flat rate and dynamic pricing tariffs while automated control systems work only with dynamic pricing tariffs. Further, the load reduction potential from DLC systems is higher than automated control systems.

Figure 4-4: Composition of DR Technical Potential for C&I Customers in PEF by Control Technology and Tariff in the "High" and "Low" Scenarios (Summer Peak Savings)



4.4 Summary

In addition to the existing DR resource of 496 MW, the technical potential estimated from new DR programs ranges from 1,006 MW (high scenario) 741 MW (low scenario).[18] Table 4-7 shows the estimated incremental DR technical potential by sector, season, scenario, DR-enabling technology, and tariff, presented in both absolute figures and as a percentage of baseline system peak demand. Total incremental DR technical potential ranges from 10% to 14% of current baseline peak demand across the summer and winter peak seasons and the two scenarios modeled in this analysis. The majority of the DR technical potential is available from residential customers and ranges from 73% to 92% across the two scenarios and the two seasons.

[18] Again, the peak savings estimates for DR technical potential presented here are designed to be incremental to the existing DR resources. It is assumed that customers enrolled in existing DR programs will continue on those programs and only customers that are not currently enrolled in any existing DR program are eligible for the DR programs modeled in this analysis. It should also be noted that the use of onsite generation by C&I customers as a DR strategy was not modeled in this analysis.

The size of the estimated DR technical potential resource presented here is highly dependent on the assumed penetration of dynamic pricing tariffs. Both A/C cycling and A/C shedding technologies are likely to be used only in combination with a flat rate as opposed to smart thermostats and in-home displays that are likely to be used only with a dynamic pricing tariff. The technical potential for load reduction from A/C shedding (100%) is substantially higher than that from smart thermostats (~36%) and in-home displays (~36%). Therefore low penetration of dynamic pricing tariffs leads to higher levels of DR technical potential.

Table 4-7: DR Technical Potential in PEF by Sector, DR-Enabling Technology/Tariff, and Scenario

Sector	DR-Enabling Technology and Tariff	Summer System Peak					Winter System Peak				
		Baseline	Technical Potential				Baseline	Technical Potential			
			High		Low			High		Low	
		(MW)	(MW)	(%)	(MW)	(%)	(MW)	(MW)	(%)	(MW)	(%)
Residential	A/C Cycling Switch w/ flat rate		97	2.1%	175	3.7%		105	2.0%	189	3.6%
	A/C Shedding Switch w/flat rate		157	3.3%	282	6.0%		169	3.3%	304	5.9%
	Smart Thermostats for A/C w/ CPP		282	6.0%	56	1.2%		304	5.9%	61	1.2%
	On-Off Switching via low-power wireless networks for water heating w/CPP		65	1.4%	13	0.3%		180	3.5%	36	0.7%
	On-Off Switching via low-power wireless networks for pool systems w/ CPP		51	1.1%	10	0.2%		10	0.2%	2	0.0%
	In-home displays and pre-set control strategies w/CPP		82	1.7%	16	0.3%		89	1.7%	18	0.3%
	Total Residential	4,698	734	15.6%	553	11.8%	5,175	856	16.5%	609	11.8%
Commercial	Automated control strategies w/CPP		109	6.2%	31	1.8%		55	4.7%	16	1.3%
	Direct load control system		144	8.2%	144	8.2%		31	2.7%	31	2.7%
	Total Commercial	1,757	252	14.4%	175	9.9%	1,166	86	7.4%	47	4.0%
Industrial	Automated control strategies w/CPP		9	1.6%	3	0.5%		4	1.0%	1	0.3%
	Direct load control system		11	2.0%	11	2.0%		2	0.4%	2	0.4%
	Total Industrial	550	20	3.6%	13	2.4%	433	6	1.4%	3	0.7%
TOTAL		**7,005**	**1,006**	**14.4%**	**741**	**10.6%**	**6,773**	**948**	**14.0%**	**659**	**9.7%**

5

Technical Potential for Energy and Peak Demand Savings from Solar PV

In this section, estimates for technical potential from solar photovoltaics (PV) are presented for PEF by customer class (i.e. residential and commercial) and season (i.e. summer and winter). The estimates presented here are based on what could be done from a technical feasibility perspective with respect to installing PV in select applications, as opposed to what might be best to do optimally from an economic or operations perspective. Applications covered by this study include rooftop PV in the residential and commercial sectors, and parking lot PV in the commercial sector. Estimates for economic and achievable levels of PV potential will be developed in the next phase of this project.

In this chapter we provide an overview of the PV resource, a description of the methodology used for estimating PV potential, key assumptions, and results for the technical potential of PV for PEF. Alternating current (AC) power and energy units are used throughout this chapter.

5.1 Characterizing the Solar PV Resource

Several key parameters can be used to characterize the design of PV solar electric systems. For this study one important design parameter is PV material type. This, and several other key design parameters, are identified and discussed below.

- **Photovoltaic Material Type**. When PV systems are placed on buildings, the total available surface area becomes a constraint to system capacity. The several types of PV material commercially available today exhibit varying levels of power output per unit of area. This analysis was based on crystalline silicon PV material. If amorphous silicon was assumed in lieu of crystalline silicon then initial capacity estimates would be approximately 60 percent of those estimated for crystalline PV. A mix of amorphous silicon and crystalline silicon would yield an intermediate result. This approach was used because selection of material type is largely an economic decision. The influence of project costs on economic potential will be addressed in the second phase of this project. Thus, the PV material selected for

this technical potential analysis results in the maximum amount of PV potential based on the various types of materials available.

- **Energy Storage**. It is possible to incorporate energy storage into PV systems. Addition of energy storage, typically in the form of batteries, opens up the possibility of de-coupling system output from solar irradiance patterns. Currently the frequency of energy storage is higher in the residential sector than the commercial sector. Overall the frequency of energy storage is very low currently. Therefore for this analysis it was assumed that there was no energy storage.
- **Tracking**. When PV arrays are mounted on single- or dual-axis tracking devices their energy output per unit of installed capacity can be increased. However, addition of tracking capability increases system complexity, weight, and maintenance requirements. For this analysis PV arrays are assumed to be fixed, not tracking.
- **Design**. This technical potential study includes houses on a wide variety of orientations. In most cases, PV system power output or energy production could be maximized by mounting the arrays on racks designed to optimize orientation, rather than simply mounting them parallel with the roof surface. Some customers deem complex mounting structures undesirable however, citing aesthetic, cost, and other concerns. Arrays not mounted parallel to roof decks also are more susceptible to wind damage in the hurricane-prone service territory of Florida. Similar considerations pertain to PV systems installed on commercial buildings. For this analysis, PV arrays are assumed to be mounted parallel with roof surfaces.[19]
- **Urban Hosts**. In the urban environment residential and commercial buildings are the most obvious host site for PV arrays. Other host sites, particularly shading structures in commercial parking lots, are also likely candidates for PV systems. For this analysis, PV arrays are assumed to be installed on residential and commercial buildings, and in parking lots of commercial buildings.
- **On versus Off Grid**. PV systems are capable of operating separately from the grid. This analysis addresses only the technical potential of grid-tied PV systems deployed by PEF customers. PV operating separately from the grid cannot directly reduce grid peak load or energy usage from the grid.

[19] One consequence of this simplifying assumption is loss of information that might be developed regarding the cost-effectiveness variability exhibited by PV systems with different configurations. Due to schedule and budget constraints it was not possible to develop and retain large quantities of information concerning PV system designs that are not expected to account for large portions of the markets examined. For example, it is possible to install tracking PV systems on building rooftops however this is uncommon and therefore this prototype was not included in the technical potential study.

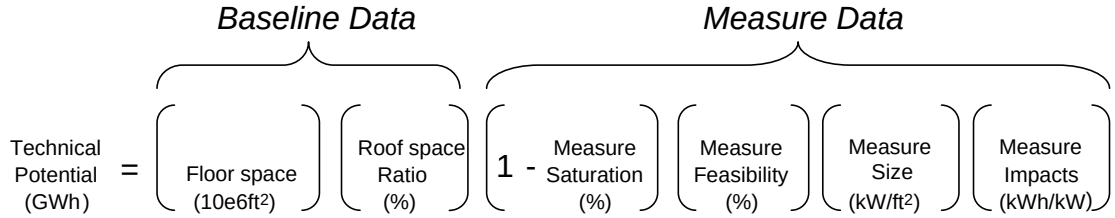
In Section 3.1 key terms underlying potential studies were defined and discussed. That discussion focused on technical potential of energy efficiency resources, however, the same concepts and definitions apply to the PV technical potential analysis covered below.

5.2 PV Technical Potential Analysis Methodology

This assessment of PV technical potential covers PV installed in the commercial and residential sectors. The analytic methodology consists of first estimating total roof area suitable for siting PV systems and then translating this roof area into estimates of annual electricity generation and power output coincident with the electric system summer and winter peaks. For commercial buildings the total roof area also is used to estimate parking lot area over which parking shade structures might hold PV systems.

5.2.1 Core Equation

The form of the PV core equation is similar, but not identical, to that of the EE and DR core equations. The core equation used for estimating PV technical potential is:



Because PV potential is not correlated with baseline energy consumption but rather the non-energy physical characteristics of buildings and facilities, the "baseline data" for PV potential analysis is available roof space.[20] The key types of data used to develop baseline estimates of available roof space are:

- **Floor space** – this variable quantifies the total square feet of floor area for a given market segment (e.g., office buildings in commercial or single-family dwellings in residential).

- **Roof space ratio** – this variable quantifies the amount of roof space corresponding to each unit of floor space. This factor accounts for the fact that in all sectors and for all building types covered by the analysis the average number of floors exceeds one.[21] A

[20] Similarly, one variable that appears in the core equation for EE potential but not in the core equation for PV potential is end-use technology saturation, since all houses have a roof, whereas – for example – only a portion of houses are equipped with central air conditioners.

[21] This is true even for mobile homes as one case of a unit placed atop another structure increases the average number of floors above one.

similar ratio applies to parking lots for commercial buildings that would hold PV systems atop parking shade structures. The area of parking lots for commercial buildings is correlated with building floor space since larger buildings require larger parking areas.

The key types of data used to describe the PV measure are:

- **Measure saturation** – this variable is the fraction of applicable roof space, including parking shade structure roof space that has already been equipped with PV. One minus the measure saturation thus provides an estimate of the size of remaining eligible market for PV.
- **Measure feasibility** – this variable is the fraction of the applicable roof space where it is technically feasible for installation of PV from an engineering perspective.
- **Measure size** – this variable quantifies the nominal, rated system size of installed PV system capacity.
- **Measure impacts** – this variable quantifies the actual electricity generation per unit of installed PV system capacity.

Estimates of the technical potential for peak generation (as opposed to annual energy generation) are calculated by adjusting the units of the measure impacts term to be a ratio of kW output at the time of system coincident peak to the nominal, rated PV system size. The peak impact factors are derived from PV hourly generation profile data that are then used to estimate PV power output at the time of system coincident peak load. Note that it is not necessary to use supply curve modeling in the PV technical potential assessment because whereas EE measures are subject to substantial interactive effects, the PV measures are not.

5.3 Development of Roof Space Baselines

Technical potential of solar PV in the urban environment is closely tied to total square footage of buildings. To maintain consistency with the EE and DR analyses the PV technical potential analysis utilized the housing counts and commercial floor space baseline data described in Chapter 3. Total roof space area is less than total building area because the average number of floors per building exceeds one. The methods used to estimate roof space area available for siting PV systems on residential buildings, commercial buildings, and parking lots based on residential housing counts and commercial floor space are described below.

Residential Buildings: Baseline housing unit counts developed for the EE analysis are the foundation of the residential PV technical potential analysis. These counts were translated

into housing square footage estimates using the per-dwelling floor space factors presented in Table 5-1, which were derived from the results of FPL's 2006 Home Energy Survey.

Table 5-1: Residential Floor Space per Dwelling

Dwelling Type	Floor Space (ft^2/dwelling)
Single Family	2,067
Multi Family	1,198
Mobile Home	1,102

Data from the Energy Information Administration's 1997 Residential Energy Consumption Survey were used to calculate roof area to floor space factors in order to translate residential floor space values into baseline roof space values. The analysis incorporated information concerning the total number of housing units of various size categories, types (i.e., single family, multi-family), and configurations (i.e., floors). To calculate roof area a gable style roof design with a 20 degree slope roof and one foot overhangs was assumed. The assumed ratio of gross residential roof space to floor space was 0.88.

Commercial Buildings: As with the residential analysis, the commercial baseline analysis centers on estimating the total roof square footage available for siting photovoltaic systems. Baseline commercial square footage estimates developed for the EE analysis serve as the foundation of the commercial baseline developed for the PV technical potential analysis.

Nationwide data from the Energy Information Administration's 2003 Commercial Buildings Energy Consumption Survey were used to estimate the distribution of number of floors for the building floor space for each of several building size categories. The resulting distributions, which were based on national data, were then used in combination with total floor space data to estimate a "Roof Area Factor" that relates total roof area to total floor space. The value of the Roof Area Factor calculated in this manner is 0.62. That is, on average, there are 0.62 square feet of roof area associated with each square foot of commercial floor area. Total commercial roof area in PEF was thus calculated as the product of the Roof Area Factor and an estimate of the total floor space of commercial buildings in PEF in 2007. The assumed ratio of gross commercial roof space to floor space was 0.62.

Parking Lots: The number of parking spaces is related to total commercial building square footage. Depending on building use, the number of parking spaces per 1,000 square feet of building area is typically 3 to 5, which corresponds to 200 to 333 square feet of building area

per parking spot. For this analysis a conservative value of 400 square feet of building area per parking spot was assumed.

The International Parking Institute estimates that the ratio of off-street spaces to on-street is roughly two to one. More than 60 percent of paid off-street parking is in surface lots, with the remaining 40 percent in garages. This proportion was assumed to hold for all parking spots in Florida when calculating the total number of off-street, surface parking spots associated with commercial buildings in Florida in 2007.

Table 5-2 summarizes the baseline values for residential and commercial roof area and parking areas developed for this study by building type.

Table 5-2: Summary of Floor, Roof, and Parking Space Estimates in PEF

Sector	Building Type	Building Counts	Floor Area (000,000 ft2)	Gross Roof Area (000,000 ft^2)	Gross Parking Area (000,000 ft2)
Residential	Single-family	902,156	1,865	1,641	(na)
	Multi-family	399,315	478	325	(na)
	Mobile Homes	177,473	196	172	(na)
	Total	1,478,945	2,539	2,138	(na)
Commercial	College	(na)	65	40	25
	School	(na)	45	28	17
	Hospital	(na)	10	6	4
	Other Health	(na)	15	9	6
	Lodging	(na)	77	48	29
	Restaurant	(na)	46	29	18
	Grocery	(na)	18	11	7
	Retail	(na)	73	46	28
	Warehouse	(na)	109	68	42
	Office	(na)	170	105	65
	Other	(na)	10	6	4
	Total	(na)	638	396	244
Total			3,177	2,534	244

5.4 Development of PV Measure Data

The key measure data required to estimate technical potential are summarized in Table 5-3 and described in more detail below.

Table 5-3: Summary of Key Measure Data for PV Technical Potential

Data Type	Units
Measure Saturation	% of floor space with measure installed
Measure Feasibility	% of eligible roof space where measure is technically and practically feasible
Measure Size	The nominal, rated size of the quantity of PV that the baseline areas could practically accommodate (kW/ft^2)
Measure Impacts	After accounting for weather, the annual electricity generation (kWh/kW) and coincident peak electricity generation (kW/kW)

5.4.1 Measure Saturation - PV

Measure saturation refers to the portion of baseline area already equipped with PV and therefore excluded from estimates of the technical potential for installation of additional PV. Current saturation levels for PV are so low that for purposes of this study they are considered negligible. As quantities of installed PV increase in the future, this parameter will become more important for PV potential analyses.

5.4.2 Measure Feasibility - PV

It is not technically and practically feasible to install PV on all the eligible roof space and parking lot area discussed in the previous section. Factors such as shading, obstructions, and orientation preclude installation of PV on a portion of the baseline area. Measure feasibility diminution factors for residential, commercial, and parking lot PV are discussed below.

Residential: Roof design features and shading from objects (e.g., trees) other than the roof may interfere with siting of residential PV. Roof orientation is another factor influencing PV siting and performance. For example, for homes situated on an east-west axis, the portion of the roof facing north is not well suited for PV. The following assumptions were used to estimate total usable residential roof area available for siting PV systems.

- Homes are oriented randomly on four axes: E-W, N-S, NW-SE, NE-SW,
- Homes oriented on E-W, NW-SE, NE-SW axes are candidates for PV only on roof surface with a south-facing component and not on roof surface with a north-facing component,
- Homes oriented a N-S axis are candidates for PV on both east-facing and west-facing roof surfaces,
- Roof slopes are 20 degrees,

- Roof design features eliminate one-third of roof area (e.g., skylights, chimneys, vents),
- Shading from objects (e.g., trees, other buildings) other than the roof eliminate 15 percent of otherwise usable roof area, and
- Other factors (e.g., structural limitations) eliminate 10 percent of the remaining, otherwise usable total roof area.

The shading factor accounts for effects of shading caused by buildings and other obstructions that cannot be removed. This factor does not include effects of existing trees that could be trimmed or replaced with trees that shade windows and walls instead of the roof surface.

Commercial Buildings: Roof features (e.g., vents, skylights, pipe, duct, HVAC equipment, skirting) commonly found on commercial buildings may interfere with PV siting. The following assumptions were used to estimate total usable commercial roof area available for siting of PV systems.

- Roofs are flat (PV array is flat-mounted so array tilt is 0 degrees)
- Roof features eliminate one-third of roof area
- Shading from objects (e.g., trees, other buildings) other than the roof eliminate 15 percent of remaining, otherwise usable total roof area
- Other factors (e.g., structural limitations) eliminate 10 percent of the remaining, otherwise usable total roof area.

Commercial Parking Lots: For this analysis it was assumed that one-half of off-street parking spots could have structures built over them that could be topped with flat-mounted PV systems. These structures also would serve to shade parked vehicles. An allowance of 20 percent of the resulting area was excluded to allow for required electrical equipment and access to the arrays, so the net parking area percentage was 40 percent.

Table 5-4 summarizes the final measure feasibility factors developed for this study for residential and commercial roof space.

Table 5-4: Summary of Measure Feasibility Factors

Sector	Net Feasible Space	
	Net Roof Area (%)	Net Parking Area (%)
Residential	26%	(na)
Commercial	41%	40%

5.4.3 Measure Size - PV

For the PV technical potential analysis PV measure size is an important intermediary result because it describes the amount of physical hardware corresponding to the annual energy generation and peak generation results. Later, for the economic and achievable potential analyses, this quantity serves as the basis of PV system cost estimates. The translation of total square feet of usable roof area into PV system capacity entailed two steps.

First, the total DC Standard Test Conditions (STC) module capacity that could be placed on the usable roof area was estimated.[22] Review of manufacturers' product data suggests that crystalline silicon modules typically produce approximately 12 Watts DC (STC) per square foot of module area. It was assumed that every square foot of usable roof area could be covered with a square foot of PV module since the usable area already accounted for area unavailable due to space needed for wiring raceways, access to roof, etc. Total DC (STC) module capacity was thus calculated as the product of the total usable roof area and this per-unit-area module capacity value.

Second, the impacts of DC to AC conversion losses and actual operating temperatures were taken into account. As a first-order approximation, an adjustment factor equal to 94 percent can be used for DC-to-AC conversion efficiency, and an adjustment factor equal to 90 percent for conversion from STC to PV USA Test Conditions (PTC).[23] Consequently, the estimate of measure size is equal to the product of DC (STC) module capacity and 0.85. In the discussions that follow, PV system capacity values conforming to this basis are referred

[22] STC refers to Standard Test Conditions commonly utilized by manufacturers of PV cells and modules. STC comprises 1,000 W/m^2 irradiance and cell temperature equal to 25˚C. When actually operating in the field, cell temperatures coincident with 1,000 W/m^2 irradiance levels often exceed 25˚C, which may result in observed power output falling short of manufacturer nameplate ratings.

[23] PTC refers to one commonly-used weather basis for PV system size ratings. Developed by the Photovoltaics for Utility Scale Applications (PVUSA) national public-private partnership, PVUSA Test Conditions (PTC) weather comprises 1,000 W/m^2 plane-of-array irradiance, 20˚C ambient temperature, and wind speed equal to 1 m/s. Cell temperatures coincident with PTC weather conditions vary from system to system depending on a variety of factors and can be estimated using experimental or theoretical methods.

to as "nominal" system sizes and are denoted symbolically as "kW_n".[24] Table 5-5 lists the total potential installed capacities by sector in units of nominal Megawatts.

Table 5-5: Summary of Installed Capacities

Sector	Installed Capacity (MW)
Residential	604
Commercial	818

5.4.4 Measure Impacts - PV

The preceding section examined the physical quantity of PV that could be installed in terms of kW_n. While this is an important measure of technical potential, ultimately what is of greatest concern is the ability of that hardware to actually generate electricity. Estimation of annual generation and coincident peak generation was accomplished by first producing hourly models of PV performance and then using these data to develop information about measure impacts.

Hourly PV System Generation Profiles

To account for actual performance, typical meteorological year (TMY) weather data were used in combination with a standard solar radiation model (Duffie & Beckman, 1991) to calculate hourly estimates of plane-of-array solar radiation. The U.S. Department of Energy's National Renewable Energy Laboratory has sponsored development of a National Solar Radiation Database. This database has been used to create "TMY2" weather data as hourly, typical-year weather data files for 239 locations throughout the United States. While seven of these locations are in Florida, typical meteorological year ambient temperature and solar radiation data for Tampa were used in this analysis. Tampa was chosen as it was centrally located and its annual average solar resource is within 6 percent of the solar resources corresponding to the other six locations of Daytona Beach, Key West, Miami, West Palm Beach, Jacksonville, and Tallahassee. Beam and diffuse solar radiation data were used in calculations of plane-of-array solar radiation, while ambient temperature was used in the calculation of PV system performance adjustment factors.

[24] The PV system size basis defined here is consistent with approaches taken by administrators of large PV programs in the United States and therefore facilitates seamless utilization of PV system cost and performance data from secondary sources. It is important to note, however, that other bases are also in use (e.g., the basis of PV system size values entered into the popular online PV performance tool *PVWatts* is different). Care must be taken when comparing certain PV system performance parameters (e.g., annual energy production per unit of PV system capacity) if they are based on different system size bases.

Results of the solar geometry calculations were adjusted to incorporate angle-of-incidence effects that influence photovoltaic system performance. PV module power output may be sensitive not only to geometric "cosine" effects[25] that influence the intensity of beam radiation striking the module surface, but also to other angle of incidence (AOI) effects related to reflectivity or other factors. Sandia National Laboratories has studied these other angle of incidence effects and published results in terms of an AOI factor that summarizes the influence of angle of incidence on PV power output. Data presented in that Sandia report (King, 2002) were used to fit a curve relating AOI factor to angle of incidence, where the angle of incidence is the angle between the beam radiation on a surface and the normal to that surface. The result is depicted graphically in Figure 5-1.

Figure 5-1: Angle of Incidence Factor

[25] The term 'geometric cosine effect' refers to a relationship between the intensity of beam radiation striking PV modules (and hence their power output) and the angle between that beam radiation and a line perpendicular to the PV module surface (i.e., angle of incidence). As the incidence angle increases above zero degrees (where the cosine is equal to 1), the intensity of beam radiation varies as the cosine of the angle of incidence.

Adjusted plane-of-array solar radiation results were used in PV module temperature and PV system power output calculations. The AOI factor from Figure 5-1 was applied to the beam component of solar radiation only.

The estimate of total effective solar radiation on the tilted plane of the array was calculated as:

$$I_e = \left(I_b \times AOI + I_d + I_r\right)$$

where:

I_e = Total effective solar radiation on the tilted plane of the array
I_b = Beam solar radiation on the tilted plane of the array
AOI = Angle-of-Incidence Factor
I_d = Diffuse solar radiation on the tilted plane of the array
I_r = Reflected solar radiation on the tilted plane of the array

Next, for each hour, an initial estimate of power output was calculated for a PV system sized to produce 1.0 kW under PTC conditions. The initial estimate of power output accounted for the actual, effective solar radiation during the hour, but did not account for temperature effects. The initial estimate of power output was calculated as:

$$PV_i = \frac{I_e}{I_{PTC}} \times kW_n \times LOSS$$

where:

PV_i = Initial estimate of PV system power output
I_{PTC} = Total solar radiation on the tilted plane of the array for PTC conditions (i.e., 1,000 W/m^2)
kW_n = One nominal unit of system capacity (kW)
$LOSS$ = Dimensionless loss factor (0.92) used to account for the combined effects of initial light-induced degradation, d.c. cabling, diodes and connections, mismatch, transformers, a.c. wiring, and soiling.

The actual module temperature for each hour was estimated by adjusting from the PTC module temperature depending on ambient temperature and plane-of-array solar radiation, based on the following assumptions:

- Power is produced only when solar radiation exceeds 30 W/m2,

- Module temperature is 48.5°C at PTC conditions (i.e., 20°C ambient, 1,000 W/m^2),
- A drop from 1,000 to 900 W/m^2 yields a drop in module temperature of 3.4°C,
- An increase in ambient temperature from 20°C to 37.8°C yields an increase in module temperature of 20.2°C,
- PV module temperature is never less than ambient temperature,
- 1°C increase in crystalline module temperature yields a 0.5 percent power output decrease, and

The final estimate of PV system power output was calculated as:

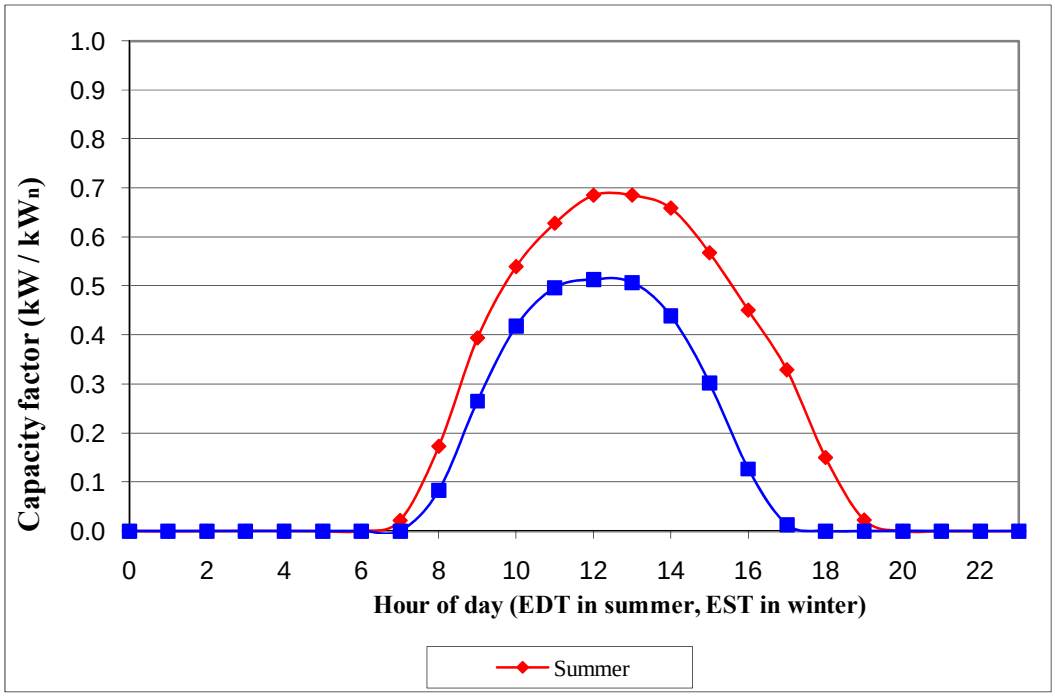
$$PV = PV_i \times (1 + TEMP)$$

Where:

PV = Final estimate of PV system power output
$TEMP$ = Power output factor accounting for module temperature effects

Representative results of the hourly PV system performance modeling are illustrated in Figure 5-2. The basis for these capacity factors is estimated kWh per kW_n. The values plotted are hourly average commercial PV system capacity factors for summer (June-August) and winter (December-February). PV system performance coincident with summer and winter electric system peak conditions is discussed in the next section.

Figure 5-2: Average Hourly Capacity Factors on Summer and Winter Days



Summer and Winter Peak Generation

Winter system peak in the FEECA utilities generally occurs in the morning (8-9am EST). This type of peak typically reflects high electric resistance heating load caused by low ambient temperature. While ambient temperature does affect PV system power output to some extent, solar radiation is much more influential. The magnitude of PV system peak impacts depends on sky conditions on the types of cold mornings likely to coincide with the electric system peak. Ambient temperatures could be very low in part due to clear skies. However, it could also be the case that stormy (i.e., cloudy) conditions are responsible for very low ambient conditions. The cause of the low ambient temperatures will have a direct bearing on PV system performance coincident with the winter peak.

To better understand the weather conditions typically coincident with winter peak, TMY2 weather data were reviewed. During the winter months of December through February, ambient temperatures during the hour from 8-9am EST ranged from 36-74˚F. These ambient temperature data are summarized in Table 5-6 along with global horizontal solar radiation data.

Table 5-6: Summary of Typical Weather During Winter: 8-9am (n=90)

Summary Statistic	Ambient Temperature (˚F)	Global Horizontal Radiation[26] (W/m^2)	Direct Normal Radiation[27] (W/m^2)
Range	36.0 – 73.9	47 - 248	0 - 740
Average	57.8	142	292

The data in the table summarize wintertime weather during the hour from 8-9am. To estimate technical potential it is necessary to examine solar radiation data on the very coldest days when heating loads are highest. Data for those days, presented in Table 5-7, show us that on the coldest mornings it is common for the weather to be sunnier than average. Given the variability exhibited by these data, for purposes of estimating technical potential at 8-9am on a winter peak-like day a solar resource of 151 W/m^2 global horizontal radiation (GHR) and 443 W/m^2 direct normal radiation (DNR) is deemed both reasonable and somewhat conservative. These factors along with an assumed ambient temperature of 39.9˚F were used as inputs into Itron's model of overall PV system performance for arrays mounted at various tilts and facing in various directions known as azimuths.

Table 5-7: Typical Weather on Winter Peak-like Days: 8-9am

Ambient Temperature (˚F)	Global Horizontal Radiation (W/m^2)	Direct Normal Radiation (W/m^2)
36.0	188	686
37.0	217	652
39.0	190	668
39.9	151	443
41.0	147	106

Hourly PV generation profile data for winter peak weather conditions at 8-9am estimated from Itron's PV performance model are listed in Table 5-8. The results for tilted (i.e., residential) systems exhibit variability depending on the direction the PV system is facing. The output of the tilted residential systems facing SE towards the rising sun is greatest (0.18), while no output is anticipated at this early morning hour for PV systems facing west away

[26] Global horizontal radiation is the total amount of direct and diffuse solar radiation incident on a horizontal surface.

[27] Direct normal radiation is the amount of solar radiation received within a 5.7˚ field of view centered on the sun.

from the sun at that hour of day. The output of the commercial systems is very low as the sun is still low in the eastern sky and there is very little direct normal radiation on a flat-mounted array.

Table 5-8: Normalized PV System Performance – Winter Peak Hour

Azimuth	Tilt	Winter Peak Factor (kW/kW_n)
(na)	0	0.08
East	20	0.17
SE	20	0.18
S	20	0.13
SW	20	0.05
W	20	0.00

Winter peak factors for the flat-mounted commercial and tilted residential sectors are presented in Table 5-9. The value for the residential sector is an average of the PV performance results for the tilted PV systems at the five different azimuths. The value for the commercial sector is based solely on the PV performance results for horizontal PV systems. Winter peak technical potential for PV is calculated as the product of these factors and the estimates of total installed PV capacity.

Table 5-9: Winter Peak Generation Factors for PV

Sector	Winter Peak Factor (kW/kW_n)
Commercial	0.08
Residential	0.11

In summer the electric system peak generally occurs in the afternoon (3-4pm EDT). This type of peak typically reflects high air conditioning load caused by a combination of high ambient temperature, high humidity, and high solar radiation. The magnitude of PV system peak impacts depends on the types of hot afternoons likely to coincide with a summer peak. To help better understand the weather conditions typically coincident with summer peak, TMY2 weather data were reviewed. During the summer months of June through August ambient temperatures during the hour from 3-4pm EDT ranged from 73-96˚F. These ambient temperature data are summarized in Table 5-10 along with relative humidity and solar radiation data.

Table 5-10: Summary of Typical Weather During Summer: 3-4pm EDT (n=92)

Summary Statistic	Ambient Temperature (˚F)	Relative Humidity (%)	Global Horizontal Radiation (W/m^2)	Direct Normal Radiation (W/m^2)
Range	73.0 – 96.1	35 - 90	191 - 856	0 - 844
Average	88.1	60	623	356

The data in the table summarize summertime weather during the hour from 3-4pm. To estimate technical potential it is necessary to examine solar radiation data on the days corresponding to the highest cooling loads. Data for those days, presented in Table 5-11, show us that on the hottest days it is common for the DNR values to reflect presence of some degree of cloud cover. Given the variability exhibited by these data, for purposes of estimating technical potential a solar resource of 716 W/m^2 GHR and 343 W/m^2 DNR is deemed both reasonable and somewhat conservative. These factors along with an assumed ambient temperature of 96.1˚F were used as inputs into Itron's model of overall PV system performance for arrays mounted at various tilts and various azimuths.

Table 5-11: Typical Weather on Summer Peak-like Days: 3-4pm EDT

Ambient Temperature (˚F)	Relative Humidity (%)	Global Horizontal Radiation (W/m^2)	Direct Normal Radiation (W/m^2)
96.1	45	716	343
93.9	49	599	156
93.6	55	596	195
93.6	50	807	623
93.0	54	729	483

Hourly PV generation profile data for summer peak weather conditions at 3-4pm estimated from Itron's PV performance model are listed in Table 5-12. The results for tilted (i.e., residential) systems exhibit variability depending on the azimuth. The output of residential systems facing W is greatest (0.66) as the sun is in the western sky at that hour of day.

Table 5-12: Normalized PV System Performance – Summer Peak Hour

Azimuth	Tilt (Degrees)	Summer Peak Factor (kW/kW_n)
(na)	0	0.63
East	20	0.54
SE	20	0.56
S	20	0.61
SW	20	0.65
West	20	0.66

Summer peak factors for the commercial and residential sectors are presented in Table 5-13. The value for the residential sector is an average of the PV performance results for the tilted PV systems at the five different azimuths. The value for the commercial sector is based solely on the PV performance results for horizontal PV systems. Summer peak technical potential for PV is calculated as the product of these factors and the estimates of total installed PV capacity.

Table 5-13: Summer Peak Generation Factors for PV

Sector	Summer Peak Factor (kW/kW_n)
Commercial	0.63
Residential	0.60

Annual Energy Generation

The PV generation profiles underlying the assessment of coincident winter and summer peak generation are also used for assessment of annual energy generation. Simply summing the hourly values for the several configurations considered yields the annual energy generation results presented in Table 5-14.

Table 5-14: Normalized PV System Performance – Annual Generation

Azimuth	Tilt	Annual Generation Factor (kWh/Year/kW_n)	Annual Generation Capacity Factor (%)
(na)	0	1,622	19
East	20	1,555	18
SE	20	1,680	19
S	20	1,726	20
SW	20	1,656	19
W	20	1,521	17

Annual energy generation capacity factors for the commercial and residential sectors are presented in Table 5-15. The value for the commercial sector is based solely on the PV performance results for horizontal PV systems. Annual energy generation technical potential for PV is calculated as the product of these factors and the estimates of total installed PV capacity.

Table 5-15: Annual Energy Generation Factors for PV

Sector	Annual Generation Capacity Factor (%)
Commercial	19
Residential	19

5.5 Annual Energy and Coincident Peak Generation Results

In this section we provide the aggregate results of the PV technical potential analysis for PEF, highlight key results, and discuss key uncertainties in the analysis.

Table 5-16 summarizes annual energy and summer and winter peak hour demand impacts by sector and building type and benchmarks these impacts relative to current baseline energy consumption and peak demand in PEF. As the table shows, the total estimated technical potential of the PV systems considered in this study is 13,591 GWh of annual electricity generation, 5,000 MW of summer system peak capacity, and 819 MW of winter system peak capacity. Over 65% of total electricity generation and system peak capacity is derived from residential rooftop PV systems, 77% of which are from rooftop systems on single-family residential homes. Relative to current baseline electricity consumption and system coincident peak demand in the residential and commercial sectors of PEF, the total estimated technical

potential for PV is equivalent to 42% of annual electricity consumption, 77% of summer system peak demand (assuming hour 3-4pm EDT), and 13% of winter system peak demand (assuming hour 8-9am EST).

These estimates of PV technical potential results represent a substantial portion of current electrical energy consumption and peak demand in PEF. Due to the nature of this type of study, however, the results are subject to uncertainty and are sensitive to certain key assumptions. In this study, one of most significant assumptions is that the PV arrays eligible to be installed on residential and commercial rooftop and commercial parking lot shading structures are based on crystalline PV material. As discussed earlier in Section 5.1, the results would have been significantly lower if amorphous silicon PV material had been assumed. Specification of 100% crystalline PV is consistent with the definition of technical potential first outlined in Section 3.1 of this report, i.e. a theoretical upper bound of the potential PV resource. Another key sensitivity and source of uncertainty in this analysis is the timing of summer and winter system peak demand. PV power production is particularly dynamic during the times of system peak in Florida. Depending on the exact hour of future system peak demand, the level of potential PV generation could vary significantly. The winter system peak illustrates this point particularly well. During the hour from 8-9am, the sun is very low in the sky and PV systems tilted to the east are likely to not contribute any generation at the time of peak. If for some reason the winter peak occurred an hour earlier the historic winter peak, generation might be 100% less than the results of this study indicate. Summertime peak generation is subject to similar sensitivities. During the period during which summer peaks are likely to occur, the position of the sun in the sky is changing quite rapidly. If the summer peak occurred one hour later from 4-5pm, the peak generation would be approximately 15-20% less.

Table 5-16: Summary of PV Technical Potential Results by Sector and Building Type[28]

Sector:	Building Type:	Annual Energy			Summer System Peak			Winter System Peak		
		Baseline	Technical Potential		Baseline	Technical Potential		Baseline	Technical Potential	
		(GWh)	(GWh)	*(%)*	(MW)	(MW)	*(%)*	(MW)	(MW)	*(%)*
Residential	Single-family	14,353	7,071	49%	3,263	2,566	79%	3,622	467	13%
	Multi-family	4,208	1,402	33%	926	509	55%	976	93	9%
	Mobile Homes	2,085	742	36%	510	269	53%	577	49	8%
	Total	20,645	9,214	45%	4,698	3,344	71%	5,175	609	12%
Commercial	College	912	443	49%	467	168	36%	310	21	7%
	School	641	310	48%	314	117	37%	143	15	10%
	Hospital	354	67	19%	223	26	11%	96	3	3%
	Other Health	484	103	21%	152	39	26%	103	5	5%
	Lodging	1,251	527	42%	85	199	234%	86	25	29%
	Restaurant	2,119	318	15%	128	120	94%	87	15	18%
	Grocery	1,161	123	11%	47	46	98%	34	6	18%
	Retail	1,281	504	39%	97	191	197%	76	24	32%
	Warehouse	513	749	146%	66	283	430%	78	36	46%
	Office	2,699	1,166	43%	162	441	272%	117	56	48%
	Other	130	68	52%	16	26	161%	36	3	9%
	Total	11,544	4,377	38%	1,757	1,657	94%	1,166	210	18%
Total		**32,189**	**13,591**	**42%**	**6,455**	**5,000**	**77%**	**6,341**	**819**	**13%**

[28] The results shown in this table are highly sensitive to two key assumptions: 1) the assumption of 100% crystalline PV material systems and 2) the assumed timing of both winter and summer system peaks. If amorphous silicon PV systems were assumed to have a significant market share, the technical potential estimates would be lower. If actual summer or winter peak occur an hour earlier or later than assumed for purposes of this study, the system coincident peak capacity estimates would vary according to the generation profiles shown in Figure 5-2. In this respect, caution is required when applying the system peak capacity results shown above in other contexts (e.g., utility-specific seasonal peaks, feeder-level seasonal peaks).

In addition to these key sensitivities, it should also be noted care should be taken in using PV winter and summer peak factors in assessing the value of PV to address peak demand. As indicated earlier, timing of system peak influences the ability of PV systems to address overall system peak. Studies on the California electricity system have indicated that PV may have a significant influence in addressing peak demand at distribution feeders. Hourly distribution feeder load is dependent on a number of factors including makeup of the electricity customers served by the distribution system. In distribution feeders where peak loading typically occurs in the early afternoon, PV systems can have a greater impact on "unloading" of the distribution feeder. In addition, because the total loading of a distribution feeder is significantly lower than the entire utility system load, emerging technologies such as PV can show a relatively greater absolute impact than if assessed at the overall system level.

Similarly, PV technical potential should be evaluated in light of the locational aspects of the distribution system. Not all distribution feeders have the same hourly loading. In some instances, locating high concentration of PV generation (e.g., commensurate with new home developments employing PV systems) may have an adverse affect if the local distribution feeder has peak loading in the late afternoon. Conversely, high concentrations of PV in urban centers served by distribution feeders that exhibit high mid-morning or early afternoon peak loading may demonstrate high distribution system benefits. Generally, some degree of power flow modeling is needed to identify how best to address the locational aspects of distributed generation resources such as PV systems.

Finally, it is worth re-emphasizing that the percent savings estimates presented in Table 5-16 above are relative to current baseline energy consumption and peak demand. As such, these percent savings estimates of PV technical potential are not strictly additive with the percent savings results from the EE and DR technical potential analyses presented earlier. Changes to total electrical energy consumption and peak demand due to EE and DR impacts would change the basis against which PV potential savings are normalized.

6

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Appendix A

Energy Efficiency Measure Descriptions

A.1 Residential Measures

This subsection provides brief descriptions of the residential measures included in this study.

A.1.1 HVAC equipment

Central Air Conditioner and Heat Pumps Upgrades: Air conditioner and heat pump equipment include a compressor, an air-cooled or evaporatively-cooled condenser (located outdoors), an expansion valve, and an evaporator coil (located in the supply air duct near the supply fan). Cooling efficiencies vary based on the quality of the materials used, the size of equipment, the condenser type, and the configuration of the system. Central air conditioners and heat pumps may be of the unitary variety (all components housed in a factory-built assembly) or be a split system (an outdoor condenser section and an indoor evaporator section connected by refrigerant lines and with the compressor at either the outdoor or indoor location). Efficient air conditioner and heat pump measures involve the upgrade of a standard efficiency unit (13 SEER) to a higher efficiency unit (15, 17, or 19 SEER). Note that upgrading from central air conditioners with electric resistance space heating to efficient central heat pumps provides additional heating savings that result from an increase in the coefficient of performance from one to over three in mild heating conditions.

Advanced Geothermal Heat Pumps (water-source, closed loop): In contrast to more typical air-source heat pumps that transfers heat to and from the indoors and outside air, water-source geothermal heat pumps transfer heat to and from the indoors and groundwater or another nearby water source. The constant temperature of groundwater compared to outside air allows water-source heat pump systems to reach higher average efficiencies across a wider range of ambient conditions compared to air-source heat pumps. The advanced geothermal heat pump measure in this study assumes overall performance equivalent to 13 EER (roughly equivalent to 17 SEER).

High Efficiency Room Air Conditioner: Window (or wall) mounted room air conditioners are designed to cool individual rooms or spaces. This type of unit incorporates a complete air-cooled refrigeration and air-handling system in an individual package. Cooled air is discharged in response to thermostatic control to meet room requirements. Each unit has a

self-contained, air-cooled direct expansion (DX) cooling system and associated controls. The efficient room air conditioner measure involves the upgrade of a standard efficiency unit (9 EER) to a higher efficiency unit (11 or 12 EER).

Proper Refrigerant Charging and Air Flow: This measure involves diagnostic and repair services for existing central air conditioners to improve their operating efficiency. Inspection and services of AC systems involves checking the refrigerant level, cleaning the blower, cleaning or replacing filters, and making sure air is flowing properly through the system.

Outdoor AC Coil Cleaning: This measure is another type of maintenance service measure for existing central air conditioners or heat pumps to improve their operating efficiency. Cleaning the outdoor condenser coils to remove build up improves airflow around the coils and therefore heat transfer rates.

Indoor AC Coil Cleaning: This measure is another type of maintenance service measure for existing central air conditioners or heat pumps to improve their operating efficiency. Similar to cleaning outdoor condenser coils, cleaning the indoor evaporator coils to remove build up improves airflow around the coils and therefore heat transfer rates. However, indoor coils tend to be less accessible compared to outdoor coils.

Duct Repair: An ideal duct system would be free of leaks, especially when the ducts are outside the conditioned space. Leakage in unsealed ducts varies considerably with the fabricating machinery used, the methods for assembly, installation workmanship, and age of the ductwork. To seal ducts, a wide variety of sealing methods and products exist. Care should be taken to tape or otherwise seal all joints to minimize leakage in all duct systems and the sealing material should have a projected life of 20 to 30 years. Current duct sealing methods include use of computer-controlled aerosol and pre- and post-sealing duct pressurization testing.

HVAC proper sizing: Optimum air conditioning performance is achieved when air conditioners or heat pumps are ran continuously. Oversized air conditioners will tend to cycle, rather than run continuously, during both typical and peak cooling periods. This more frequent cycling reduces overall operating efficiency and also results in more variable indoor humidity levels. Oversizing of air conditioners occurs at the time of purchase when equipment is selected and often reflects contractor incentives to mask future problems from duct leaks, improper flow across the coils, and improper charge.

Electronically Commutated Motors (ECM) on Air Handlers: Air handler models with the lowest electrical use ratings employ ECMs. ECMs, also known as brushless DC motors or variable speed blower motors, have two principal advantages over the typical permanent

magnet split capacitor (PSC) blower motors found in the majority of air handlers. First, ECMs are claimed to be 20% to 30% more efficient than standard blower motors. Second, the typical ECM blower can produce a much wider range of airflow than a PSC blower, which typically has only three or four set speeds over a narrow range. Because power consumption by an air handler rises with the cube of airflow, the ability to reduce airflow when appropriate can dramatically reduce the electrical power draw by the air handler.

A.1.2 Building envelope

Reflective Roofs: Light-colored roof materials with high reflectivity, a.k.a. reflective roofs, have been shown to significantly reduce heat gain into attic spaces (where residential duct systems are commonly located) compared to more typical dark-colored roof materials. Reductions in attic heat gain reduce radiative losses in the duct system and in turn result in significant reductions in cooling loads. Reflective roofs are typically constructed of white or light-colored tile or metal.

Radiant Barriers: This measure consists of a layer of aluminum foil fastened to roof decking or roof trusses to block radiant heat transfer between the hot roof surface and the attic below. As with reflective roofs, the resulting reductions in attic heat gain reduce radiative losses in the duct system and in turn result in reductions in cooling loads.

Sealed Attics: This measure is another strategy to reduce attic heat gain. In this approach, the attic space is completely sealed using spray foam insulation applied to the underside of the roof decking. This approach not only seals the attic space but also insulates the attic space at the roof decking rather than at ceiling surface. This effectively brings the duct system into the conditioned space of the house, resulting in reduced attic temperatures and reduced radiative losses in the duct system, as well as reduced humidity and infiltration.

Window Film: This measure involves application of a dark-colored film to the existing windows of a home. The film lowers the shading coefficient of a window, reducing the amount of solar heat gain of a building, and thus decreasing the cooling load for that building.

Window Tinting: This measure involves increasing the shading coefficient of new windows through the use of tinted glass instead of clear glass. Window tints are typically achieved through a thin application of bronze on the clear glass surface at the time of manufacturing.

Default Window with Sunscreen: This measure prevents direct sunlight on window surfaces, reducing solar gain and consequent cooling requirements.

Single Pane, Clear Windows to Double Pane, Low-E Windows: Windows affect building energy use through conductive heat transfer (U-value), solar heat gain coefficients (SHGC), daylighting (visible light transmittance), and air leakage. The performance of a window is determined by the type of glass, the number of panes, the solar transmittance, the thickness of, and the gas type used in the gap between panes (for multi-pane windows). Low-emittance or "low-e" windows feature a thin coating that is highly reflective of long wavelength radiation (room temperature heat) and thus reduce wintertime heating requirements. Newer low-e coatings also filter incoming light to block infrared portions of the spectrum and reduce summertime air conditioning requirements. For this study, standard single pane clear windows are specified as having U-value=1.20 and SHGC=0.76. As defined by the Energy Star program, low-e windows most appropriate for hot climates are specified as having U-value=0.65 and SHGC=0.4.

Ceiling Insulation: Thermal insulation is material or combinations of materials that are used to inhibit the flow of heat energy by conductive, convective, and radiative transfer modes. By inhibiting the flow of heat energy, thermal insulation can conserve energy by reducing heat loss or gain of a structure. An important characteristic of insulating materials is the thermal resistivity, or R-value. The R-value of a material is the reciprocal of the time rate of heat flow through a unit of this material in a direction perpendicular to two areas of different temperatures. In this study, we specify two efficiency measures involving ceiling insulation: adding R-19 insulation to un-insulated ceilings, and retrofitting R-19 insulated ceilings to R-38.

Wall Insulation: For existing construction, this measure involves adding R-13 insulation to un-insulated walls. This is usually accomplished by drilling holes into the building's siding and blowing in insulation material.

Weatherization: Weatherization measures include weather stripping and caulking. These measures reduce energy consumption by improving the tightness of the building shell and limiting heat gain and loss. Home installation of these measures is usually most effective at fixing easily found leaks. Professional installation of these measures sometimes includes use of blower doors and is usually much more effective than home installation methods. Measure costs for this study reflect professional weatherization.

A.1.3 Lighting equipment

Compact Fluorescent Lighting (CFLs): Compact fluorescent lamps are designed to replace standard incandescent lamps. They are approximately four times more efficient than incandescent light sources. Screw-in modular lamps have reusable ballasts that typically last the life of four lamps.

Super T-8 Lamps with Electronic Ballast: T-8 lamps are a smaller diameter fluorescent lamp than T-12 lamps. When paired with specially designed electronic ballasts, T-8 lamps provide more lumens per watt, resulting in energy savings. Electronic ballasts replace the standard core and coil technology in magnetic ballasts with solid-state components. This technology allows for more consistent control over ballast output and converts power to higher frequencies, causing the fluorescent lamps to operate more efficiently. For existing first generation T-8 systems, this measure is specified as an upgrade to efficiency levels associated with optimal Super T-8 lamp-ballast combinations on a replace-on-burnout basis.

Photocell/timeclock controls: Photocells can be used to automatically control outdoor lamps according daylight levels. When lights do not need to be on all night, a photocell in series with a time clock provides maximum savings and eliminates the need for manual operation and seasonal time clock adjustments.

A.1.4 Water heating equipment

High Efficiency Water Heater: Higher efficiency water heater have greater insulation to reduce standby heat loss. For this study, efficiency of the base unit (measured as the Energy Factor) is specified as 0.92, whereas the efficiency of the high efficiency electric water heater is specified as 0.93.

Heat Pump Water Heater: Air-to-water heat pump water heaters extract low-grade heat from the air then transfer this heat to the water by means of an immersion coil. This is the most commonly utilized residential heat pump water heater. The air-to-water heat pump unit includes a compressor, air-to-refrigerant evaporator coil, evaporator fan, water circulating pump, refrigerant-to-water condenser coil, expansion valve, and controls. Residential heat pump water heaters replace base electric units with the same tank capacities. For this study, efficiency of the base unit (measured as the Energy Factor) is specified as 0.92, whereas the efficiency of the heat pump water heater is specified as 2.9.

Solar Water Heater: This measure is a heat transfer technology that uses the sun's energy to warm water. Solar water heaters preheat water supplied to a conventional domestic hot water heating system. The energy savings for the system depend on solar radiation, air temperatures, water temperatures at the site, and the hot water use pattern. For this study, solar faction (i.e. fraction of water heating load met by the solar water heater) is specified as 70%.

AC Heat Recovery Units: This measure is another heat transfer strategy that uses the heat rejected during the refrigerant cycle on air conditioning units to heat water in hot water tanks.

Water Heater Blanket (Tank Wrap): Much of water heater efficiency is related to the amount of insulation surrounding the tank. For low-efficiency units, placing an additional layer of insulation around the tank saves energy by reducing the amount of heat loss due to inadequate insulation.

Low-Flow Showerhead: Many households are still equipped with showerheads using 3+ gallons per minute. Low flow showerheads can significantly reduce water heating energy for a nominal cost. Typical low-flow showerheads use 1.0-2.5 gallons per minute compared to conventional flow rate of 3.5-6.0 gallons per minute. The reduction in shower water use can substantially lower water heating energy use since showering accounts for about one-fourth of total domestic hot water energy use.

Pipe Wrap: Thermal insulation is material or combinations of materials that are used to inhibit the flow of heat energy by conductive, convective, and radiative transfer modes. By inhibiting the flow of heat energy, thermal insulation can conserve energy by reducing heat loss or gain.

Faucet Aerators: Water faucet aerators are threaded screens that attach to existing faucets. They reduce the volume of water coming out of faucets while introducing air into the water stream. A standard non-conserving faucet aerator has a typical flow rate of 3-5 gallons per minute. A water-saving aerator can reduce the flow to 1-2 gallons per minute. The reduction in the flow rate will lower hot water use and save energy (kitchen and bathroom sinks utilize approximately 7 percent of total domestic hot water energy use).

Heat Trap: Heat traps are valves or loops of pipe, which allow water to flow into the water heater tank but prevent unwanted hot-water flow out of the tank that would otherwise occur due to convection.

A.1.5 Pool pump equipment

High Efficiency Pool Pump and Motor: This measure involves the replacement of a standard-efficiency motor and low volume pump with a smaller high-efficiency motor and a new high-volume pump.

Two Speed Pool Pump: Two speed pool pumps saves energy by reducing the energy used during ongoing pool filtering operation.

Variable-Speed Pool Pump: This measure saves energy much in the same way as two-speed pool pumps, with the exception that variable-speed pumps are able to further optimize pump operation and pool water flows to match the specific needs and requirements of individual owners.

A.1.6 Appliances

Energy Star Refrigerator: ENERGY STAR® refrigerators must exceed the July 1, 2001 minimum federal standards for refrigerator energy consumption by at least 20 percent. An energy efficient refrigerator/freezer is designed by improving the various components of the cabinet and refrigeration system. These component improvements include cabinet insulation, compressor efficiency, evaporator fan efficiency, defrost controls, mullion heaters, oversized condenser coils, and improved door seals.

Energy Star Freezer: Stand-alone freezers include either upright or chest models. ENERGY STAR® freezers should exceed minimum federal standards for freezer energy consumption by 10 percent or more.

Energy Star Dishwasher: ENERGY STAR® labeled dishwashers must exceed minimum federal standards for dishwasher energy consumption by at least 25 percent. Efficient dishwashers save by using both improved technology for the primary wash cycle, and by using less hot water to clean. They include more effective washing action, energy efficient motors and other advanced technology such as sensors that determine the length of the wash cycle and the temperature of the water necessary to clean the dishes. For this study, efficiency of the base unit (measured as the Energy Factor) is specified as 0.46, whereas the efficiency of the ENERGY STAR® unit is specified as 0.65.

Energy Star Clothes Washer: A standard clothes washer uses various temperatures, water levels, and cycle durations to wash clothes depending on the clothing type and size of the laundry load. A high-efficiency vertical-axis clothes washer, which eliminates the warm rinse option and utilizes a spray technology to rinse clothes, can significantly reduce washer-related energy. Such machines also utilize a spin cycle that eliminates more water from the clothes than conventional clothes washers and are generally driven by more efficient motors. A horizontal axis clothes washer utilizes a cylinder that rotates horizontally to wash, rinse, and spin the clothes. These types of washing machines can be top loading or front loading, and utilize significantly less water (hot and cold) than the standard vertical axis machines. A vertical axis machine generally fills the tub until all of the clothes are immersed in water. In contrast, the horizontal axis machine only requires about one third of the tub to be full, since the rotation of the drum around its axis forces the clothes into the water and thus can drastically reduce the total energy use for washing. These machines are also easier on clothes and use less detergent. For this study, efficiency of the base unit (measured as the Modified Energy Factor) is specified as 1.6, and we consider three efficiency levels for ENERGY STAR® units, 1.8, 2.0, and 2.3, which correspond to the Tier 1, 2, and 3 efficiency levels, respectively, as defined by the Consortium for Energy Efficiency.

High Efficiency Clothes Dryer: High efficiency clothes dryers incorporate moisture sensors and prevent the frequency and magnitude of over-drying compared standard clothes dryers without moisture sensors.

Energy Star Home Electronics (Televisions, Set-top Boxes, DVD Players, VCRs, and Personal Computers): All ENERGY STAR® qualified home electronics have off-mode power draws of 1 watt or less. The home electronic devices spend the vast majority of their time in off-mode but often continue to draw a small "trickle charge" to maintain clock or other memory functions. Reductions in off-mode power draws can thus produce significant reductions in total energy consumption without changing on-mode power consumption characteristics. Savings from ENERGY STAR® home electronics considered in this study were estimated based on reductions in off-mode power draw from standard to ENERGY STAR® levels.

A.2 Commercial Measures

This subsection provides brief descriptions of the commercial measures included in this study.

A.2.1 Lighting equipment and controls

Super T-8 Lamps with Electronic Ballast: T-8 lamps are a smaller diameter fluorescent lamp than T-12 lamps. When paired with specially designed electronic ballasts, T-8 lamps provide more lumens per watt, resulting in energy savings. Electronic ballasts replace the standard core and coil technology in magnetic ballasts with solid-state components. This technology allows for more consistent control over ballast output and converts power to higher frequencies, causing the fluorescent lamps to operate more efficiently. For existing first generation T-8 systems, this measure is specified as an upgrade to efficiency levels associated with optimal Super T-8 lamp-ballast combinations on a replace-on-burnout basis.

T-5 High-Output Lighting with Electronic Ballast: Like T8 lamps, straight tube T5 lamps are available in nominal 2', 3', 4', and 5' lengths. Standard T-5 lamps have light output and efficiency comparable to T-8/electronic ballast systems. High output T-5 lamps have considerably higher light output: a 1-lamp high output T-5 cross-section can replace a 2-lamp T 8 cross-section. The 5/8" bulb diameter of the T-5 lamp lends itself to low profile luminaires well-suited for cove lighting and display case lighting. Its smaller scale allows for sleeker fluorescent indirect and direct/indirect pendants and shallower profile recessed troffer type luminaires. Because of variances in actual lamp lengths and a different socket design, the T-5 lamp cannot easily be retrofitted in existing T-12 and T-8 luminaires. Consequently, use the T-5 lamp to its best advantage in specially designed luminaires.

Reflectors: Optical reflectors are mirrored surfaces installed in fluorescent fixtures to direct light toward a specific area or work surface. By installing optical reflectors, four-lamp and three-lamp fluorescent fixtures can be reduced to two lamp fixtures and still meet the needed lighting levels.

Pulse-Start Metal Halide Lamps: Pulse start lamps have a greater light output than standard metal halide, provide a white light and require special ballasts and fixtures for each specific lamp. The pulse start metal halide combined with new, more efficient low current crest factor ballasts using high voltage ignitors provides higher light levels initially (20% more) and significantly more maintained light over time (40% more) than today's standard metal halide.

Compact Fluorescent Lighting (CFLs): Compact fluorescent lamps are designed to replace standard incandescent lamps. They are approximately four times more efficacious than incandescent light sources. Screw-in modular lamps have reusable ballasts that typically last for four lamp lives.

High Pressure Sodium Lamps: In many situations, 400 watt mercury vapor lamps can be replaced by 250 watt high pressure sodium (HPS) lamps. HPS lamps are HID lighting and emit a golden-white or yellow light. The color rendition for HPS lamps is worse than for MV lamps, but the number of lumens per watt, although dependent on the size of the lamps, is much improved over MV lamps.

Lighting Control Tune-up: This involves various measures to optimize the customer's current lighting control systems, with measures such as: relocating/tuning occupancy sensors, relocating photocells, optimizing sweep timers, repairing lighting timers, and adjust lighting schedules.

Occupancy Sensors: Occupancy sensors (infrared or ultrasonic motion detection devices) turn lights on upon entry of a person into a room, and then turn the lights off from ½ minute to 20 minutes after they have left. Occupancy sensors require proper installation and calibration. Their savings depend on the mounting type.

Continuous Dimming: Dimming electronic ballasts can be incorporated into a daylighting strategy around the perimeter of office buildings or in areas under skylights. These systems use photocells to reduce power consumption and light output when daylight is available.

Outdoor Lighting Controls (Photocells and Timeclocks): Photocells can be used to automatically control both outdoor lamps and indoor lamps adjacent to skylights and

windows. When lights do not need to be on all night, a photocell in series with a time clock provides maximum savings and eliminates the need for manual operation and seasonal time clock adjustments. Time clocks enable users to turn on and off electrical equipment at specific times during the day or week.

LED exit signs: Exit signs that use light-emitting diodes (LEDs) as the backlighting source require significantly lower power draws compared to exit signs that use fluorescent or incandescent backlight sources (e.g. 5 W compared to 15 W and 40 W, respectively). Additionally, LED exit signs also have significantly longer service lives compared to fluorescent or incandescent exit signs (e.g. 10 years compared to 1 year and 3 months, respectively).

A.2.2 Space Cooling

Chiller Efficiency Upgrade: Centrifugal chillers are used in building types which normally use water-based cooling systems and have cooling requirements greater than 200 tons. Centrifugal chillers reject heat through a water cooled condenser or cooling tower. In general, efficiency levels for centrifugal chillers start at 0.80 kW/ton (for older units) and may go as high as 0.4 kW/ton. This measure involves installation of a high-efficiency chiller (0.51 kW per ton) versus a standard unit (0.58 kW per ton). This measure also serves in the potential analysis as a proxy for other non-centrifugal chiller systems.

High-Efficiency Chiller Motors: This measure involves replacement of standard efficiency motors that power compressor systems on chillers. High-efficiency chiller motors have typically have efficiencies exceeding 90% and are typically electronically-commutated motors, which produce higher average operating efficiencies at partial loads compared to standard efficiency, brushed DC compressor motors.

VSD – Cooling Circulation Pumps: Variable speed drives installed on chilled water pumps can reduce energy use by varying the pump speed according to the building's demand for cooling. There is also a reduction in piping losses associated with this measure, which can have a major impact on the heating loads and energy use for a building. Pump speeds, however, can generally only be reduced to a minimum specified rate, because chillers and the control valves may require a minimum flow rate to operate.

VSD – Cooling Tower Fans: Energy usage in cooling tower fans can be reduced by installing electronic variable speed drives (VSDs). VSDs are a far more efficient method of regulating speed or torque than other control mechanisms. Energy required to operate a fan motor can be reduced significantly during reduced load conditions by installing a VSD.

Chiller Tune-up/Diagnostics: In addition to some of the activities conducted in a DX tune-up, an optimization of the chilled water plant can include activities such as: optimizing CW/CHW setpoints, improving chiller staging, trimming pump impellers, resetting chilled water supply temperature, and staging cooling tower fan operation.

Thermal Energy Storage: This measure is a load-shifting strategy that is designed to reduce peak demand for air-conditioning by producing ice during off-peak hours (typically overnight) and using this ice to pre-cool chilled water during peak hours, thereby reducing the peak cooling load served by chillers. This load-shifting strategy produces significant peak demand savings benefits but can also result in overall energy consumption penalties due to the energy required to produce sufficient quantities of ice during off-peak hours.

Packaged DX or Packaged Heat Pump System Efficiency Upgrade: A single-package A/C or heat pump unit consists of a single package (or cabinet housing) containing a condensing unit, a compressor, and an indoor fan/coil. Packaged direct expansion (DX) units provide only air conditioning, while packaged heat pump systems provide both air conditioning during the cooling season and space heating during the winter season. An additional benefit of package units is that there is no need for field-installed refrigerant piping, thus minimizing labor costs and the possibility of contaminating the system with dirt, metal, oxides or non-condensing gases. This measure involves installation of a TIER 2 high-efficiency packaged DX or heat pump unit (EER=10.9) as compared to a base case unit with EER=10.3.

Advanced Geothermal Heat Pumps: In contrast to more typical air-source heat pumps that transfers heat to and from the indoors and outside air, water-source geothermal heat pumps transfer heat to and from the indoors and groundwater or another nearby water source. The fairly constant temperature of groundwater compared to outside air allows water-source heat pump systems to reach higher average efficiencies across a wider range of ambient conditions compared to air-source heat pumps. The advanced geothermal heat pump measure in this study assumes overall performance equivalent to 13 EER (roughly equivalent to 17 SEER).

Hybrid Desiccant-DX Systems: This measure involves the replacement of standard packaged DX systems with a new, hybrid space cooling system that combines a desiccant wheel with a chiller coil to produce more efficient humidity removal and significant energy savings in space cooling applications that require strict humidity control.

High-Efficiency Packaged Terminal AC Units: Packaged terminal air conditioners (PTAC) are a type of self-contained space cooling system most commonly found in hotels and are functionally similar to room air conditioners, with the key difference being that

PTAC units typically have larger capacities that room units and are mounted in through-the-wall configurations as opposed to being mounted in window frames. This measure involves the installation of a high-efficiency PTAC unit (EER=9.6) as compared to a standard efficiency unit with EER=8.3.

DX Tune up/Advanced Diagnostics: The assumed tune-up includes cleaning the condenser and evaporator coils, establishing optimal refrigerant levels, and purging refrigerant loops of entrained air. The qualifying relative performance range for a tune-up is between 60 and 85 percent of the rated efficiency of the unit. Includes fresh air economizer controls providing demand control ventilation and consisting of a logic module, enthalpy sensor(s), and CO2 sensors in appropriate applications.

Energy Management System: The term Energy Management System (EMS) refers to a complete building control system which usually can include controls for both lighting and HVAC systems. The HVAC control system may include on\off scheduling and warm-up routines. The complete lighting and HVAC control systems are generally integrated using a personal computer and control system software.

EMS Optimization: Energy management systems are frequently underutilized and have hundreds of minor inefficiencies throughout the system. Optimization of the existing system frequently results in substantial savings to the measures controlled by the EMS (e.g. lighting, HVAC) by minimizing waste. Improvements can include: building start-up schedule adjustments, improving integrated sequence of operations, calibration of sensors, and relocation of OA sensors.

Occupancy Sensors (hotels): This measure involved the installation of occupancy sensors that control the temperature settings of individual PTAC systems in hotel rooms such that PTAC loads are dramatically reduced during times that rooms are unoccupied.

Aerosol Duct Sealing: An ideal duct system would be free of leaks, especially when the ducts are outside the conditioned space. Leakage in unsealed ducts varies considerably with the fabricating machinery used, the methods for assembly, installation workmanship, and age of the ductwork. Advanced duct sealing methods include the use of computer-controlled aerosol applications and pre- and post-sealing duct pressurization testing.

Duct Insulation: Insulation material inhibits the transfer of heat through the air-supply duct. Several types of ducts and duct insulation are available, including flexible duct, pre-insulated flexible duct, duct board, duct wrap, tacked or glued rigid insulation, and water proof hard shell materials for exterior ducts. Duct insulation for existing construction involves wrapping uninsulated ducts with an R-4 insulating material.

Cool Roof: The color and material of a building structure surface will determine the amount of solar radiation absorbed by that surface. By using an appropriate reflective material to coat the roof, the roof will absorb less solar radiation and consequently reduce the cooling load.

Window Film: Reflective window film is an effective way to reduce solar energy gains, thus reducing mechanical cooling energy consumption. Windows affect building energy use through thermal heat transfer (U-value), solar heat gains (shading coefficient), daylighting (visible light transmittance), and air leakage.

Roof/Ceiling Insulation: Thermal insulation is material or combinations of materials that are used to inhibit the flow of heat energy by conductive, convective, and radiative transfer modes. By inhibiting the flow of heat energy, thermal insulation can conserve energy by reducing heat loss or gain of a structure. An important characteristic of insulating materials is the thermal resistance, or R-value. The R-value of a material is the reciprocal of the time rate of heat flow through a unit of this material in a direction perpendicular to two areas of different temperatures.

A.2.3 Ventilation

Motor Efficiency Upgrade: Premium-efficiency motors use additional copper to reduce electrical losses and better magnetic materials to reduce core losses, and are generally built to more precise tolerances. Consequently, such motors are more reliable, resulting in reduced downtime and replacement costs. Premium-efficiency motors may also carry longer manufacturer's warranties.

Air Handler Optimization: Optimization of a building's air-handling system is concerned principally with the proper sizing and configuration of its HVAC units. Energy savings can result from a variety of improvements, including reduced equipment loads and better functionality of existing equipment.

VFD on Motor Installation: Energy usage in HVAC systems can be reduced by installing electronic variable frequency drives (VFDs) on ventilation fans. VFDs are a far more efficient method of regulating speed or torque than throttling valves, inlet vanes and fan dampers. Energy required to operate a fan motor can be reduced as much as 85% during reduced load conditions by installing a VFD.

Electronically Commutated Motors (ECM) on Air Handler Unit: Air handler models with the lowest electrical use ratings employ ECMs. ECMs, also known as brushless DC motors or variable speed blower motors, have two principal advantages over the typical permanent magnet split capacitor (PSC) blower motors found in the majority of air handlers.

First, ECMs are claimed to be 20% to 30% more efficient than standard blower motors. Second, the typical ECM blower can produce a much wider range of airflow than a PSC blower, which typically has only three or four set speeds over a narrow range. Because power consumption by an air handler rises with the cube of airflow, the ability to reduce airflow when appropriate can dramatically reduce the electrical power draw by the air handler.

Demand-Controlled Ventilation: Often, usage of a building's ventilation control goes beyond what is necessary to maintain a healthy and comfortable environment. A variety of controls can save energy by limiting the use of the ventilation system to minimum amount necessary. Sensors that detect critical contaminants activate ventilations systems only when necessary. Occupancy sensors limit the operation ventilation systems to periods when the building is in use.

Energy Recovery Ventilation: These systems provide a controlled way of ventilating a building while minimizing energy loss. Heating energy requirements are reduced during the winter season by transferring heat from the warm inside air being exhausted to the fresh (but cold) supply air. Similarly, in the summer, the inside air being exhausted cools the warmer supply air and reduces cooling energy requirements.

Separate Makeup Air/Exhaust Hoods: Ventilation requirements in restaurants and grocery stores are driven both by occupancy and by the need to exhaust fumes from food preparation activities. Standard ventilation and exhaust systems operate at constant speeds that are most often matched to maximum ventilation requirements. Systems that modulate both exhaust and make-up air flow rates in response to measurements of "smoke" and temperature in the exhaust hood reduce exhaust and make-up air flow rates when full exhaust capacity is not required, and can thereby produce significant reduction in fan power and space conditioning energy use.

A.2.4 Refrigeration

Motor Efficiency Upgrade for Fans and Compressors: In addition to saving energy, premium-efficiency motors are more reliable, resulting in reduced downtime and replacement costs.

Strip Curtains: Installing strip curtains on doorways to walk-in boxes and refrigerated warehouses can produce energy savings due to decreased infiltration of outside air into the refrigerated space. Although refrigerated spaces have doors, these doors are often left open, for example during product delivery and store stocking activities.

Night Covers: Installing film or blanket type night covers on display cases can significantly reduce the infiltration of warm ambient air into the refrigerated space. This reduction in display case loads in turn reduces the electric use of the central plant, including compressors and condensers, thus saving energy. The target market for this measure is small, independently owned grocery stores and other stores that are typically closed at night and restock their shelves during the day. The target cases are vertical displays, with a single- or double-air curtain, and tub (coffin) type cases.

Evaporator Fan Controller for Medium Temperature Walk-Ins: In response to the temperature setpoint being satisfied in a medium temperature walk-in cooler, evaporator fans are cycled to maintain minimum necessary air flow, which prevents ice build-up on the evaporator coils. In conventional systems, fans run constantly whether the temperature setpoint is satisfied or not.

Variable Speed Compressor Retrofit: A variable speed compressor is a screw or reciprocating compressor whose current is modulated by a frequency inverter. A controller senses the compressor suction pressure and modulates the current and therefore the motor speed in response to changes in this pressure. When low load conditions exist, the current to the compressor motor is decreased, decreasing the compressor work done on the refrigerant.

Floating Head Pressure Controls: Floating head pressure controls allow a refrigeration system to operate under lower condensing temperature and pressure settings, where compressor operation is most efficient, working against a relatively low head pressure. The condensing temperature is allowed to float below the design setpoint of, say, 95 deg. F under lower outdoor temperatures, which in-turn lowers the condensate pressure. In a conventional system a higher fixed condensing temperature setpoint is used which results in a lowered capacity for the system, requires extra power, and may overload the compressor motor. Energy savings can be realized if the refrigeration system head pressure is allowed to float during periods of low ambient temperature, when the condensing temperature can be dramatically reduced.

Refrigeration Commissioning: Refrigeration commissioning refers to a process whereby refrigeration systems are subject to inspection on a variety of criteria to ensure efficiency. The commissioning process can involve tests that cover a system's controls for humidity and temperature, anti-condensation, and heat recovery, among others.

Demand Defrost: Defrost of a refrigeration system is critical to its efficient operation. Demand defrost uses a pressure-sensing device to activate the defrost cycle when it detects a significant drop in pressure of the air across the refrigeration coil. Because load during defrost can be three times that of normal operation, defrosting on demand only – not when an

individual operator deems it necessary – can save energy by minimizing the amount of time spent on defrosting.

Humidistat Controls: A humidistat control is a control device to turn refrigeration display case anti-sweat heaters off when ambient relative humidity is low enough that sweating will not occur. Anti-sweat heaters evaporate moisture by heating the door rails, case frame and glass of display cases. Savings result from reducing the operating hours of the anti-sweat heaters, which without a humidistat control generally run continuously. There are various types of control strategies including cycling on a fixed schedule.

High R-Value Glass Doors: This measure involves the replacement of standard glass doors on refrigerated display cases with advanced glass doors that incorporate heat-reflective treated glass and/or low-conductivity gas fills between panes to produce high R-values. The greater insulation properties of the insulated glass doors reduce condensation buildup and reduce or eliminate the need for anti-sweat heaters.

Multiplex Compressor Systems: Multiplex refrigeration systems involve the use of multiple compressors in parallel, rather than single compressors, to serve specific refrigeration loads. Multiplex systems are designed so that compressors can be selectively selected and cycled in order to better match changes in refrigeration load dynamically and increase the overall operational efficiency of the compressors.

Oversized Air Cooled Condenser: The use of oversized condensers can provide additional "natural sub-cooling" of the condensed refrigerant, which results in lower-temperature refrigerant liquid in the system, lower evaporator temperatures, and reduced load on the compressor.

Freezer/Cooler Replacement Gaskets: Worn out freezer/cooler door gaskets can result in significant leakage and increased cooling energy consumption. Regular replacement of worn door gaskets reduces unnecessary air leaks and can lead to significant refrigeration energy savings.

LED Display Case Lighting: This measure involves the replacement of standard fluorescent tube lighting fixtures within medium and low-temperature display cases with LED fixtures. The higher luminous efficacy of LED lamps compared to T-8 and T-5 fluorescent lamps delivers significant energy savings and also results in lower heat gains inside refrigerator and freezer cases, which in turn reduces the effective load served by the compressor. LED fixtures also exhibit much longer service lives compared to T-8 or T-5 fixtures and very little maintenance requirements.

A.2.5 Water heating equipment

High Efficiency Water Heater: Higher efficiency water heater have greater insulation to reduce standby heat loss. For this study, efficiency of the base unit (measured as the Energy Factor) is specified as 0.88, whereas the efficiency of the high efficiency electric water heater is specified as 0.93.

Heat Pump Water Heater: Air-to-water heat pump water heaters extract low-grade heat from the air then transfer this heat to the water by means of an immersion coil. This is the most commonly utilized residential heat pump water heater. The air-to-water heat pump unit includes a compressor, air-to-refrigerant evaporator coil, evaporator fan, water circulating pump, refrigerant-to-water condenser coil, expansion valve, and controls. Residential heat pump water heaters replace base electric units with the same tank capacities. For this study, efficiency of the base unit (measured as the Energy Factor) is specified as 0.88, whereas the efficiency of the heat pump water heater is specified as 2.9.

Solar Water Heater: Heat transfer technology that uses the sun's energy to warm water. Solar water heaters preheat water supplied to a conventional domestic hot water heating system. The energy savings for the system depend on solar radiation, air temperatures, water temperatures at the site, and the hot water use pattern.

Demand-Controlled Circulating Systems: Hot water circulation systems are designed to maintain water in hot water pipes at a pre-determined temperature and prevent excess water demand (and associated water heating energy) from waiting for hot water to arrive from the water heater. Demand-controlled circulating systems provide additional savings by optimizing pumping energy requirements to only specific moments of hot water demand. This is achieved through the integration of an electronic controller on the circulation pump that is triggered by a switch engaged by the consumer at the point of hot water demand.

Heat Recovery Units: This measure is heat transfer strategy that uses the heat rejected during the refrigerant cycle on air conditioning units to heat water.

Pipe Wrap: Thermal insulation is material or combinations of materials that are used to inhibit the flow of heat energy by conductive, convective, and radiative transfer modes. By inhibiting the flow of heat energy, thermal insulation can conserve energy by reducing heat loss or gain.

Heat Trap: Heat traps are valves or loops of pipe, which allow water to flow into the water heater tank but prevent unwanted hot-water flow out of the tank that would otherwise occur due to convection.

A.2.6 Office Equipment

Energy Star Monitors and Copiers: All ENERGY STAR® qualified office equipment have off-mode power draws of 1 watt or less and sleep-mode power draws of 2 watts or less. As with home electronic devices, office equipment spend the vast majority of their time in off-mode or sleep-mode but often continue to draw significant power. Reductions in off-mode and sleep-mode power draws can thus produce significant reductions in total energy consumption without changing on-mode power consumption characteristics. Savings from ENERGY STAR® office equipment considered in this study were estimated based on reductions in off-mode and sleep-mode power draw from standard to ENERGY STAR® levels.

Power Management Enabling: This measure can be applied to PCs, PC monitors, laser printers, and copiers. For PCs and copiers, manual enabling of the power management features is the only viable solution. For monitors, manual enabling and group enabling via network software are options.

A.3 Industrial Measures

This subsection provides brief descriptions of the industrial measures included in this study. Cross-cutting measures that are generally applicable across industrial subsectors are presented first, followed by process-specific measures.

A.3.1 Cross-Cutting Measures

Replace motors: This measure refers to the replacement of existing motors with high-efficiency motors. High-efficiency motors reduce energy losses through improved design, better materials, tighter tolerances, and improved manufacturing techniques. With proper installation, high-efficiency motors can run cooler than standard motors and can consequently have higher service factors, longer bearing life, longer insulation life, and less vibration.

Adjustable speed drives (ASDs): Adjustable speed drives better match motor speed to load and can therefore lead to significant energy savings compared to constant speed motors. Typical energy savings associated with ASDs range from 7-60%.

Motor practices: This measure refers to proper motor maintenance. The purposes of motor maintenance are to prolong motor life and to foresee a motor failure. Motor maintenance measures can be categorized as either preventive or predictive. Preventive measures, whose purpose is to prevent unexpected downtime of motors, include electrical consideration, voltage imbalance minimization, motor ventilation, alignment, and lubrication, and load consideration. The purpose of predictive motor maintenance is to observe ongoing motor

temperature, vibration, and other operating data to identify when it becomes necessary to overhaul or replace a motor before failure occurs. The savings associated with ongoing motor maintenance could range from 2-30% of total motor system energy use.

Compressed air - operation and maintenance (O&M): Inadequate maintenance can lower compression efficiency and increase air leakage or pressure variability, as well as lead to increased operating temperatures, poor moisture control, and excessive contamination. Improved maintenance will reduce these problems and save energy. Proper maintenance includes regular motor lubrication, replacement of air lubricant separators, fan and pump inspection, and filter replacement.

Compressed air – controls: The objective of any control strategy is to shut off unneeded compressors or delay bringing on additional compressors until needed. Energy savings for sophisticated controls have been around 12% annually. Available controls for compressed air systems include start/stop, load/unload, throttling, multi-step, variable speed, and network controls.

Compressed air - system optimization: This is a general measure that refers to compressed air system improvements (besides sizing, controls, and maintenance) that allow it to perform at maximum energy efficiency. Such improvements could include reducing leaks, better load management, minimizing pressure drops throughout the system, reducing air inlet temperatures, and recovering waste compressor heat for other facility applications.

Compressed air – sizing: This measure refers to the proper sizing of compressors, regulators, and distribution pipes. Oversizing of compressors can result in wasted energy. By properly sizing regulators, compressed air will be saved that is otherwise wasted as excess air. Pipes must be sized correctly for optimal performance or resized to fit the current compressor system. Increasing pipe diameters typically reduces annual energy consumption by 3%.

Pumps - operation and maintenance (O&M): Inadequate maintenance can lower pump system efficiency, cause pumps to wear out more quickly, and increase costs. Better maintenance will reduce these problems and also save energy. Proper pump system maintenance includes bearing inspection and repair, bearing lubrication, replacement of worn impellers, and inspection and replacement of mechanical seals.

Pumps – controls: The objective of pump control strategies is to shut off unneeded pumps or, alternatively, to reduce pump load until needed. In addition to energy savings, proper pump control can lead to reduced maintenance costs and increased pump life.

Pumps – system optimization: This is a general measure that refers to pump system improvements (besides sizing, controls, and maintenance) that allow it to perform at maximum energy efficiency. Such improvements could include pump demand reduction, high-efficiency pumps, impeller trimming, and installing multiple pumps for variable loads.

Pumps – sizing: Pumps that are sized inappropriately result in unnecessary losses. Where peak loads can be reduced, pump size can also be reduced. Replacing oversized pumps with pumps that are properly sized can save 15-25% of the electricity consumption of a pumping system (on average for U.S. industry).

Fans – operation and maintenance (O&M): This measure refers to the improvement of general O&M practice for fans, such as tightening belts, cleaning fans, and changing filters regularly.

Fans – controls: The objective of fan control strategies is to shut off unneeded fans or, alternatively, to reduce fan load until needed. In addition to energy savings, proper fan control can lead to reduced maintenance costs and increased pump life.

Fans – system optimization: This measure refers to general strategies for optimizing fans from a systems perspective, and includes such actions as better inlet and outlet design and reduction of fan sizing, where appropriate.

Fans – improve components: This measure refers to the improvement of fan components, such as replacing standard v-belts with cog v-belts and upgrading to the most energy efficient motors possible.

Replace T-12 by T-8 and electronic ballasts: T-12 tubes consume significant amounts of electricity, and also have extremely poor efficacy, lamp life, lumen depreciation, and color rendering index. Replacing T-12 lamps with T-8 lamps (smaller diameter) approximately doubles the efficacy of the former. Electronic ballasts save 12-30% power over their magnetic predecessors; typical energy savings associated with replacing magnetic ballasts by electronic ballasts are estimated to be roughly 25%.

Metal halides/fluorescents: Metal halide lamps can replace mercury or fluorescent lamps with energy savings of 50%. For even further savings, high-intensity fluorescent lamps can be installed, which can yield 50% electricity savings over standard metal halide (high-intensity discharge) systems.

Switch off/O&M: Lighting is often left on, even when the area or room is not occupied. Sensors can be installed (see below), but savings can also be realized by training personnel to

switch off lights (and other equipment) when not needed. Furthermore, adapting switching to the use pattern of the building will enable to control the lighting in those areas where it is needed (e.g. in many assembly areas a single switch controls all lighting, even when lighting would only be needed in a few zones within the assembly hall).

Controls/sensors: Lights can be shut off during non-working hours by automatic controls, such as occupancy sensors, which turn off lights when a space becomes unoccupied. Manual controls can also be used in addition to automatic controls to save additional energy in small areas.

Super T-8s: Super T-8 fluorescent systems are a further development of (standard) T-8 tubes. Super T-8s combine further improvement of the fluorescent tube (e.g. barrier coating, improved fill, enhanced phosphors) with electronic ballasts in a single system.

HVAC management system: An energy monitoring and control system supports the efficient operation of HVAC systems by monitoring, controlling, and tracking system energy consumption. Such systems continuously manage and optimize HVAC system energy consumption while also providing building engineers and energy managers with a valuable diagnostic tool for tracking energy consumption and identifying potential HVAC system problems

Cooling system improvements: The efficiency of chillers can be improved by lowering the temperature of the condenser water, thereby increasing the chilled water temperature differential. This can reduce pumping energy requirements. Another possible efficiency measure is the installation of separate high-temperature chillers for process cooling.

Duct/pipe insulation/leakage: Duct leakage can waste significant amounts of energy in HVAC systems. Measures for reducing duct leakage include installing duct insulation and performing regular duct inspection and maintenance, including ongoing leak detection and repair. Improved duct and pipe insulation can prevent excessive heat/cooling dissipation, thereby improving system energy efficiency.

Cooling circulation pumps – variable speed drives (VSDs): Variable speed drives better match motor speed to load and can therefore lead to significant energy savings compared to constant speed drives. This measure considers the installation of VSDs on cooling circulation pumps.

DX tune-up/advanced diagnostics: The tune-up includes cleaning the condenser and evaporator coils, establishing optimal refrigerant levels, and purging refrigerant loops of entrained air. The qualifying relative performance range for a tune-up is between 60 and 85

percent of the rated efficiency of the unit. Includes fresh air economizer controls providing demand control ventilation and consisting of a logic module, enthalpy sensor(s), and CO2 sensors in appropriate applications.

DX packaged system, EER=10.9, 10 tons: A single-package A/C unit consists of a single package (or cabinet housing) containing a condensing unit, a compressor, and an indoor fan/coil. An additional benefit of package units is that there is no need for field-installed refrigerant piping, thus minimizing labor costs and the possibility of contaminating the system with dirt, metal, oxides or non-condensing gases. This measure involves installation of a TIER 2 high-efficiency unit (EER=10.9) versus a standard unit (EER=10.3.

Window film: Low-emittance windows are an effective strategy for improving building insulation. Low-emittance windows can lower the heat transmitted into a building and therefore increase its insulating ability. There are two types of Low-E glass, high solar transmitting (for regions with higher winter utility bills) and low solar transmitting (for regions with higher summer utility bills).

Programmable thermostat: A programmable thermostat allows to control temperature settings of space heating and cooling, and optimizing settings based on occupancy and use of the building. This will reduce unnecessary heating and cooling outside hours of building use. It may also help in building cooling using nighttime cooling.

Chiller O&M/tune up: This measure refers to the proper inspection and maintenance of chilled water systems. This can include setting correct head pressure, maintaining correct levels of refrigerant, and selecting and running appropriate compressors for part load. Energy saving can also be achieved by cleaning the condensers and evaporators to prevent scale buildup.

Setback temperatures (weekends and off duty): Setting back building temperatures (i.e., turning building temperatures down in winter or up in summer) during periods of non-use, such as weekends or non-production times, can lead to significant savings in HVAC energy consumption.

Replace v-belts: Inventory data suggest that 4% of pumps have V-belt drives, many of which can be replaced with direct couplings to save energy. Based on assessments in several industries, the savings associated with V-belt replacement are estimated at 4%.

ENERGY STAR transformers: This measure refers to the replacement of existing transformers, where feasible, by the latest ENERGY STAR certified transformers. ENERGY STAR transformers ensure a high level of energy efficiency.

A.3.2 Sector-Specific Measures

SIC 20 : Food and kindred products

Efficient refrigeration – operations: Refrigeration is an important energy user in the food industries. Operations of refrigeration systems can be improved by applying appropriate settings, opening refrigerated space as short as possible, reducing leakage by controlling doorways, making sure that refrigerated space is used optimally, optimization of defrosting cycle, as well as other small operational changes.

Optimization refrigeration: The refrigeration system can be optimized by improving the operation of the compressors, selecting cooling systems with high COP values, reducing losses in the coolant distribution system, improved insulation of the cooled space, variable speed drives on cooling system, and optimizing the temperature setting of the cooling system.

Bakery – process: Process improvements in the bakery can reduce electricity consumption through selection of energy-efficient equipment for the different processes, optimization of electric ovens, and good housekeeping (e.g. switching equipment off when not in use).

Bakery – process (mixing): About 35% of electricity in bakeries is used to mix and knead the dough. When selecting equipment electricity use should be one of the considerations as energy is the largest cost on a life-cycle basis. Today, energy use is not a criterion. High-efficiency motors, speed control and other measures may reduce electricity consumption.

SIC 23 : Apparel and other textile products

Drying (UV/IR): This measure refers to the use of direct heating methods, such as infrared dryers. Direct heating provides significant energy savings because it eliminates the inefficiency of transferring heat to air and from the air to the wet material. The energy efficiency of direct heating is about 90%.

Membranes for wastewater: Membrane technologies focus on separating the water from the contaminants using semi-permeable membranes and applied pressure differentials. Membrane filtration of wastewater is typically more energy efficient than evaporation methods, and can lead to significant reductions in facility freshwater intake.

O&M/drives spinning machines: Electric motors are the single largest electricity user in spinning mills. Optimization of motor use, proper maintenance procedures (e.g. preventative

maintenance), use of new high-efficiency motors instead of re-winding, switching off equipment when not in use can help improve energy efficiency.

SIC 25 : Furniture and fixtures

Air conveying systems: Pneumatic or air conveying systems are used to transport material (e.g. sawdust, fibers) in the lumber industry. Energy efficiency improvement is feasible by optimizing the lay-out of the systems, reducing leakages, reducing bends in the system, and improving compressor operations (see also with compressed air systems).

Optimize drying processes: This is a general measure, which refers to the optimization of drying systems through such actions as the use of controls, heat recovery, insulation, and good housekeeping/maintenance.

Heat pumps – drying: This measure refers to the recovery of low grade heat from the drying process via a heat pump, where cost effective.

SIC 26 : Paper and allied products

Gap forming paper machine: The gap former produces a paper of equal and uniform quality at a higher rate of speed. Coupling the former with a press section rebuild or an improvement in the drying capacity increases production capacity by as much as 30%. Energy savings from gap formers come from reduced electricity consumption per ton of product produced.

High consistency forming: In high consistency forming, the furnish (process pulp) which enters at the forming stage has more than double the consistency (3%) than normal furnish. This measure increases forming speed, and reduces dewatering and vacuum power requirements. Application of this technology is limited to specific paper grades, especially low-basis weight grades such as tissue, toweling, and newsprint. Electricity savings are estimated at 8%.

Optimization control PM: Large electric motors are used to run the paper machine. Optimization of the paper machine will reduce electricity use of the drives. Improved control strategies will improve throughput, reduce breakage and downtime, improving the energy efficiency per unit of throughput. Variable speed drives may help to optimize the energy use in water pumps in the paper machine.

SIC 27 : Printing and publishing

Efficient practices printing press: Optimizing the use of the printing press by reducing production losses, switching off of the press when not in use and other improved operational practices.

Efficient printing press (fewer cylinders): New printing press designs allow the use of fewer cylinders (or rollers). This reduces the electricity use to drive the printing machine.

Light cylinders: Reducing the weight of the cylinders (or rollers) in the printing machine will reduce the power needed to drive the machine. Using lightweight materials for cylinders has been demonstrated in Europe.

SIC 28 : Chemicals and allied products

Clean room – controls: Reduced recirculation air change rates, while still meeting quality control and regulatory standards can reduce energy use, optimized chilled water systems, reduction of cleanroom exhaust, and, occasionally, a cleanroom is classified at a higher cleanliness level than is necessary for its current use, and by declassifying energy can be saved.

Clean room – new designs: When designing a clean room, energy use should be a primary consideration. Benchmarking tools and design tools are being developed to help improve the energy efficiency of new cleanroom systems. Furthermore, in the design phase the system can be optimized for improved air filtration quality and efficiency, and the use of cooling towers in lieu of water chillers.

Process controls (batch + site): This is a general measure to implement computer-based process controls, where applicable, to monitor and optimize various processes from an energy consumption perspective. In general, by monitoring key process parameters, processes can be fine tuned to minimize energy consumption while still meeting quality and productivity requirements. Control systems can also reduce the time required to perform complex tasks and can often improve product quality and consistency while optimizing process operations. This measure could include the installation of controls based on neural networks, knowledge based systems, or improved sensor technology.

Power recovery: Various processes run at elevated pressures, enabling the opportunity for power recovery from the pressure in the flue gas. The major application for power recovery in the petroleum refinery is the fluid catalytic cracker (FCC). However, power recovery can also be applied to hydrocrackers or other equipment operated at elevated pressures. A power

recovery turbine or turbo expander is used to recover energy from the pressure. The recovered energy can be used to drive the FCC compressor or to generate power.

Efficient desalter: Alternative designs for desalting include multi-stage desalters and a combination of AC and DC fields. These alternative designs may lead to increased efficiency and lower energy consumption.

SIC 30 : Rubber and misc. plastics products

O&M – extruders/injection molding: Improved operation and maintenance procedures of extruders, optimization of extruder settings, optimization of the extruder screw shape, optimization of the shape/thickness of the product, and reduction of standby time.

Extruders/injection molding – multipump: The use of multiple pumps and an appropriate control system allow to reduce energy use of the extruder when not working at full capacity, only using the pump(s) needed.

Direct drive extruders: Use of a direct drive, instead of a gearbox or belt, will reduce the losses by approximately 15% in extruders.

Injection molding – impulse cooling: Impulse cooling regulates the cooling water use increasing the cooling rate and reducing productivity (and downtime).

Injection molding – direct drive: Use of a direct drive, instead of a gearbox or belt, will reduce the losses by approximately 20% in injection molding machines.

SIC 32 : Stone, clay, glass, and concrete products

Efficient grinding: This is a general measure that refers to efficient grinding technologies, which can include the use of high-efficiency classifiers or separators.

Top-heating (glass): Most electric furnaces use electrodes in the batch to melt the raw materials into glass. Newer designs with top-mounted electrodes can improve and maintain product quality, and obtain a higher share of salable glass, which leads to lower energy intensities (energy per kg of glass produced).

Autoclave optimization: In various processes autoclaves are used to press materials. Multiple autoclaves are used. By synchronizing the time of the use of the individual autoclaves, energy can be reduced by re-using the output of one to operate the other autoclave.

SIC 33 : Primary metal industries

Efficient electric melting: Electric arc furnaces are used in the steel industry to melt scrap. Only one minimill is operating in California. Multiple options are available to reduce the electricity consumption of the furnace, e.g. foamy slag, oxy-fuel injection, improved transformers, eccentric bottom tapping (EBT), as well as scrap preheating.

Near net shape casting: Near net shape casting is the direct casting of the metal into very nearly the final shape, thereby eliminating other processing steps such as hot rolling, which can lead to significant energy savings.

SIC 38 : Instruments and related products

Optimization process (M&T): This is a general measure for optimizing the efficiency of painting processes, via such actions as the use of process controls, proper maintenance, and reducing the airflow rates in paint booths.

Scheduling: Optimization of the scheduling of various pieces of equipment can reduce downtime and hence save energy. Furthermore, improved control strategies can reduce standby energy use of equipment as part of an optimized scheduling system.

Efficient curing ovens: Efficiency options for curing ovens include the optimization of oven insulation, the use of heat recovery techniques, and the use of direct heating methods, such as infrared heating, microwave heating, and ultraviolet heating.

Machinery: Many machines (e.g. metal processing) use electricity or compressed air to drive the equipment. The use of compressed air systems should be minimized and replaced by direct drive systems, because of the low efficiency of the compressed air supply. Furthermore, many machines do not use high-efficiency motors or speed controls.

SIC 36 : Electrical and electronic products

Efficient processes (welding, etc.): New more power efficient welding technology is developed. For welding robots, new servo-based systems reduce energy use. See also new transformers welding (see section 1.1).

SIC 39 : Misc. manufacturing industries

Process heating: Induction furnaces are often used for electric process heating. Improved operation and maintenance can reduce part-load operation, downtime and tap-to-tap time. Furthermore, high-frequency induction furnaces improve energy use.

Appendix B

Measure Inputs

B.1 Measure Inputs - Residential

MEASURE COSTS						NPV of			Full = 1											Implementatic
				Unit	Unit	Lifetime	Implementation	Cost Units		Incr. = 0		Full								Type
			Cost	Equipment	Labor	O & M	Cost	per Savings	Service	Initial	Replace	Unit	Relative Energy Reduction Factors							1=1 time
Segment	Measure #	Measure Description	Units	Cost	Cost	Cost	Factor	Unit	Life	Cost	Cost	Cost	SP	WP	OP	n/a	n/a	n/a	End Use	2=ROB
1	100	Base 13 SEER Split-System Air Conditioner & Strip Heater	ton				$0.00	1	18	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	101	14 SEER Split-System Air Conditioner	ton	$209.89			$209.89	1	18	0	0	$209.89	1.13	0.00	1.00	1.00	1.00	1.00	1	2
1	102	15 SEER Split-System Air Conditioner	ton	$457.30			$457.30	1	18	0	0	$457.30	1.25	0.00	1.00	1.00	1.00	1.00	1	2
1	103	17 SEER Split-System Air Conditioner	ton	$912.70			$912.70	1	18	0	0	$912.70	1.34	0.00	1.00	1.00	1.00	1.00	1	2
1	104	19 SEER Split-System Air Conditioner	ton	$1,373.43			$1,373.43	1	18	0	0	$1,373.43	1.34	0.00	1.00	1.00	1.00	1.00	1	2
1	105	14 SEER Split-System Heat Pump	ton	$530.64			$530.64	1	15	0	0	$530.64	0.36	1.58	1.00	1.00	1.00	1.00	1	2
1	106	15 SEER Split-System Heat Pump	ton	$876.46			$876.46	1	15	0	0	$876.46	0.55	1.34	1.00	1.00	1.00	1.00	1	2
1	107	17 SEER Split-System Heat Pump	ton	$1,614.94			$1,614.94	1	15	0	0	$1,614.94	0.73	1.15	1.00	1.00	1.00	1.00	1	2
1	108	13 EER Geothermal Heat Pump	ton	$3,728.33			$3,728.33	1	15	0	0	$3,728.33	0.73	1.15	1.00	1.00	1.00	1.00	1	2
1	109	HVAC Proper Sizing	ton	$0.00			$0.00	1	15	0	0	$0.00	3.16	0.00	1.00	1.00	1.00	1.00	1	2
1	110	Attic Venting	unit	$41.00	$100.00		$141.00	1	10	1	1	$141.00	0.50	1.00	1.00	1.00	1.00	1.00	1	1
1	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	square foot	$1.90			$1.90	1	40	1	1	$1.90	0.86	2.02	1.00	1.00	1.00	1.00	1	1
1	112	AC Maintenance (Outdoor Coil Cleaning)	unit	$60.00			$60.00	1	4	1	1	$60.00	0.94	0.00	1.00	1.00	1.00	1.00	1	1
1	113	AC Maintenance (Indoor Coil Cleaning)	unit	$100.00			$100.00	1	4	1	1	$100.00	0.94	0.00	1.00	1.00	1.00	1.00	1	1
1	114	Proper Refrigerant Charging and Air Flow	ton	$10.36	$28.00		$38.36	1	10	1	1	$38.36	0.93	0.00	1.00	1.00	1.00	1.00	1	1
1	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	unit	$89.94			$89.94	1	15	0	0	$89.94	0.80	0.00	1.00	1.00	1.00	1.00	1	2
1	116	Duct Repair	unit	$450.00			$450.00	1	18	1	1	$450.00	1.09	1.22	1.00	1.00	1.00	1.00	1	1
1	117	Reflective Roof	square foot	$0.27			$0.27	1	15	1	1	$0.27	0.95	0.00	1.00	1.00	1.00	1.00	1	2
1	118	Radient Barrier	square foot	$0.75			$0.75	1	10	1	1	$0.75	1.33	0.59	1.00	1.00	1.00	1.00	1	1
1	119	Window Film	square foot	$1.75			$1.75	1	10	1	1	$1.75	0.79	-0.27	1.00	1.00	1.00	1.00	1	1
1	120	Window Tinting	square foot	$1.19			$1.19	1	40	1	1	$1.19	1.08	0.00	1.00	1.00	1.00	1.00	1	2
1	121	Default Window With Sunscreen	square foot	$0.63	$0.64		$1.27	1	10	1	1	$1.27	1.76	-0.24	1.00	1.00	1.00	1.00	1	1
1	122	Single Pane Clear Windows to Double Pane Low-E Windows	square foot	$4.29			$4.29	1	40	1	1	$4.29	0.97	0.51	1.00	1.00	1.00	1.00	1	2
1	124	Ceiling R-0 to R-19 Insulation	square foot	$0.52			$0.52	1	20	1	1	$0.52	0.86	2.02	1.00	1.00	1.00	1.00	1	1
1	125	Ceiling R-19 to R-38 Insulation	square foot	$0.52			$0.52	1	20	1	1	$0.52	0.86	2.02	1.00	1.00	1.00	1.00	1	1
1	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	square foot	$0.15	$1.17		$1.32	1	20	1	1	$1.32	0.86	2.02	1.00	1.00	1.00	1.00	1	1
1	127	Weather Strip/Caulk w/Blower Door	home	$69.66			$69.66	1	5	1	1	$69.66	0.07	0.04	1.00	1.00	1.00	1.00	1	1
1	130	Base 13 SEER Split-System Heat Pump	ton				$0.00	1	15	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	131	14 SEER Split-System Heat Pump	ton	$530.64			$530.64	1	15	0	0	$530.64	0.91	0.44	1.00	1.00	1.00	1.00	1	2
1	132	15 SEER Split-System Heat Pump	ton	$876.46			$876.46	1	15	0	0	$876.46	0.99	0.47	1.00	1.00	1.00	1.00	1	2
1	133	17 SEER Split-System Heat Pump	ton	$1,614.94			$1,614.94	1	15	0	0	$1,614.94	1.06	0.52	1.00	1.00	1.00	1.00	1	2
1	134	13 EER Geothermal Heat Pump	ton	$3,728.33			$3,728.33	1	15	0	0	$3,728.33	1.06	0.52	1.00	1.00	1.00	1.00	1	2
1	135	HVAC Proper Sizing	ton	$0.00			$0.00	1	15	0	0	$0.00	3.16	0.00	1.00	1.00	1.00	1.00	1	2
1	136	Attic Venting	unit	$41.00	$100.00		$141.00	1	10	1	1	$141.00	0.50	1.00	1.00	1.00	1.00	1.00	1	1
1	137	Sealed Attics	square foot	$1.90			$1.90	1	40	1	1	$1.90	0.83	3.32	1.00	1.00	1.00	1.00	1	1
1	138	AC Maintenance (Outdoor Coil Cleaning)	unit	$60.00			$60.00	1	4	1	1	$60.00	0.94	0.00	1.00	1.00	1.00	1.00	1	1
1	139	AC Maintenance (Indoor Coil Cleaning)	unit	$100.00			$100.00	1	4	1	1	$100.00	0.94	0.00	1.00	1.00	1.00	1.00	1	1
1	140	Proper Refrigerant Charging and Air Flow	ton	$10.36	$28.00		$38.36	1	10	1	1	$38.36	0.93	0.00	1.00	1.00	1.00	1.00	1	1
1	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	unit	$89.94			$89.94	1	15	0	0	$89.94	0.77	1.29	1.00	1.00	1.00	1.00	1	2
1	142	Duct Repair	unit	$450.00			$450.00	1	18	1	1	$450.00	1.32	1.53	1.00	1.00	1.00	1.00	1	1
1	143	Reflective Roof	square foot	$0.27			$0.27	1	15	1	1	$0.27	0.92	0.00	1.00	1.00	1.00	1.00	1	2
1	144	Radient Barrier	square foot	$1.00			$1.00	1	10	1	1	$1.00	1.33	0.59	1.00	1.00	1.00	1.00	1	1
1	145	Window Film	square foot	$1.75			$1.75	1	10	1	1	$1.75	0.66	-0.19	1.00	1.00	1.00	1.00	1	1
1	146	Window Tinting	square foot	$1.19			$1.19	1	40	1	1	$1.19	1.08	0.00	1.00	1.00	1.00	1.00	1	2
1	147	Default Window With Sunscreen	square foot	$0.63	$0.64		$1.27	1	10	1	1	$1.27	1.76	-0.24	1.00	1.00	1.00	1.00	1	1
1	148	Single Pane Clear Windows to Double Pane Low-E Windows	square foot	$4.29			$4.29	1	40	1	1	$4.29	0.97	0.51	1.00	1.00	1.00	1.00	1	2
1	150	Ceiling R-0 to R-19 Insulation	square foot	$0.52			$0.52	1	20	1	1	$0.52	0.83	3.32	1.00	1.00	1.00	1.00	1	1
1	151	Ceiling R-19 to R-38 Insulation	square foot	$0.52			$0.52	1	20	1	1	$0.52	0.83	3.32	1.00	1.00	1.00	1.00	1	1
1	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	square foot	$0.15	$1.17		$1.32	1	20	1	1	$1.32	0.83	3.32	1.00	1.00	1.00	1.00	1	1
1	153	Weather Strip/Caulk w/Blower Door	home	$69.66			$69.66	1	5	1	1	$69.66	0.07	0.04	1.00	1.00	1.00	1.00	1	1
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat	unit				$0.00	1	18	1	1	$0.00	1.00	0.00	1.00	1.00	1.00	1.00	1	2
1	161	14 SEER Split-System Air Conditioner	ton	$209.89			$209.89	1	18	0	0	$209.89	0.90	0.00	1.00	1.00	1.00	1.00	1	2
1	162	15 SEER Split-System Air Conditioner	ton	$457.30			$457.30	1	18	0	0	$457.30	0.99	0.00	1.00	1.00	1.00	1.00	1	2
1	163	17 SEER Split-System Air Conditioner	ton	$912.70			$912.70	1	18	0	0	$912.70	1.06	0.00	1.00	1.00	1.00	1.00	1	2
1	164	19 SEER Split-System Air Conditioner	ton	$1,373.43			$1,373.43	1	18	0	0	$1,373.43	1.06	0.00	1.00	1.00	1.00	1.00	1	2
1	165	HVAC Proper Sizing	ton	$0.00			$0.00	1	15	0	0	$0.00	3.16	0.00	1.00	1.00	1.00	1.00	1	2
1	166	Attic Venting	unit	$41.00	$100.00		$141.00	1	10	1	1	$141.00	0.50	0.00	1.00	1.00	1.00	1.00	1	1
1	167	Sealed Attic w/Sprayed Foam Insulated Roof Deck	square foot	$1.90			$1.90	1	40	1	1	$1.90	0.86	0.00	1.00	1.00	1.00	1.00	1	1
1	168	AC Maintenance (Outdoor Coil Cleaning)	unit	$60.00			$60.00	1	4	1	1	$60.00	0.94	0.00	1.00	1.00	1.00	1.00	1	1
1	169	AC Maintenance (Indoor Coil Cleaning)	unit	$100.00			$100.00	1	4	1	1	$100.00	0.94	0.00	1.00	1.00	1.00	1.00	1	1
1	170	Proper Refrigerant Charging and Air Flow	ton	$10.36	$28.00		$38.36	1	10	1	1	$38.36	0.93	0.00	1.00	1.00	1.00	1.00	1	1
1	171	Electronically Commutated Motors (ECM) on an Air Handler Unit	unit	$89.94			$89.94	1	15	0	0	$89.94	0.80	0.00	1.00	1.00	1.00	1.00	1	2
1	172	Duct Repair	unit	$450.00			$450.00	1	18	1	1	$450.00	1.09	0.00	1.00	1.00	1.00	1.00	1	1
1	173	Reflective Roof	square foot	$0.27			$0.27	1	15	1	1	$0.27	0.95	0.00	1.00	1.00	1.00	1.00	1	2
1	174	Radient Barrier	square foot	$0.75			$0.75	1	10	1	1	$0.75	1.33	0.00	1.00	1.00	1.00	1.00	1	1
1	175	Window Film	square foot	$1.75			$1.75	1	10	1	1	$1.75	0.79	0.00	1.00	1.00	1.00	1.00	1	1

B.1 Measure Inputs - Residential

MEASURE COSTS

Segment	Measure #	Measure Description	Cost Units	Unit Equipment Cost	Unit Labor Cost	NPV of Lifetime O & M Cost	Implementation Cost Factor	Cost Units per Savings Unit	Service Life	Full = 1 Incr. = 0 Initial Cost	Replace Cost	Full Unit Cost	Relative Energy Reduction Factors SP	WP	OP	n/a	n/a	n/a	End Use	Implementatic Type 1=1 time 2=ROB
1	176	Window Tinting	square foot	$1.19			$1.19	1	40	1	1	$1.19	1.08	0.00	1.00	1.00	1.00	1.00	1	2
1	177	Default Window With Sunscreen	square foot	$0.63	$0.64		$1.27	1	10	1	1	$1.27	1.25	0.00	1.00	1.00	1.00	1.00	1	1
1	178	Single Pane Clear Windows to Double Pane Low-E Windows	square foot	$4.29			$4.29	1	40	1	1	$4.29	0.81	0.00	1.00	1.00	1.00	1.00	1	2
1	180	Ceiling R-0 to R-19 Insulation	square foot	$0.52			$0.52	1	20	1	1	$0.52	0.86	0.00	1.00	1.00	1.00	1.00	1	1
1	181	Ceiling R-19 to R-38 Insulation	square foot	$0.52			$0.52	1	20	1	1	$0.52	0.86	0.00	1.00	1.00	1.00	1.00	1	1
1	182	Wall 2x4 R-0 to Blow-In R-13 Insulation	square foot	$0.15	$1.17		$1.32	1	20	1	1	$1.32	0.86	0.00	1.00	1.00	1.00	1.00	1	1
1	183	Weather Strip/Caulk w/Blower Door	home	$69.66			$69.66	1	5	1	1	$69.66	0.07	0.00	1.00	1.00	1.00	1.00	1	1
1	190	Base 9 EER Room Air Conditioner & Strip Heater	unit	$400.00			$400.00	1	15	1	1	$400.00	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	191	HE Room Air Conditioner - EER 11	unit	$508.00			$508.00	1	15	0	0	$508.00	1.21	0.00	1.00	1.00	1.00	1.00	1	2
1	192	HE Room Air Conditioner - EER 12	unit	$674.99			$674.99	1	15	0	0	$674.99	1.21	0.00	1.00	1.00	1.00	1.00	1	2
1	196	Reflective Roof	square foot	$0.27			$0.27	1	15	1	1	$0.27	0.92	0.00	1.00	1.00	1.00	1.00	1	2
1	197	Window Film	square foot	$1.75			$1.75	1	10	1	1	$1.75	0.66	-0.19	1.00	1.00	1.00	1.00	1	1
1	198	Window Tinting	square foot	$1.19			$1.19	1	40	1	1	$1.19	1.08	0.00	1.00	1.00	1.00	1.00	1	2
1	199	Default Window With Sunscreen	square foot	$0.63	$0.64		$1.27	1	10	1	1	$1.27	1.76	-0.24	1.00	1.00	1.00	1.00	1	1
1	200	Single Pane Clear Windows to Double Pane Low-E Windows	square foot	$4.29			$4.29	1	40	1	1	$4.29	0.97	0.51	1.00	1.00	1.00	1.00	1	2
1	202	Ceiling R-0 to R-19 Insulation	square foot	$0.52			$0.52	1	20	1	1	$0.52	0.78	0.75	1.00	1.00	1.00	1.00	1	1
1	203	Ceiling R-19 to R-38 Insulation	square foot	$0.52			$0.52	1	20	1	1	$0.52	0.78	0.75	1.00	1.00	1.00	1.00	1	1
1	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	square foot	$0.15	$1.17		$1.32	1	20	1	1	$1.32	0.78	0.75	1.00	1.00	1.00	1.00	1	1
1	205	Weather Strip/Caulk w/Blower Door	home	$69.66			$69.66	1	5	1	1	$69.66	0.07	0.04	1.00	1.00	1.00	1.00	1	1
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	lamp	$0.60			$0.60	1	1,000	1	1	$0.60	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	lamp	$2.44			$2.44	1	5,000	1	1	$2.44	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	lamp	$0.60			$0.60	1	1,000	1	1	$0.60	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	lamp	$2.44			$2.44	1	5,000	1	1	$2.44	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	lamp	$0.60			$0.60	1	1,000	1	1	$0.60	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	lamp	$2.44			$2.44	1	5,000	1	1	$2.44	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	fixture	$12.00			$12.00	1	45,000	1	1	$12.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	251	ROB 2L4'T8, 1EB	fixture	$20.00			$20.00	1	70,000	0	0	$20.00	1.00	1.00	1.00	1.00	1.00	1.00	2	2
1	252	RET 2L4'T8, 1EB	fixture	$20.00			$20.00	1	70,000	1	1	$20.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	260	Base Outdoor Lighting	fixture	$12.00			$12.00	1	1,000	1	1	$12.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	261	CFL - medium screw based <30 Watts	fixture	$20.00			$20.00	1	5,000	0	0	$20.00	1.00	1.00	1.00	1.00	1.00	1.00	2	2
1	262	Photocell/timeclock	fixture	$20.00			$20.00	1	70,000	1	1	$20.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ice)	unit	$822.60	$0.00		$822.60	1	14	1	1	$822.60	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	301	HE Refrigerator - Energy Star version of above	unit	$921.80	$0.00		$921.80	1	14	0	0	$921.80	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	350	Base Freezer	unit	$421.80	$0.00		$421.80	1	11	1	1	$421.80	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	351	HE Freezer	unit	$471.60	$0.00		$471.60	1	11	0	0	$471.60	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	400	Base 40 gal. Water Heating (EF=0.92)	unit	$251.11			$251.11	1	13	1	1	$251.11	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	401	Heat Pump Water Heater (EF=2.9)	unit	$1,539.13	$122.83		$1,661.96	1	10	0	0	$1,661.96	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	402	HE Water Heater (EF=0.93)	unit	$323.41			$323.41	1	13	0	0	$323.41	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	403	Solar Water Heat	unit	$3,850.00			$3,850.00	1	15	0	0	$3,850.00	1.43	0.00	1.00	1.00	1.00	1.00	4	2
1	404	AC Heat Recovery Units	unit	$475.00			$475.00	1	10	1	1	$475.00	4.42	0.00	1.00	1.00	1.00	1.00	4	2
1	405	Low Flow Showerhead	unit	$14.32	$15.00		$29.32	1	10	1	1	$29.32	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	406	Pipe Wrap	linear foot	$0.37	$2.44		$2.81	1	13	1	1	$2.81	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	407	Faucet Aerators	unit	$3.74	$5.58		$9.32	1	10	1	1	$9.32	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	408	Water Heater Blanket	unit	$14.00			$14.00	1	7	1	1	$14.00	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	409	Water Heater Temperature Check and Adjustment	unit	$0.00	$5.00		$5.00	1	5	1	1	$5.00	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	410	Water Heater Timeclock	unit	$60.00			$60.00	1	10	1	1	$60.00	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	411	Heat Trap	unit	$20.00	$2.00		$22.00	1	10	1	1	$22.00	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	500	Base Clotheswasher (MEF=1.6)	unit	$588.39	$0.00		$588.39	1	11	1	1	$588.39	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	501	Energy Star CW CEE Tier 1 (MEF=1.8)	unit	$773.64	$0.00		$773.64	1	11	0	0	$773.64	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	502	Energy Star CW CEE Tier 2 (MEF=2.0)	unit	$902.06	$0.00		$902.06	1	11	0	0	$902.06	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	503	Energy Star CW CEE Tier 3 (MEF=2.2)	unit	$1,030.49	$0.00		$1,030.49	1	11	0	0	$1,030.49	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	600	Base Clothes Dryer (EF=3.01)	unit	$319.02	$0.00		$319.02	1	18	1	1	$319.02	1.00	1.00	1.00	1.00	1.00	1.00	6	2
1	610	High Efficiency CD (EF=3.01 w/moisture sensor)	unit	$557.25	$0.00		$557.25	1	18	0	0	$557.25	1.00	1.00	1.00	1.00	1.00	1.00	6	2
1	700	Base Dishwasher (EF=0.46)	unit	$292.65	$0.00		$292.65	1	13	1	1	$292.65	1.00	1.00	1.00	1.00	1.00	1.00	7	2
1	701	Energy Star DW (EF=0.68)	unit	$690.09	$0.00		$690.09	1	13	0	0	$690.09	1.00	1.00	1.00	1.00	1.00	1.00	7	2
1	800	Base Pool Pump and Motor (1.5 hp)	unit	$345.03	$0.00		$345.03	1	10	1	1	$345.03	1.00	1.00	1.00	1.00	1.00	1.00	8	2
1	801	Two Speed Pool Pump (1.5 hp)	unit	$527.21	$0.00		$527.21	1	5	0	0	$527.21	1.00	1.00	1.00	1.00	1.00	1.00	8	2
1	802	High Efficiency One Speed Pool Pump (1.5 hp)	unit	$395.94	$0.00		$395.94	1	5	0	0	$395.94	1.00	1.00	1.00	1.00	1.00	1.00	8	2
1	803	Variable-Speed Pool Pump (<1 hp)	unit	$1,300.00	$0.00		$1,300.00	1	10	0	0	$1,300.00	1.00	1.00	1.00	1.00	1.00	1.00	8	2
1	804	PV-Powered Pool Pumps	unit	$5,000.00	$0.00		$5,000.00	1	10	0	0	$5,000.00	1.00	1.00	1.00	1.00	1.00	1.00	8	2
1	900	Base CRT TV	unit				$0.00	1	7	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	901	Energy Star TV	unit	$0.00	$0.00		$0.00	1	7	0	0	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	910	Base Large-screen TV	unit				$0.00	1	7	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	911	Energy Star TV	unit	$0.00	$0.00		$0.00	1	7	0	0	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	920	Base Set-Top Box	unit				$0.00	1	7	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	921	Energy Star Set-Top Box	unit	$0.00	$0.00		$0.00	1	7	0	0	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	930	Base DVD Player	unit				$0.00	1	7	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2

B.1 Measure Inputs - Residential

MEASURE COSTS						NPV of				Full = 1												Implementatic
				Unit	Unit	Lifetime	Implementation	Cost Units		Incr. = 0		Full										Type
			Cost	Equipment	Labor	O & M	Cost	per Savings	Service	Initial	Replace	Unit	Relative Energy Reduction Factors								1=1 time
Segment	Measure #	Measure Description	Units	Cost	Cost	Cost	Factor	Unit	Life	Cost	Cost	Cost	SP	WP	OP	n/a	n/a	n/a	End Use	2=ROB
1	931	Energy Star DVD Player	unit	$0.00	$0.00		$0.00	1	7	0	0	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	940	Base VCR	unit				$0.00	1	7	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	941	Energy Star VCR	unit	$0.00	$0.00		$0.00	1	7	0	0	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	950	Base Desktop PC	unit				$0.00	1	7	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	951	Energy Star Desktop PC	unit	$0.00	$0.00		$0.00	1	7	0	0	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	960	Base Laptop PC	unit				$0.00	1	7	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2
1	961	Energy Star Laptop PC	unit	$0.00	$0.00		$0.00	1	7	0	0	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9	2

B.1 Measure Inputs - Residential

BASE TECHNOLOGY EUIs
(kWh/household)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	100	Base 13 SEER Split-System CAC & Strip Heater	6,574	3,956	4,581
1	130	Base 13 SEER Split-System Heat Pump	5,929	3,529	4,129
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat			
1	190	Base 9 EER Room Air Conditioner & Strip Heater	2,936	2,558	2,474
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	88	88	88
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	767	767	767
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	394	394	394
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	88	88	88
1	260	Base Outdoor Lighting	164	164	164
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ic	1,196	1,196	1,196
1	350	Base Freezer	740	740	740
1	400	Base 40 gal. Water Heating (EF=0.88)	2,619	1,711	1,987
1	500	Base Clotheswasher (MEF=1.6)	886	886	886
1	600	Base Clothes Dryer (EF=3.01)	1,124	797	674
1	700	Base Dishwasher (EF=0.46)	653	502	502
1	800	Base Pool Pump and Motor (1.5 hp)	3,121	3,121	3,121
1	900	Base CRT TV	123	123	123
1	910	Base Large-screen TV	140	140	140
1	920	Base Set-Top Box	130	130	130
1	930	Base DVD Player	36	36	36
1	940	Base VCR	47	47	47
1	950	Base Desktop PC	237	237	237
1	960	Base Laptop PC	72	72	72

B.1 Measure Inputs - Residential

ENERGY SAVINGS
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	100	Base 13 SEER Split-System Air Conditioner & Strip Heater	0.0%	0.0%	0.0%
1	101	14 SEER Split-System Air Conditioner	6.5%	5.9%	6.0%
1	102	15 SEER Split-System Air Conditioner	11.4%	10.4%	10.5%
1	103	17 SEER Split-System Air Conditioner	18.0%	16.5%	16.6%
1	104	19 SEER Split-System Air Conditioner	22.9%	21.0%	21.1%
1	105	14 SEER Split-System Heat Pump	20.3%	21.1%	19.9%
1	106	15 SEER Split-System Heat Pump	25.7%	26.1%	24.9%
1	107	17 SEER Split-System Heat Pump	33.1%	32.9%	31.7%
1	108	13 EER Geothermal Heat Pump	33.1%	32.9%	31.7%
1	109	HVAC Proper Sizing	2.0%	2.0%	2.0%
1	110	Attic Venting	5.0%	5.0%	5.0%
1	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	9.0%	9.0%	9.0%
1	112	AC Maintenance (Outdoor Coil Cleaning)	6.3%	6.3%	6.3%
1	113	AC Maintenance (Indoor Coil Cleaning)	6.3%	6.3%	6.3%
1	114	Proper Refrigerant Charging and Air Flow	8.8%	8.8%	8.8%
1	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	6.0%	6.0%	6.0%
1	116	Duct Repair	7.1%	4.8%	6.1%
1	117	Reflective Roof	12.6%	13.5%	12.6%
1	118	Radient Barrier	12.0%	8.0%	10.0%
1	119	Window Film	1.9%	2.9%	3.3%
1	120	Window Tinting	1.9%	2.9%	3.3%
1	121	Default Window With Sunscreen	3.8%	3.8%	3.8%
1	122	Single Pane Clear Windows to Double Pane Low-E Windows	15.0%	15.0%	15.0%
1	124	Ceiling R-0 to R-19 Insulation	8.3%	7.8%	6.8%
1	125	Ceiling R-19 to R-38 Insulation	0.4%	0.4%	0.3%
1	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	1.0%	1.0%	1.0%
1	127	Weather Strip/Caulk w/Blower Door	2.0%	2.0%	2.0%
1	130	Base 13 SEER Split-System Heat Pump	0.0%	0.0%	0.0%
1	131	14 SEER Split-System Heat Pump	8.1%	7.6%	7.5%
1	132	15 SEER Split-System Heat Pump	14.2%	13.4%	13.2%
1	133	17 SEER Split-System Heat Pump	22.8%	21.5%	21.2%
1	134	13 EER Geothermal Heat Pump	22.8%	21.5%	21.2%
1	135	HVAC Proper Sizing	2.0%	2.0%	2.0%

B.1 Measure Inputs - Residential

ENERGY SAVINGS
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	136	Attic Venting	5.0%	5.0%	5.0%
1	137	Sealed Attics	9.0%	9.0%	9.0%
1	138	AC Maintenance (Outdoor Coil Cleaning)	6.5%	6.5%	6.5%
1	139	AC Maintenance (Indoor Coil Cleaning)	6.5%	6.5%	6.5%
1	140	Proper Refrigerant Charging and Air Flow	9.1%	9.1%	9.1%
1	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	12.2%	12.2%	12.2%
1	142	Duct Repair	6.7%	4.4%	5.1%
1	143	Reflective Roof	13.1%	13.9%	13.1%
1	144	Radient Barrier	12.0%	8.0%	10.0%
1	145	Window Film	2.1%	3.2%	3.7%
1	146	Window Tinting	2.1%	3.2%	3.7%
1	147	Default Window With Sunscreen	3.8%	3.8%	3.8%
1	148	Single Pane Clear Windows to Double Pane Low-E Windows	15.0%	15.0%	15.0%
1	150	Ceiling R-0 to R-19 Insulation	8.6%	8.0%	7.1%
1	151	Ceiling R-19 to R-38 Insulation	0.4%	0.4%	0.4%
1	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	1.0%	1.0%	1.0%
1	153	Weather Strip/Caulk w/Blower Door	2.0%	2.0%	2.0%
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat	0.0%	0.0%	0.0%
1	161	14 SEER Split-System Air Conditioner	8.2%	7.7%	7.5%
1	162	15 SEER Split-System Air Conditioner	14.3%	13.5%	13.2%
1	163	17 SEER Split-System Air Conditioner	22.7%	21.3%	20.9%
1	164	19 SEER Split-System Air Conditioner	29.0%	27.2%	26.7%
1	165	HVAC Proper Sizing	2.1%	2.1%	2.1%
1	166	Attic Venting	5.0%	5.0%	5.0%
1	167	Sealed Attic w/Sprayed Foam Insulated Roof Deck	9.0%	9.0%	9.0%
1	168	AC Maintenance (Outdoor Coil Cleaning)	6.7%	6.7%	6.7%
1	169	AC Maintenance (Indoor Coil Cleaning)	6.7%	6.7%	6.7%
1	170	Proper Refrigerant Charging and Air Flow	9.3%	9.3%	9.3%
1	171	Electronically Commutated Motors (ECM) on an Air Handler Unit	6.4%	6.4%	6.4%
1	172	Duct Repair	6.0%	3.9%	3.8%
1	173	Reflective Roof	13.3%	14.1%	13.3%
1	174	Radient Barrier	12.0%	8.0%	10.0%
1	175	Window Film	2.3%	3.6%	4.1%

B.1 Measure Inputs - Residential

ENERGY SAVINGS
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	176	Window Tinting	2.3%	3.6%	4.1%
1	177	Default Window With Sunscreen	3.8%	3.8%	3.8%
1	178	Single Pane Clear Windows to Double Pane Low-E Windows	15.0%	15.0%	15.0%
1	180	Ceiling R-0 to R-19 Insulation	8.3%	7.8%	6.8%
1	181	Ceiling R-19 to R-38 Insulation	0.4%	0.4%	0.3%
1	182	Wall 2x4 R-0 to Blow-In R-13 Insulation	1.0%	1.0%	1.0%
1	183	Weather Strip/Caulk w/Blower Door	2.1%	2.1%	2.1%
1	190	Base 9 EER Room Air Conditioner & Strip Heater	0.0%	0.0%	0.0%
1	191	HE Room Air Conditioner - EER 11	15.0%	15.0%	15.0%
1	192	HE Room Air Conditioner - EER 12	20.7%	20.7%	20.7%
1	196	Reflective Roof	12.6%	13.5%	12.6%
1	197	Window Film	1.9%	2.9%	3.3%
1	198	Window Tinting	1.9%	2.9%	3.3%
1	199	Default Window With Sunscreen	3.8%	3.8%	3.8%
1	200	Single Pane Clear Windows to Double Pane Low-E Windows	15.0%	15.0%	15.0%
1	202	Ceiling R-0 to R-19 Insulation	18.5%	11.8%	12.5%
1	203	Ceiling R-19 to R-38 Insulation	0.9%	0.6%	0.6%
1	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	1.0%	1.0%	1.0%
1	205	Weather Strip/Caulk w/Blower Door	2.0%	2.0%	2.0%
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	0.0%	0.0%	0.0%
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	70.0%	70.0%	70.0%
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	0.0%	0.0%	0.0%
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	70.0%	70.0%	70.0%
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	0.0%	0.0%	0.0%
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	70.0%	70.0%	70.0%
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	0.0%	0.0%	0.0%
1	251	ROB 2L4'T8, 1EB	28.0%	28.0%	28.0%
1	252	RET 2L4'T8, 1EB	28.0%	28.0%	28.0%
1	260	Base Outdoor Lighting	0.0%	0.0%	0.0%
1	261	CFL - medium screw based <30 Watts	70.0%	70.0%	70.0%
1	262	Photocell/timeclock	15.0%	15.0%	15.0%
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ice	0.0%	0.0%	0.0%
1	301	HE Refrigerator - Energy Star version of above	20.0%	20.0%	20.0%

B.1 Measure Inputs - Residential

ENERGY SAVINGS
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	350	Base Freezer	0.0%	0.0%	0.0%
1	351	HE Freezer	10.0%	10.0%	10.0%
1	400	Base 40 gal. Water Heating (EF=0.92)	0.0%	0.0%	0.0%
1	401	Heat Pump Water Heater (EF=2.9)	68.3%	68.3%	68.3%
1	402	HE Water Heater (EF=0.93)	1.1%	1.1%	1.1%
1	403	Solar Water Heat	70.0%	70.0%	70.0%
1	404	AC Heat Recovery Units	11.4%	11.4%	11.4%
1	405	Low Flow Showerhead	7.5%	7.5%	7.5%
1	406	Pipe Wrap	2.0%	2.0%	2.0%
1	407	Faucet Aerators	3.0%	3.0%	3.0%
1	408	Water Heater Blanket	10.0%	10.0%	10.0%
1	409	Water Heater Temperature Check and Adjustment	1.0%	1.0%	1.0%
1	410	Water Heater Timeclock	5.0%	5.0%	5.0%
1	411	Heat Trap	9.0%	9.0%	9.0%
1	500	Base Clotheswasher (MEF=1.6)	0.0%	0.0%	0.0%
1	501	Energy Star CW CEE Tier 1 (MEF=1.8)	11.1%	11.1%	11.1%
1	502	Energy Star CW CEE Tier 2 (MEF=2.0)	20.0%	20.0%	20.0%
1	503	Energy Star CW CEE Tier 3 (MEF=2.3)	27.3%	27.3%	27.3%
1	600	Base Clothes Dryer (EF=3.01)	0.0%	0.0%	0.0%
1	610	High Efficiency CD (EF=3.01 w/moisture sensor)	15.0%	15.0%	15.0%
1	700	Base Dishwasher (EF=0.46)	0.0%	0.0%	0.0%
1	701	Energy Star DW (EF=0.68)	32.4%	32.4%	32.4%
1	800	Base Pool Pump and Motor (1.5 hp)	0.0%	0.0%	0.0%
1	801	Two Speed Pool Pump (1.5 hp)	49.0%	49.0%	49.0%
1	802	High Efficiency One Speed Pool Pump (1.5 hp)	25.0%	25.0%	25.0%
1	803	Variable-Speed Pool Pump (<1 hp)	75.0%	75.0%	75.0%
1	804	PV-Powered Pool Pumps	100.0%	100.0%	100.0%
1	900	Base CRT TV	0.0%	0.0%	0.0%
1	901	Energy Star TV	9.3%	9.3%	9.3%
1	910	Base Large-screen TV	0.0%	0.0%	0.0%
1	911	Energy Star TV	30.0%	30.0%	30.0%
1	920	Base Set-Top Box	0.0%	0.0%	0.0%
1	921	Energy Star Set-Top Box	39.6%	39.6%	39.6%

B.1 Measure Inputs - Residential

ENERGY SAVINGS
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	930	Base DVD Player	0.0%	0.0%	0.0%
1	931	Energy Star DVD Player	54.9%	54.9%	54.9%
1	940	Base VCR	0.0%	0.0%	0.0%
1	941	Energy Star VCR	58.0%	58.0%	58.0%
1	950	Base Desktop PC	0.0%	0.0%	0.0%
1	951	Energy Star Desktop PC	13.4%	13.4%	13.4%
1	960	Base Laptop PC	0.0%	0.0%	0.0%
1	961	Energy Star Laptop PC	17.9%	17.9%	17.9%

B.1 Measure Inputs - Residential

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	100	Base 13 SEER Split-System Air Conditioner & Strip Heater	54.8%	77.2%	70.2%
1	101	14 SEER Split-System Air Conditioner	27.4%	38.6%	35.1%
1	102	15 SEER Split-System Air Conditioner	27.4%	38.6%	35.1%
1	103	17 SEER Split-System Air Conditioner	27.4%	38.6%	35.1%
1	104	19 SEER Split-System Air Conditioner	27.4%	38.6%	35.1%
1	105	14 SEER Split-System Heat Pump	27.4%	38.6%	35.1%
1	106	15 SEER Split-System Heat Pump	27.4%	38.6%	35.1%
1	107	17 SEER Split-System Heat Pump	27.4%	38.6%	35.1%
1	108	13 EER Geothermal Heat Pump	27.4%	38.6%	35.1%
1	109	HVAC Proper Sizing	54.8%	77.2%	70.2%
1	110	Attic Venting	54.8%	77.2%	70.2%
1	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	54.8%	77.2%	70.2%
1	112	AC Maintenance (Outdoor Coil Cleaning)	54.8%	77.2%	70.2%
1	113	AC Maintenance (Indoor Coil Cleaning)	54.8%	77.2%	70.2%
1	114	Proper Refrigerant Charging and Air Flow	54.8%	77.2%	70.2%
1	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	54.8%	77.2%	70.2%
1	116	Duct Repair	54.8%	77.2%	70.2%
1	117	Reflective Roof	54.8%	77.2%	70.2%
1	118	Radient Barrier	54.8%	77.2%	70.2%
1	119	Window Film	54.8%	77.2%	70.2%
1	120	Window Tinting	54.8%	77.2%	70.2%
1	121	Default Window With Sunscreen	54.8%	77.2%	70.2%
1	122	Single Pane Clear Windows to Double Pane Low-E Windows	54.8%	77.2%	70.2%
1	124	Ceiling R-0 to R-19 Insulation	54.8%	77.2%	70.2%
1	125	Ceiling R-19 to R-38 Insulation	54.8%	77.2%	70.2%
1	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	54.8%	77.2%	70.2%
1	127	Weather Strip/Caulk w/Blower Door	54.8%	77.2%	70.2%
1	130	Base 13 SEER Split-System Heat Pump	40.7%	13.8%	24.5%
1	131	14 SEER Split-System Heat Pump	40.7%	13.8%	24.5%
1	132	15 SEER Split-System Heat Pump	40.7%	13.8%	24.5%
1	133	17 SEER Split-System Heat Pump	40.7%	13.8%	24.5%
1	134	13 EER Geothermal Heat Pump	40.7%	13.8%	24.5%
1	135	HVAC Proper Sizing	40.7%	13.8%	24.5%

B.1 Measure Inputs - Residential

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	136	Attic Venting	40.7%	13.8%	24.5%
1	137	Sealed Attics	40.7%	13.8%	24.5%
1	138	AC Maintenance (Outdoor Coil Cleaning)	40.7%	13.8%	24.5%
1	139	AC Maintenance (Indoor Coil Cleaning)	40.7%	13.8%	24.5%
1	140	Proper Refrigerant Charging and Air Flow	40.7%	13.8%	24.5%
1	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	40.7%	13.8%	24.5%
1	142	Duct Repair	40.7%	13.8%	24.5%
1	143	Reflective Roof	40.7%	13.8%	24.5%
1	144	Radient Barrier	40.7%	13.8%	24.5%
1	145	Window Film	40.7%	13.8%	24.5%
1	146	Window Tinting	40.7%	13.8%	24.5%
1	147	Default Window With Sunscreen	40.7%	13.8%	24.5%
1	148	Single Pane Clear Windows to Double Pane Low-E Windows	40.7%	13.8%	24.5%
1	150	Ceiling R-0 to R-19 Insulation	40.7%	13.8%	24.5%
1	151	Ceiling R-19 to R-38 Insulation	40.7%	13.8%	24.5%
1	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	40.7%	13.8%	24.5%
1	153	Weather Strip/Caulk w/Blower Door	40.7%	13.8%	24.5%
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat	0.0%	0.0%	0.0%
1	161	14 SEER Split-System Air Conditioner	0.0%	0.0%	0.0%
1	162	15 SEER Split-System Air Conditioner	0.0%	0.0%	0.0%
1	163	17 SEER Split-System Air Conditioner	0.0%	0.0%	0.0%
1	164	19 SEER Split-System Air Conditioner	0.0%	0.0%	0.0%
1	165	HVAC Proper Sizing	0.0%	0.0%	0.0%
1	166	Attic Venting	0.0%	0.0%	0.0%
1	167	Sealed Attic w/Sprayed Foam Insulated Roof Deck	0.0%	0.0%	0.0%
1	168	AC Maintenance (Outdoor Coil Cleaning)	0.0%	0.0%	0.0%
1	169	AC Maintenance (Indoor Coil Cleaning)	0.0%	0.0%	0.0%
1	170	Proper Refrigerant Charging and Air Flow	0.0%	0.0%	0.0%
1	171	Electronically Commutated Motors (ECM) on an Air Handler Unit	0.0%	0.0%	0.0%
1	172	Duct Repair	0.0%	0.0%	0.0%
1	173	Reflective Roof	0.0%	0.0%	0.0%
1	174	Radient Barrier	0.0%	0.0%	0.0%
1	175	Window Film	0.0%	0.0%	0.0%

B.1 Measure Inputs - Residential

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	176	Window Tinting	0.0%	0.0%	0.0%
1	177	Default Window With Sunscreen	0.0%	0.0%	0.0%
1	178	Single Pane Clear Windows to Double Pane Low-E Windows	0.0%	0.0%	0.0%
1	180	Ceiling R-0 to R-19 Insulation	0.0%	0.0%	0.0%
1	181	Ceiling R-19 to R-38 Insulation	0.0%	0.0%	0.0%
1	182	Wall 2x4 R-0 to Blow-In R-13 Insulation	0.0%	0.0%	0.0%
1	183	Weather Strip/Caulk w/Blower Door	0.0%	0.0%	0.0%
1	190	Base 9 EER Room Air Conditioner & Strip Heater	3.5%	8.4%	5.3%
1	191	HE Room Air Conditioner - EER 11	3.5%	8.4%	5.3%
1	192	HE Room Air Conditioner - EER 12	3.5%	8.4%	5.3%
1	196	Reflective Roof	3.5%	8.4%	5.3%
1	197	Window Film	3.5%	8.4%	5.3%
1	198	Window Tinting	3.5%	8.4%	5.3%
1	199	Default Window With Sunscreen	3.5%	8.4%	5.3%
1	200	Single Pane Clear Windows to Double Pane Low-E Windows	3.5%	8.4%	5.3%
1	202	Ceiling R-0 to R-19 Insulation	3.5%	8.4%	5.3%
1	203	Ceiling R-19 to R-38 Insulation	3.5%	8.4%	5.3%
1	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	3.5%	8.4%	5.3%
1	205	Weather Strip/Caulk w/Blower Door	3.5%	8.4%	5.3%
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	100.0%	100.0%	100.0%
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	100.0%	100.0%	100.0%
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	100.0%	100.0%	100.0%
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	100.0%	100.0%	100.0%
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	100.0%	100.0%	100.0%
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	100.0%	100.0%	100.0%
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	100.0%	100.0%	100.0%
1	251	ROB 2L4'T8, 1EB	100.0%	100.0%	100.0%
1	252	RET 2L4'T8, 1EB	100.0%	100.0%	100.0%
1	260	Base Outdoor Lighting	100.0%	100.0%	100.0%
1	261	CFL - medium screw based <30 Watts	100.0%	100.0%	100.0%
1	262	Photocell/timeclock	100.0%	100.0%	100.0%
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ic	99.1%	98.5%	97.9%
1	301	HE Refrigerator - Energy Star version of above	99.1%	98.5%	97.9%

B.1 Measure Inputs - Residential

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	350	Base Freezer	27.4%	8.0%	23.4%
1	351	HE Freezer	27.4%	8.0%	23.4%
1	400	Base 40 gal. Water Heating (EF=0.88)	83.4%	91.3%	95.7%
1	401	Heat Pump Water Heater (EF=2.9)	83.4%	91.3%	95.7%
1	402	HE Water Heater (EF=0.93)	83.4%	91.3%	95.7%
1	403	Solar Water Heat	83.4%	91.3%	95.7%
1	404	AC Heat Recovery Units	83.4%	91.3%	95.7%
1	405	Low Flow Showerhead	83.4%	91.3%	95.7%
1	406	Pipe Wrap	83.4%	91.3%	95.7%
1	407	Faucet Aerators	83.4%	91.3%	95.7%
1	408	Water Heater Blanket	83.4%	91.3%	95.7%
1	409	Water Heater Temperature Check and Adjustment	83.4%	91.3%	95.7%
1	410	Water Heater Timeclock	83.4%	91.3%	95.7%
1	411	Heat Trap	83.4%	91.3%	95.7%
1	500	Base Clotheswasher (MEF=1.6)	98.0%	62.2%	91.5%
1	501	Energy Star CW CEE Tier 1 (MEF=1.8)	98.0%	62.2%	91.5%
1	502	Energy Star CW CEE Tier 2 (MEF=2.0)	98.0%	62.2%	91.5%
1	503	Energy Star CW CEE Tier 3 (MEF=2.3)	98.0%	62.2%	91.5%
1	600	Base Clothes Dryer (EF=3.01)	91.3%	60.0%	84.0%
1	610	High Efficiency CD (EF=3.01 w/moisture sensor)	91.3%	60.0%	84.0%
1	700	Base Dishwasher (EF=0.46)	85.0%	77.1%	54.3%
1	701	Energy Star DW (EF=0.68)	85.0%	77.1%	54.3%
1	800	Base Pool Pump and Motor (1.5 hp)	29.9%	0.2%	2.1%
1	801	Two Speed Pool Pump (1.5 hp)	29.9%	0.2%	2.1%
1	802	High Efficiency One Speed Pool Pump (1.5 hp)	29.9%	0.2%	2.1%
1	803	Variable-Speed Pool Pump (<1 hp)	29.9%	0.2%	2.1%
1	804	PV-Powered Pool Pumps	29.9%	0.2%	2.1%
1	900	Base CRT TV	52.4%	79.3%	81.3%
1	901	Energy Star TV	52.4%	79.3%	81.3%
1	910	Base Large-screen TV	45.1%	16.7%	17.6%
1	911	Energy Star TV	45.1%	16.7%	17.6%
1	920	Base Set-Top Box	83.8%	57.4%	60.8%
1	921	Energy Star Set-Top Box	83.8%	57.4%	60.8%

B.1 Measure Inputs - Residential

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	930	Base DVD Player	83.4%	74.2%	70.6%
1	931	Energy Star DVD Player	83.4%	74.2%	70.6%
1	940	Base VCR	87.8%	82.3%	88.3%
1	941	Energy Star VCR	87.8%	82.3%	88.3%
1	950	Base Desktop PC	66.1%	50.3%	53.2%
1	951	Energy Star Desktop PC	66.1%	50.3%	53.2%
1	960	Base Laptop PC	18.5%	14.1%	14.9%
1	961	Energy Star Laptop PC	18.5%	14.1%	14.9%

B.1 Measure Inputs - Residential

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	100	Base 13 SEER Split-System Air Conditioner & Strip Heater	100.0%	100.0%	100.0%
1	101	14 SEER Split-System Air Conditioner	94.8%	94.8%	94.8%
1	102	15 SEER Split-System Air Conditioner	98.4%	98.4%	98.4%
1	103	17 SEER Split-System Air Conditioner	99.0%	99.0%	99.0%
1	104	19 SEER Split-System Air Conditioner	99.9%	99.9%	99.9%
1	105	14 SEER Split-System Heat Pump	94.8%	94.8%	94.8%
1	106	15 SEER Split-System Heat Pump	98.4%	98.4%	98.4%
1	107	17 SEER Split-System Heat Pump	99.0%	99.0%	99.0%
1	108	13 EER Geothermal Heat Pump	99.6%	98.2%	100.0%
1	109	HVAC Proper Sizing	50.0%	50.0%	50.0%
1	110	Attic Venting	90.0%	90.0%	90.0%
1	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	95.0%	95.0%	95.0%
1	112	AC Maintenance (Outdoor Coil Cleaning)	60.0%	60.0%	60.0%
1	113	AC Maintenance (Indoor Coil Cleaning)	80.0%	80.0%	80.0%
1	114	Proper Refrigerant Charging and Air Flow	40.0%	40.0%	40.0%
1	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	59.1%	59.1%	59.1%
1	116	Duct Repair	90.0%	90.0%	90.0%
1	117	Reflective Roof	80.7%	80.7%	80.7%
1	118	Radient Barrier	95.0%	95.0%	95.0%
1	119	Window Film	90.0%	90.0%	90.0%
1	120	Window Tinting	90.0%	90.0%	90.0%
1	121	Default Window With Sunscreen	95.0%	95.0%	95.0%
1	122	Single Pane Clear Windows to Double Pane Low-E Windows	90.0%	90.0%	90.0%
1	124	Ceiling R-0 to R-19 Insulation	7.4%	14.0%	31.8%
1	125	Ceiling R-19 to R-38 Insulation	80.3%	91.0%	59.1%
1	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	74.6%	80.9%	18.2%
1	127	Weather Strip/Caulk w/Blower Door	40.0%	40.0%	40.0%
1	130	Base 13 SEER Split-System Heat Pump	100.0%	100.0%	100.0%
1	131	14 SEER Split-System Heat Pump	94.8%	94.8%	94.8%
1	132	15 SEER Split-System Heat Pump	98.4%	98.4%	98.4%
1	133	17 SEER Split-System Heat Pump	99.0%	99.0%	99.0%
1	134	13 EER Geothermal Heat Pump	99.6%	98.2%	100.0%
1	135	HVAC Proper Sizing	50.0%	50.0%	50.0%

B.1 Measure Inputs - Residential

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	136	Attic Venting	90.0%	90.0%	90.0%
1	137	Sealed Attics	95.0%	95.0%	95.0%
1	138	AC Maintenance (Outdoor Coil Cleaning)	60.0%	60.0%	60.0%
1	139	AC Maintenance (Indoor Coil Cleaning)	80.0%	80.0%	80.0%
1	140	Proper Refrigerant Charging and Air Flow	40.0%	40.0%	40.0%
1	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	59.1%	59.1%	59.1%
1	142	Duct Repair	90.0%	90.0%	90.0%
1	143	Reflective Roof	80.7%	80.7%	80.7%
1	144	Radient Barrier	95.0%	95.0%	95.0%
1	145	Window Film	90.0%	90.0%	90.0%
1	146	Window Tinting	90.0%	90.0%	90.0%
1	147	Default Window With Sunscreen	95.0%	95.0%	95.0%
1	148	Single Pane Clear Windows to Double Pane Low-E Windows	90.0%	90.0%	90.0%
1	150	Ceiling R-0 to R-19 Insulation	7.4%	14.0%	31.8%
1	151	Ceiling R-19 to R-38 Insulation	80.3%	91.0%	59.1%
1	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	74.6%	80.9%	18.2%
1	153	Weather Strip/Caulk w/Blower Door	40.0%	40.0%	40.0%
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat	100.0%	100.0%	100.0%
1	161	14 SEER Split-System Air Conditioner	94.8%	94.8%	94.8%
1	162	15 SEER Split-System Air Conditioner	98.4%	98.4%	98.4%
1	163	17 SEER Split-System Air Conditioner	99.0%	99.0%	99.0%
1	164	19 SEER Split-System Air Conditioner	99.9%	99.9%	99.9%
1	165	HVAC Proper Sizing	50.0%	50.0%	50.0%
1	166	Attic Venting	90.0%	90.0%	90.0%
1	167	Sealed Attic w/Sprayed Foam Insulated Roof Deck	95.0%	95.0%	95.0%
1	168	AC Maintenance (Outdoor Coil Cleaning)	60.0%	60.0%	60.0%
1	169	AC Maintenance (Indoor Coil Cleaning)	80.0%	80.0%	80.0%
1	170	Proper Refrigerant Charging and Air Flow	40.0%	40.0%	40.0%
1	171	Electronically Commutated Motors (ECM) on an Air Handler Unit	59.1%	59.1%	59.1%
1	172	Duct Repair	90.0%	90.0%	90.0%
1	173	Reflective Roof	80.7%	80.7%	80.7%
1	174	Radient Barrier	95.0%	95.0%	95.0%
1	175	Window Film	90.0%	90.0%	90.0%

B.1 Measure Inputs - Residential

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	176	Window Tinting	90.0%	90.0%	90.0%
1	177	Default Window With Sunscreen	95.0%	95.0%	95.0%
1	178	Single Pane Clear Windows to Double Pane Low-E Windows	90.0%	90.0%	90.0%
1	180	Ceiling R-0 to R-19 Insulation	7.4%	14.0%	31.8%
1	181	Ceiling R-19 to R-38 Insulation	80.3%	91.0%	59.1%
1	182	Wall 2x4 R-0 to Blow-In R-13 Insulation	74.6%	80.9%	18.2%
1	183	Weather Strip/Caulk w/Blower Door	40.0%	40.0%	40.0%
1	190	Base 9 EER Room Air Conditioner & Strip Heater	100.0%	100.0%	100.0%
1	191	HE Room Air Conditioner - EER 11	99.4%	99.4%	99.4%
1	192	HE Room Air Conditioner - EER 12	100.0%	100.0%	100.0%
1	196	Reflective Roof	80.7%	80.7%	80.7%
1	197	Window Film	90.0%	90.0%	90.0%
1	198	Window Tinting	90.0%	90.0%	90.0%
1	199	Default Window With Sunscreen	95.0%	95.0%	95.0%
1	200	Single Pane Clear Windows to Double Pane Low-E Windows	90.0%	90.0%	90.0%
1	202	Ceiling R-0 to R-19 Insulation	7.4%	14.0%	31.8%
1	203	Ceiling R-19 to R-38 Insulation	80.3%	91.0%	59.1%
1	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	74.6%	80.9%	18.2%
1	205	Weather Strip/Caulk w/Blower Door	40.0%	40.0%	40.0%
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	100.0%	100.0%	100.0%
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	94.0%	96.0%	93.4%
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	100.0%	100.0%	100.0%
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	94.0%	96.0%	93.4%
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	100.0%	100.0%	100.0%
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	94.0%	96.0%	93.4%
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	100.0%	100.0%	100.0%
1	251	ROB 2L4'T8, 1EB	95.0%	95.0%	95.0%
1	252	RET 2L4'T8, 1EB	95.0%	95.0%	95.0%
1	260	Base Outdoor Lighting	100.0%	100.0%	100.0%
1	261	CFL - medium screw based <30 Watts	92.9%	96.6%	98.3%
1	262	Photocell/timeclock	95.0%	95.0%	95.0%
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ic	100.0%	100.0%	100.0%
1	301	HE Refrigerator - Energy Star version of above	85.9%	85.9%	85.9%

B.1 Measure Inputs - Residential

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	350	Base Freezer	100.0%	100.0%	100.0%
1	351	HE Freezer	90.0%	90.0%	90.0%
1	400	Base 40 gal. Water Heating (EF=0.88)	100.0%	100.0%	100.0%
1	401	Heat Pump Water Heater (EF=2.9)	95.0%	95.0%	95.0%
1	402	HE Water Heater (EF=0.93)	95.0%	95.0%	95.0%
1	403	Solar Water Heat	97.8%	100.0%	100.0%
1	404	AC Heat Recovery Units	97.0%	97.0%	97.0%
1	405	Low Flow Showerhead	57.6%	77.6%	57.6%
1	406	Pipe Wrap	80.1%	86.1%	80.1%
1	407	Faucet Aerators	69.9%	81.8%	69.9%
1	408	Water Heater Blanket	70.0%	70.0%	70.0%
1	409	Water Heater Temperature Check and Adjustment	50.0%	50.0%	50.0%
1	410	Water Heater Timeclock	90.0%	90.0%	90.0%
1	411	Heat Trap	90.0%	90.0%	90.0%
1	500	Base Clotheswasher (MEF=1.6)	100.0%	100.0%	100.0%
1	501	Energy Star CW CEE Tier 1 (MEF=1.8)	78.2%	78.2%	78.2%
1	502	Energy Star CW CEE Tier 2 (MEF=2.0)	95.0%	95.0%	95.0%
1	503	Energy Star CW CEE Tier 3 (MEF=2.3)	99.0%	99.0%	99.0%
1	600	Base Clothes Dryer (EF=3.01)	100.0%	100.0%	100.0%
1	610	High Efficiency CD (EF=3.01 w/moisture sensor)	90.0%	90.0%	90.0%
1	700	Base Dishwasher (EF=0.46)	100.0%	100.0%	100.0%
1	701	Energy Star DW (EF=0.68)	77.3%	77.3%	77.3%
1	800	Base Pool Pump and Motor (1.5 hp)	100.0%	100.0%	100.0%
1	801	Two Speed Pool Pump (1.5 hp)	95.0%	95.0%	95.0%
1	802	High Efficiency One Speed Pool Pump (1.5 hp)	95.0%	95.0%	95.0%
1	803	Variable-Speed Pool Pump (<1 hp)	99.0%	99.0%	99.0%
1	804	PV-Powered Pool Pumps	99.0%	99.0%	99.0%
1	900	Base CRT TV	100.0%	100.0%	100.0%
1	901	Energy Star TV	55.0%	55.0%	55.0%
1	910	Base Large-screen TV	100.0%	100.0%	100.0%
1	911	Energy Star TV	72.6%	72.6%	72.6%
1	920	Base Set-Top Box	100.0%	100.0%	100.0%
1	921	Energy Star Set-Top Box	100.0%	100.0%	100.0%

B.1 Measure Inputs - Residential

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	930	Base DVD Player	100.0%	100.0%	100.0%
1	931	Energy Star DVD Player	46.7%	46.7%	46.7%
1	940	Base VCR	100.0%	100.0%	100.0%
1	941	Energy Star VCR	8.6%	8.6%	8.6%
1	950	Base Desktop PC	100.0%	100.0%	100.0%
1	951	Energy Star Desktop PC	85.0%	85.0%	85.0%
1	960	Base Laptop PC	100.0%	100.0%	100.0%
1	961	Energy Star Laptop PC	85.0%	85.0%	85.0%

B.1 Measure Inputs - Residential

FEASIBILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	100	Base 13 SEER Split-System Air Conditioner & Strip Heater	100%	100%	100%
1	101	14 SEER Split-System Air Conditioner	100%	100%	100%
1	102	15 SEER Split-System Air Conditioner	100%	100%	100%
1	103	17 SEER Split-System Air Conditioner	100%	100%	100%
1	104	19 SEER Split-System Air Conditioner	100%	100%	100%
1	105	14 SEER Split-System Heat Pump	100%	100%	100%
1	106	15 SEER Split-System Heat Pump	100%	100%	100%
1	107	17 SEER Split-System Heat Pump	100%	100%	100%
1	108	13 EER Geothermal Heat Pump	50%	50%	25%
1	109	HVAC Proper Sizing	50%	50%	50%
1	110	Attic Venting	80%	25%	80%
1	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	80%	80%	80%
1	112	AC Maintenance (Outdoor Coil Cleaning)	100%	100%	100%
1	113	AC Maintenance (Indoor Coil Cleaning)	80%	80%	80%
1	114	Proper Refrigerant Charging and Air Flow	100%	100%	100%
1	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	90%	90%	90%
1	116	Duct Repair	100%	100%	100%
1	117	Reflective Roof	42%	42%	42%
1	118	Radient Barrier	75%	75%	75%
1	119	Window Film	75%	75%	75%
1	120	Window Tinting	75%	75%	75%
1	121	Default Window With Sunscreen	100%	100%	100%
1	122	Single Pane Clear Windows to Double Pane Low-E Windows	100%	100%	100%
1	124	Ceiling R-0 to R-19 Insulation	75%	75%	75%
1	125	Ceiling R-19 to R-38 Insulation	80%	80%	80%
1	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	75%	75%	75%
1	127	Weather Strip/Caulk w/Blower Door	75%	75%	75%
1	130	Base 13 SEER Split-System Heat Pump	100%	100%	100%
1	131	14 SEER Split-System Heat Pump	100%	100%	100%
1	132	15 SEER Split-System Heat Pump	100%	100%	100%
1	133	17 SEER Split-System Heat Pump	100%	100%	100%
1	134	13 EER Geothermal Heat Pump	50%	50%	25%
1	135	HVAC Proper Sizing	50%	50%	50%

B.1 Measure Inputs - Residential

FEASIBILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	136	Attic Venting	80%	25%	80%
1	137	Sealed Attics	80%	80%	80%
1	138	AC Maintenance (Outdoor Coil Cleaning)	100%	100%	100%
1	139	AC Maintenance (Indoor Coil Cleaning)	80%	80%	80%
1	140	Proper Refrigerant Charging and Air Flow	100%	100%	100%
1	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	90%	90%	90%
1	142	Duct Repair	100%	100%	100%
1	143	Reflective Roof	42%	42%	42%
1	144	Radient Barrier	75%	75%	75%
1	145	Window Film	75%	75%	75%
1	146	Window Tinting	75%	75%	75%
1	147	Default Window With Sunscreen	100%	100%	100%
1	148	Single Pane Clear Windows to Double Pane Low-E Windows	100%	100%	100%
1	150	Ceiling R-0 to R-19 Insulation	75%	75%	75%
1	151	Ceiling R-19 to R-38 Insulation	80%	80%	80%
1	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	75%	75%	75%
1	153	Weather Strip/Caulk w/Blower Door	75%	75%	75%
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat	100%	100%	100%
1	161	14 SEER Split-System Air Conditioner	100%	100%	100%
1	162	15 SEER Split-System Air Conditioner	100%	100%	100%
1	163	17 SEER Split-System Air Conditioner	100%	100%	100%
1	164	19 SEER Split-System Air Conditioner	100%	100%	100%
1	165	HVAC Proper Sizing	50%	50%	50%
1	166	Attic Venting	80%	25%	80%
1	167	Sealed Attic w/Sprayed Foam Insulated Roof Deck	80%	80%	80%
1	168	AC Maintenance (Outdoor Coil Cleaning)	100%	100%	100%
1	169	AC Maintenance (Indoor Coil Cleaning)	80%	80%	80%
1	170	Proper Refrigerant Charging and Air Flow	100%	100%	100%
1	171	Electronically Commutated Motors (ECM) on an Air Handler Unit	90%	90%	90%
1	172	Duct Repair	100%	100%	100%
1	173	Reflective Roof	42%	42%	42%
1	174	Radient Barrier	75%	75%	75%
1	175	Window Film	75%	75%	75%

B.1 Measure Inputs - Residential

FEASIBILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	176	Window Tinting	75%	75%	75%
1	177	Default Window With Sunscreen	100%	100%	100%
1	178	Single Pane Clear Windows to Double Pane Low-E Windows	100%	100%	100%
1	180	Ceiling R-0 to R-19 Insulation	75%	75%	75%
1	181	Ceiling R-19 to R-38 Insulation	80%	80%	80%
1	182	Wall 2x4 R-0 to Blow-In R-13 Insulation	75%	75%	75%
1	183	Weather Strip/Caulk w/Blower Door	75%	75%	75%
1	190	Base 9 EER Room Air Conditioner & Strip Heater	100%	100%	100%
1	191	HE Room Air Conditioner - EER 11	100%	100%	100%
1	192	HE Room Air Conditioner - EER 12	100%	100%	100%
1	196	Reflective Roof	42%	42%	42%
1	197	Window Film	75%	75%	75%
1	198	Window Tinting	75%	75%	75%
1	199	Default Window With Sunscreen	100%	100%	100%
1	200	Single Pane Clear Windows to Double Pane Low-E Windows	100%	100%	100%
1	202	Ceiling R-0 to R-19 Insulation	75%	75%	75%
1	203	Ceiling R-19 to R-38 Insulation	80%	80%	80%
1	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	75%	75%	75%
1	205	Weather Strip/Caulk w/Blower Door	75%	75%	75%
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	100%	100%	100%
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	75%	75%	75%
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	100%	100%	100%
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	75%	75%	75%
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	100%	100%	100%
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	75%	75%	75%
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	100%	100%	100%
1	251	ROB 2L4'T8, 1EB	100%	100%	100%
1	252	RET 2L4'T8, 1EB	100%	100%	100%
1	260	Base Outdoor Lighting	100%	100%	100%
1	261	CFL - medium screw based <30 Watts	75%	75%	75%
1	262	Photocell/timeclock	75%	75%	75%
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ice)	100%	100%	100%
1	301	HE Refrigerator - Energy Star version of above	100%	100%	100%

B.1 Measure Inputs - Residential

FEASIBILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	350	Base Freezer	100%	100%	100%
1	351	HE Freezer	100%	100%	100%
1	400	Base 40 gal. Water Heating (EF=0.88)	100%	100%	100%
1	401	Heat Pump Water Heater (EF=2.9)	50%	50%	50%
1	402	HE Water Heater (EF=0.93)	100%	100%	100%
1	403	Solar Water Heat	75%	75%	75%
1	404	AC Heat Recovery Units	75%	75%	75%
1	405	Low Flow Showerhead	80%	80%	80%
1	406	Pipe Wrap	75%	75%	75%
1	407	Faucet Aerators	90%	90%	90%
1	408	Water Heater Blanket	60%	60%	60%
1	409	Water Heater Temperature Check and Adjustment	60%	60%	60%
1	410	Water Heater Timeclock	60%	60%	60%
1	411	Heat Trap	60%	60%	60%
1	500	Base Clotheswasher (MEF=1.6)	100%	100%	100%
1	501	Energy Star CW CEE Tier 1 (MEF=1.8)	100%	100%	100%
1	502	Energy Star CW CEE Tier 2 (MEF=2.0)	100%	100%	100%
1	503	Energy Star CW CEE Tier 3 (MEF=2.3)	100%	100%	100%
1	600	Base Clothes Dryer (EF=3.01)	100%	100%	100%
1	610	High Efficiency CD (EF=3.01 w/moisture sensor)	100%	100%	100%
1	700	Base Dishwasher (EF=0.46)	100%	100%	100%
1	701	Energy Star DW (EF=0.68)	100%	100%	100%
1	800	Base Pool Pump and Motor (1.5 hp)	100%	100%	100%
1	801	Two Speed Pool Pump (1.5 hp)	100%	100%	100%
1	802	High Efficiency One Speed Pool Pump (1.5 hp)	100%	100%	100%
1	803	Variable-Speed Pool Pump (<1 hp)	100%	100%	100%
1	804	PV-Powered Pool Pumps	66%	66%	66%
1	900	Base CRT TV	100%	100%	100%
1	901	Energy Star TV	100%	100%	100%
1	910	Base Large-screen TV	100%	100%	100%
1	911	Energy Star TV	100%	100%	100%
1	920	Base Set-Top Box	100%	100%	100%
1	921	Energy Star Set-Top Box	100%	100%	100%

B.1 Measure Inputs - Residential

FEASIBILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	930	Base DVD Player	100%	100%	100%
1	931	Energy Star DVD Player	100%	100%	100%
1	940	Base VCR	100%	100%	100%
1	941	Energy Star VCR	100%	100%	100%
1	950	Base Desktop PC	100%	100%	100%
1	951	Energy Star Desktop PC	100%	100%	100%
1	960	Base Laptop PC	100%	100%	100%
1	961	Energy Star Laptop PC	100%	100%	100%

B.1 Measure Inputs - Residential

TECHNOLOGY SATURATION
(units/household)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	100	Base 13 SEER Split-System Air Conditioner & Strip Heater	3	3	3
1	101	14 SEER Split-System Air Conditioner	3	3	3
1	102	15 SEER Split-System Air Conditioner	3	3	3
1	103	17 SEER Split-System Air Conditioner	3	3	3
1	104	19 SEER Split-System Air Conditioner	3	3	3
1	105	14 SEER Split-System Heat Pump	3	3	3
1	106	15 SEER Split-System Heat Pump	3	3	3
1	107	17 SEER Split-System Heat Pump	3	3	3
1	108	13 EER Geothermal Heat Pump	3	3	3
1	109	HVAC Proper Sizing	3	3	3
1	110	Attic Venting	1	1	1
1	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	2,403	1,392	1,281
1	112	AC Maintenance (Outdoor Coil Cleaning)	1	1	1
1	113	AC Maintenance (Indoor Coil Cleaning)	1	1	1
1	114	Proper Refrigerant Charging and Air Flow	3	3	3
1	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	1	1	1
1	116	Duct Repair	1	1	1
1	117	Reflective Roof	2,403	1,392	1,281
1	118	Radient Barrier	2,403	1,392	1,281
1	119	Window Film	91	21	49
1	120	Window Tinting	91	21	49
1	121	Default Window With Sunscreen	91	21	49
1	122	Single Pane Clear Windows to Double Pane Low-E Windows	365	83	195
1	124	Ceiling R-0 to R-19 Insulation	2,067	1,198	1,102
1	125	Ceiling R-19 to R-38 Insulation	2,067	1,198	1,102
1	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	2,922	661	1,558
1	127	Weather Strip/Caulk w/Blower Door	1	1	1
1	130	Base 13 SEER Split-System Heat Pump	3	3	3
1	131	14 SEER Split-System Heat Pump	3	3	3
1	132	15 SEER Split-System Heat Pump	3	3	3
1	133	17 SEER Split-System Heat Pump	3	3	3
1	134	13 EER Geothermal Heat Pump	3	3	3
1	135	HVAC Proper Sizing	3	3	3

B.1 Measure Inputs - Residential

TECHNOLOGY SATURATION
(units/household)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	136	Attic Venting	1	1	1
1	137	Sealed Attics	2,403	1,392	1,281
1	138	AC Maintenance (Outdoor Coil Cleaning)	1	1	1
1	139	AC Maintenance (Indoor Coil Cleaning)	1	1	1
1	140	Proper Refrigerant Charging and Air Flow	3	3	3
1	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	1	1	1
1	142	Duct Repair	1	1	1
1	143	Reflective Roof	2,403	1,392	1,281
1	144	Radient Barrier	2,403	1,392	1,281
1	145	Window Film	91	21	49
1	146	Window Tinting	91	21	49
1	147	Default Window With Sunscreen	91	21	49
1	148	Single Pane Clear Windows to Double Pane Low-E Windows	365	83	195
1	150	Ceiling R-0 to R-19 Insulation	2,067	1,198	1,102
1	151	Ceiling R-19 to R-38 Insulation	2,067	1,198	1,102
1	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	2,922	661	1,558
1	153	Weather Strip/Caulk w/Blower Door	1	1	1
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat	3	3	3
1	161	14 SEER Split-System Air Conditioner	3	3	3
1	162	15 SEER Split-System Air Conditioner	3	3	3
1	163	17 SEER Split-System Air Conditioner	3	3	3
1	164	19 SEER Split-System Air Conditioner	3	3	3
1	165	HVAC Proper Sizing	3	3	3
1	166	Attic Venting	1	1	1
1	167	Sealed Attic w/Sprayed Foam Insulated Roof Deck	2,403	1,392	1,281
1	168	AC Maintenance (Outdoor Coil Cleaning)	1	1	1
1	169	AC Maintenance (Indoor Coil Cleaning)	1	1	1
1	170	Proper Refrigerant Charging and Air Flow	3	3	3
1	171	Electronically Commutated Motors (ECM) on an Air Handler Unit	1	1	1
1	172	Duct Repair	1	1	1
1	173	Reflective Roof	2,403	1,392	1,281
1	174	Radient Barrier	2,403	1,392	1,281
1	175	Window Film	91	21	49

B.1 Measure Inputs - Residential

TECHNOLOGY SATURATION
(units/household)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	176	Window Tinting	91	21	49
1	177	Default Window With Sunscreen	91	21	49
1	178	Single Pane Clear Windows to Double Pane Low-E Windows	365	83	195
1	180	Ceiling R-0 to R-19 Insulation	2,067	1,198	1,102
1	181	Ceiling R-19 to R-38 Insulation	2,067	1,198	1,102
1	182	Wall 2x4 R-0 to Blow-In R-13 Insulation	2,922	661	1,558
1	183	Weather Strip/Caulk w/Blower Door	1	1	1
1	190	Base 9 EER Room Air Conditioner & Strip Heater	3	3	3
1	191	HE Room Air Conditioner - EER 11	3	3	3
1	192	HE Room Air Conditioner - EER 12	3	3	3
1	196	Reflective Roof	2,403	1,392	1,281
1	197	Window Film	91	21	49
1	198	Window Tinting	91	21	49
1	199	Default Window With Sunscreen	91	21	49
1	200	Single Pane Clear Windows to Double Pane Low-E Windows	365	83	195
1	202	Ceiling R-0 to R-19 Insulation	2,067	1,198	1,102
1	203	Ceiling R-19 to R-38 Insulation	2,067	1,198	1,102
1	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	2,922	661	1,558
1	205	Weather Strip/Caulk w/Blower Door	1	1	1
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	8.0	8.0	8.0
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	8.0	8.0	8.0
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	14.0	14.0	14.0
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	14.0	14.0	14.0
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	3.0	3.0	3.0
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	3.0	3.0	3.0
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	1.0	1.0	1.0
1	251	ROB 2L4'T8, 1EB	1.0	1.0	1.0
1	252	RET 2L4'T8, 1EB	1.0	1.0	1.0
1	260	Base Outdoor Lighting	1.0	1.0	1.0
1	261	CFL - medium screw based <30 Watts	1.0	1.0	1.0
1	262	Photocell/timeclock	1.0	1.0	1.0
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ice)	1	1	1
1	301	HE Refrigerator - Energy Star version of above	1	1	1

B.1 Measure Inputs - Residential

TECHNOLOGY SATURATION
(units/household)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	350	Base Freezer	1	1	1
1	351	HE Freezer	1	1	1
1	400	Base 40 gal. Water Heating (EF=0.88)	1	1	1
1	401	Heat Pump Water Heater (EF=2.9)	1	1	1
1	402	HE Water Heater (EF=0.93)	1	1	1
1	403	Solar Water Heat	1	1	1
1	404	AC Heat Recovery Units	1	1	1
1	405	Low Flow Showerhead	1	1	1
1	406	Pipe Wrap	10	10	10
1	407	Faucet Aerators	1	1	1
1	408	Water Heater Blanket	1	1	1
1	409	Water Heater Temperature Check and Adjustment	1	1	1
1	410	Water Heater Timeclock	1	1	1
1	411	Heat Trap	1	1	1
1	500	Base Clotheswasher (MEF=1.6)	1	1	1
1	501	Energy Star CW CEE Tier 1 (MEF=1.8)	1	1	1
1	502	Energy Star CW CEE Tier 2 (MEF=2.0)	1	1	1
1	503	Energy Star CW CEE Tier 3 (MEF=2.3)	1	1	1
1	600	Base Clothes Dryer (EF=3.01)	1	1	1
1	610	High Efficiency CD (EF=3.01 w/moisture sensor)	1	1	1
1	700	Base Dishwasher (EF=0.46)	1	1	1
1	701	Energy Star DW (EF=0.68)	1	1	1
1	800	Base Pool Pump and Motor (1.5 hp)	1	1	1
1	801	Two Speed Pool Pump (1.5 hp)	1	1	1
1	802	High Efficiency One Speed Pool Pump (1.5 hp)	1	1	1
1	803	Variable-Speed Pool Pump (<1 hp)	1	1	1
1	804	PV-Powered Pool Pumps	1	1	1
1	900	Base CRT TV	1	1	1
1	901	Energy Star TV	1	1	1
1	910	Base Large-screen TV	1	1	1
1	911	Energy Star TV	1	1	1
1	920	Base Set-Top Box	1	1	1
1	921	Energy Star Set-Top Box	1	1	1

B.1 Measure Inputs - Residential

TECHNOLOGY SATURATION
(units/household)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	930	Base DVD Player	1	1	1
1	931	Energy Star DVD Player	1	1	1
1	940	Base VCR	1	1	1
1	941	Energy Star VCR	1	1	1
1	950	Base Desktop PC	1	1	1
1	951	Energy Star Desktop PC	1	1	1
1	960	Base Laptop PC	1	1	1
1	961	Energy Star Laptop PC	1	1	1

B.1 Measure Inputs - Residential

Hour Adjustment For Lighting
(Hours/year)

Segment	Measure #	Measure Description	Single Family Building Type 1	Mulit Family Building Type 2	Mobile Home Building Type 3
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	183	183	183
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	183	183	183
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	913	913	913
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	913	913	913
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	2,190	2,190	2,190
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	2,190	2,190	2,190
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	1,460	1,460	1,460
1	251	ROB 2L4'T8, 1EB	1,460	1,460	1,460
1	252	RET 2L4'T8, 1EB	1,460	1,460	1,460
1	260	Base Outdoor Lighting	2,190	2,190	2,190
1	261	CFL - medium screw based <30 Watts	2,190	2,190	2,190
1	262	Photocell/timeclock	2,190	2,190	2,190

B.2 Measure Inputs - Commercial

MEASURE COSTS																					Implementat
				Unit	Unit	NPV of Lifetime	Implementation	Cost Units		Full = 1 Incr. = 0		Full									Type
			Cost	Equipment	Labor	O & M	Cost	per Savings	Service	Initial	Replace	Unit	Relative Energy Reduction Factors								1=1 time
Segment	Measure #	Measure Description	Units	Cost	Cost	Cost	Factor	Unit	Life	Cost	Cost	Cost	SP	WP	OP	n/a	n/a	n/a	End Use	2=ROB
1	110	Base Fluorescent Fixture, T12, 34W, EB	fixture	$27.00	$15.00	$0.00	$42.00	1	45,000	1	1	$42.00	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	111	Premium T8, Elecctronic Ballast	fixture	$35.00	$15.00	$0.00	$50.00	1	70,000	1	0	$50.00	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	112	Premium T8, EB, Reflector	fixture	$52.00	$15.00	$0.00	$67.00	1	70,000	1	0	$67.00	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	113	Occupancy Sensor	fixture	$45.00		$0.00	$45.00	1	40,000	1	1	$45.00	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	114	Continuous Dimming	fixture	$180.63	$107.27	$0.00	$287.90	1	50,000	1	1	$287.90	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	115	Lighting Control Tuneup	sqft	$0.00	$0.01	$0.00	$0.01	1	6	1	1	$0.01	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	120	Base T8, EB	fixture	$0.00	$0.00	$0.00	$0.00	1	70,000	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	121	ROB Premium T8, 1EB	fixture	$7.00	$0.00	$0.00	$7.00	1	70,000	0	0	$7.00	1.36	0.75	1.00	1.00	1.00	1.00	1	2
1	122	ROB Premium T8, EB, Reflector	fixture	$24.00	$0.00	$0.00	$24.00	1	70,000	0	0	$24.00	1.36	0.75	1.00	1.00	1.00	1.00	1	2
1	123	Occupancy Sensor	fixture	$45.00		$0.00	$45.00	1	40,000	1	1	$45.00	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	124	Lighting Control Tuneup	sqft	$0.00	$0.01	$0.00	$0.01	1	6	1	1	$0.01	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	130	Base Incandescent Flood, 75W to Screw-in	fixture	$0.61	$3.77	$0.00	$4.38	1	2,000	1	1	$4.38	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	131	CFL Screw-in 18W	fixture	$6.37	$3.77	$0.00	$10.14	1	8,000	1	0	$10.14	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	140	Base Incandescent Flood, 75W to Hardwire	fixture	$0.61	$3.77	$0.00	$4.38	1	2,000	1	1	$4.38	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	141	CFL Hardwired, Modular 18W	fixture	$19.00	$27.00	$0.00	$46.00	1	20,000	1	0	$46.00	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	145	Base CFL	fixture	$0.00	$0.00	$0.00	$0.00	1	8,000	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	150	Base High Bay Mercury Vapor, 400W	fixture	$0.00	$0.00	$0.00	$0.00	1	24,000	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	151	PSMH, 250W, magnetic ballast	fixture	$24.21	$0.00	$0.00	$24.21	1	45,000	1	0	$24.21	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	152	PSMH, 250 W, electronic ballast	fixture	$124.21	$0.00	$0.00	$124.21	1	45,000	1	0	$124.21	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	153	High Bay T5	fixture	$55.20	$0.00	$0.00	$55.20	1	45,000	1	0	$55.20	1.36	0.75	1.00	1.00	1.00	1.00	1	1
1	160	Base Exit Sign	fixture	$0.00	$0.00	$0.00	$0.00	1	8,000	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	161	LED Exit Sign	fixture	$41.07	$0.00	$0.00	$41.07	1	140,000	1	0	$41.07	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	200	Base Outdoor Mercury Vapor 400W Lamp	fixture	$0.00	$0.00	$0.00	$0.00	1	24,000	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	2	2
1	201	High Pressure Sodium 250W Lamp	fixture	$89.00	$60.00	$0.00	$149.00	1	24,000	1	0	$149.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	202	Outdoor Lighting Controls (Photocell/Timecl	fixture	$51.00	$57.00	$0.00	$108.00	1	24,000	1	1	$108.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	210	Base Outdoor HID Lamp	fixture	$0.00	$0.00	$0.00	$0.00	1	24,000	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	2	2
1	211	Outdoor Lighting Controls (Photocell/Timecl	fixture	$51.00	$57.00	$0.00	$108.00	1	24,000	1	1	$108.00	1.00	0.00	1.00	1.00	1.00	1.00	2	1
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 t	ton	$220.00		$0.00	$220.00	1	20	1	1	$220.00	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	ton	$275.00		$0.00	$275.00	1	20	0	0	$275.00	1.49	0.06	1.00	1.00	1.00	1.00	3	2
1	302	High Efficiency Chiller Motors	ton	$19.49		$0.00	$19.49	1	20	1	1	$19.49	1.05	0.00	1.00	1.00	1.00	1.00	3	1
1	304	EMS - Chiller	ton	$60.00		$0.00	$60.00	1	10	1	1	$60.00	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	305	Chiller Tune Up/Diagnostics	sqft	$0.00		$0.10	$0.10	1	10	1	1	$0.10	1.48	0.50	1.00	1.00	1.00	1.00	3	1
1	306	VSD for Chiller Pumps and Towers	ton	$32.00	$10.00	$0.00	$42.00	1	15	1	1	$42.00	1.00	0.25	1.00	1.00	1.00	1.00	3	1
1	307	EMS Optimization	sqft	$0.00		$0.03	$0.03	1	5	1	1	$0.03	0.25	0.25	1.00	1.00	1.00	1.00	3	1
1	308	Aerosole Duct Sealing	ton	$18.58		$1.04	$19.62	1	15	1	1	$19.62	1.00	0.25	1.00	1.00	1.00	1.00	3	1
1	309	Duct/Pipe Insulation	sqft	$0.68	$2.40	$0.00	$3.08	1	10	1	1	$3.08	1.00	0.25	1.00	1.00	1.00	1.00	3	1
1	311	Window Film (Standard)	sf-window	$3.07		$0.00	$3.07	1	10	1	1	$3.07	1.07	-1.53	1.00	1.00	1.00	1.00	3	1
1	313	Ceiling Insulation	sf-ceiling	$0.55		$0.00	$0.55	1	20	1	1	$0.55	3.09	3.80	1.00	1.00	1.00	1.00	3	1
1	314	Roof Insulation	sf-roof	$0.15		$0.00	$0.15	1	20	1	1	$0.15	2.61	0.95	1.00	1.00	1.00	1.00	3	1
1	315	Cool Roof - Chiller	sf-roof	$1.33		$0.00	$1.33	1	15	1	1	$1.33	2.18	0.00	1.00	1.00	1.00	1.00	3	1
1	317	Thermal Energy Storage (TES)	ton	$376.29		$0.00	$376.29	1	50	1	1	$376.29	-17.53	-0.51	1.00	1.00	1.00	1.00	3	1
1	320	Base DX Packaged System, EER=10.3, 10	ton	$672.40		$0.00	$672.40	1	15	1	1	$672.40	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	321	DX Packaged System, EER=10.9, 10 tons	ton	$804.40	$0.00	$0.00	$804.40	1	15	0	0	$804.40	0.73	0.00	1.00	1.00	1.00	1.00	3	2
1	322	Hybrid Dessicant-DX System (Trane CDQ)	ton	$1,165.67		$0.00	$1,165.67	1	15	0	0	$1,165.67	0.73	0.00	1.00	1.00	1.00	1.00	3	2
1	323	Geothermal Heat Pump, EER=13, 10 tons	ton	$1,857.14		$0.00	$1,857.14	1	15	0	0	$1,857.14	0.73	0.35	1.00	1.00	1.00	1.00	3	2
1	326	DX Tune Up/ Advanced Diagnostics	sqft	$0.00		$0.13	$0.13	1	10	1	1	$0.13	1.48	0.00	1.00	1.00	1.00	1.00	3	1
1	327	DX Coil Cleaning	ton	$8.77		$1.13	$9.90	1	5	1	1	$9.90	1.48	0.00	1.00	1.00	1.00	1.00	3	1
1	328	Optimize Controls	sqft	$0.00		$0.04	$0.04	1	5	1	1	$0.04	0.25	0.25	1.00	1.00	1.00	1.00	3	1
1	329	Aerosole Duct Sealing	ton	$18.58		$1.04	$19.62	1	15	1	1	$19.62	1.00	0.00	1.00	1.00	1.00	1.00	3	1
1	330	Duct/Pipe Insulation	sqft	$0.68	$2.40	$0.00	$3.08	1	10	1	1	$3.08	1.00	0.00	1.00	1.00	1.00	1.00	3	1
1	332	Window Film (Standard)	sf-window	$3.22		$0.00	$3.22	1	10	1	1	$3.22	1.04	-6.27	1.00	1.00	1.00	1.00	3	1
1	334	Ceiling Insulation	sf-ceiling	$0.55		$0.00	$0.55	1	20	1	1	$0.55	2.91	13.85	1.00	1.00	1.00	1.00	3	1
1	335	Roof Insulation	sf-roof	$0.15		$0.00	$0.15	1	20	1	1	$0.15	2.69	13.98	1.00	1.00	1.00	1.00	3	1
1	336	Cool Roof - DX	sf-roof	$1.33		$0.00	$1.33	1	15	1	1	$1.33	1.78	0.00	1.00	1.00	1.00	1.00	3	1
1	340	Base Packaged HP System, EER=10.3, 10	ton	$672.40		$0.00	$672.40	1	15	1	1	$672.40	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	341	Packaged HP System, EER=10.9, 10 tons	ton	$699.33	$0.00	$0.00	$699.33	1	15	0	0	$699.33	1.42	0.00	1.00	1.00	1.00	1.00	3	2
1	342	Geothermal Heat Pump, EER=13, 10 tons	ton	$1,857.14		$0.00	$1,857.14	1	25	0	0	$1,857.14	1.79	0.00	1.00	1.00	1.00	1.00	3	2
1	344	Aerosole Duct Sealing	ton	$18.58		$1.04	$19.62	1	15	1	1	$19.62	1.00	0.25	1.00	1.00	1.00	1.00	3	1
1	345	Duct/Pipe Insulation	sqft	$0.68	$2.40	$0.00	$3.08	1	10	1	1	$3.08	1.00	0.25	1.00	1.00	1.00	1.00	3	1
1	347	Window Film (Standard)	sf-window	$3.07		$0.00	$3.07	1	10	1	1	$3.07	1.04	-0.43	1.00	1.00	1.00	1.00	3	1
1	349	Ceiling Insulation	sf-ceiling	$0.55		$0.00	$0.55	1	20	1	1	$0.55	2.91	0.94	1.00	1.00	1.00	1.00	3	1
1	350	Roof Insulation	sf-roof	$0.15		$0.00	$0.15	1	20	1	1	$0.15	2.69	0.96	1.00	1.00	1.00	1.00	3	1
1	351	Cool Roof - DX	sf-roof	$1.33		$0.00	$1.33	1	15	1	1	$1.33	1.78	0.00	1.00	1.00	1.00	1.00	3	1
1	360	Base PTAC, EER=8.3, 1 ton	ton	$0.00		$0.00	$0.00	1	15	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	361	HE PTAC, EER=9.6, 1 ton	ton	$152.08	$0.00	$0.00	$152.08	1	15	0	0	$152.08	0.73	0.00	1.00	1.00	1.00	1.00	3	2
1	362	Occupancy Sensor (hotels)	ton	$280.00	$0.00	$0.00	$280.00	1	15	1	1	$280.00	0.25	0.25	1.00	1.00	1.00	1.00	3	1
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	HP	$43.00		$0.00	$43.00	1	15	1	1	$43.00	1.00	1.00	1.00	1.00	1.00	1.00	4	2

B.2 Measure Inputs - Commercial

MEASURE COSTS																					Implementat
				Unit	Unit	NPV of Lifetime	Implementation	Cost Units		Full = 1 Incr. = 0		Full									Type
			Cost	Equipment	Labor	O & M	Cost	per Savings	Service	Initial	Replace	Unit	Relative Energy Reduction Factors								1=1 time
Segment	Measure #	Measure Description	Units	Cost	Cost	Cost	Factor	Unit	Life	Cost	Cost	Cost	SP	WP	OP	n/a	n/a	n/a	End Use		2=ROB
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, !	HP	$54.00		$0.00	$54.00	1	15	0	0	$54.00	1.00	1.00	1.00	1.00	1.00	1.00	4		2
1	402	Variable Speed Drive Control	HP	$129.00	$102.00	$0.00	$231.00	1	15	1	1	$231.00	0.25	0.25	1.00	1.00	1.00	1.00	4		1
1	403	Air Handler Optimization	sqft	$0.00		$0.03	$0.03	1	8	1	1	$0.03	0.25	0.25	1.00	1.00	1.00	1.00	4		1
1	404	Electronically Commutated Motors (ECM) or	ton	$27.76		$1.03	$28.79	1	15	1	1	$28.79	0.97	0.00	1.00	1.00	1.00	1.00	4		2
1	405	Demand Control Ventilation (DCV)	sqft	$0.33		$2.03	$2.36	1	15	1	1	$2.36	3.98	9.37	1.00	1.00	1.00	1.00	4		1
1	406	Energy Recovery Ventilation (ERV)	ton	$130.95		$0.00	$130.95	1	20	1	1	$130.95	5.41	6.69	1.00	1.00	1.00	1.00	4		1
1	407	Separate Makeup Air / Exhaust Hoods AC	sqft	$3.00		$0.00	$3.00	1	15	1	1	$3.00	1.00	0.25	1.00	1.00	1.00	1.00	4		1
1	500	Base Refrigeration System	),000 sqft sto	$0.00	$0.00	$0.00	$0.00	1	10	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	5		2
1	501	High-efficiency fan motors	),000 sqft sto	$46,429.20	$0.00	$0.00	$46,429.20	1	16	1	1	$46,429.20	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	502	Strip curtains for walk-ins	),000 sqft sto	$1,995.00	$0.00	$0.00	$1,995.00	1	4	1	1	$1,995.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	503	Night covers for display cases	lin ft. display	$9.25	$0.00	$0.00	$9.25	1	5	1	1	$9.25	0.00	1.00	1.00	1.00	1.00	1.00	5		1
1	504	Evaporator fan controller for MT walk-ins	controller	$300.00	$0.00	$0.00	$300.00	1	5	1	1	$300.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	505	Efficient compressor motor	),000 sqft sto	$3,510.00	$0.00	$0.00	$3,510.00	1	10	1	1	$3,510.00	1.00	1.00	1.00	1.00	1.00	1.00	5		2
1	506	Compressor VSD retrofit	),000 sqft sto	$16,200.00	$0.00	$0.00	$16,200.00	1	10	1	1	$16,200.00	0.50	0.50	1.00	1.00	1.00	1.00	5		1
1	507	Floating head pressure controls	),000 sqft sto	$4,995.00	$0.00	$0.00	$4,995.00	1	16	1	1	$4,995.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	508	Refrigeration Commissioning	tons	$113.00	$0.00	$0.00	$113.00	1	3	1	1	$113.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	509	Demand Hot Gas Defrost	HP	$25.00	$0.00	$0.00	$25.00	1	10	1	1	$25.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	510	Demand Defrost Electric	HP	$25.00	$0.00	$0.00	$25.00	1	10	1	1	$25.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	511	Anti-sweat (humidistat) controls	),000 sqft sto	$6,450.40	$0.00	$0.00	$6,450.40	1	12	1	1	$6,450.40	0.50	1.00	1.00	1.00	1.00	1.00	5		1
1	513	High R-Value Glass Doors	ı ft glass doo	$100.28	$0.00	$0.00	$100.28	1	10	1	1	$100.28	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	514	Multiplex Compressor System	tons	$1,750.00	$0.00	$0.00	$1,750.00	1	14	1	1	$1,750.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	515	Oversized Air Cooled Condenser	tons	$350.00	$0.00	$0.00	$350.00	1	16	1	1	$350.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	516	Freezer-Cooler Replacement Gaskets	lin ft doors	$5.00	$0.00	$0.00	$5.00	1	4	1	1	$5.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	517	LED Display Lighting	ı ft glass doo	$100.00	$0.00	$0.00	$100.00	1	10	1	1	$100.00	1.00	1.00	1.00	1.00	1.00	1.00	5		1
1	600	Base Water Heating	kBtu/hr	$0.00	$0.00	$0.00	$0.00	1	15	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	6		2
1	601	High Efficiency Water Heater (electric)	kBtu/hr	$1.31	$0.00	$0.00	$1.31	1	15	0	0	$1.31	1.00	1.00	1.00	1.00	1.00	1.00	6		2
1	603	Heat Pump Water Heater (air source)	kBtu/hr	$30.22	$0.00	$0.00	$30.22	1	15	0	0	$30.22	1.00	1.00	1.00	1.00	1.00	1.00	6		2
1	604	Solar Water Heater	kBtu/hr	$70.00	$0.00	$0.00	$70.00	1	20	0	0	$70.00	1.00	1.00	1.00	1.00	1.00	1.00	6		2
1	606	Demand controlled circulating systems	unit	$59.00	$165.00	$0.00	$224.00	1	15	1	1	$224.00	1.00	1.00	1.00	1.00	1.00	1.00	6		1
1	608	Heat Recovery Unit	square foot	$0.08	$0.00	$0.00	$0.08	1	10	1	1	$0.08	1.00	1.00	1.00	1.00	1.00	1.00	6		1
1	609	Heat Trap	kBtu/hr	$0.36	$2.00	$0.00	$2.36	1	10	1	1	$0.08	1.00	1.00	1.00	1.00	1.00	1.00	6		1
1	610	Hot Water Pipe Insulation	Lin Ft Pipe	$0.37	$2.44	$0.00	$2.81	1	15	1	1	$2.81	1.00	1.00	1.00	1.00	1.00	1.00	6		1
1	700	Base Desktop PC	PC	$0.00	$0.00	$0.00	$0.00	1	4	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	7		2
1	701	PC Manual Power Management Enabling	PC	$0.00	$8.00	$0.00	$8.00	1	4	1	1	$8.00	0.66	1.00	1.00	1.00	1.00	1.00	7		1
1	702	PC Network Power Management Enabling	PC	$0.00	$4.00	$0.00	$4.00	1	4	1	1	$4.00	0.66	1.00	1.00	1.00	1.00	1.00	7		1
1	710	Base Monitor, CRT	PC	$0.00	$0.00	$0.00	$0.00	1	4	1	1		1.00	1.00	1.00	1.00	1.00	1.00	7		2
1	711	Energy Star or Better Monitor	PC	$0.00	$0.00	$0.00	$0.00	1	4	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	7		1
1	712	Monitor Power Management Enabling	PC	$0.00	$8.00	$0.00	$8.00	1	4	1	1	$8.00	0.66	1.00	1.00	1.00	1.00	1.00	7		1
1	720	Base Monitor, LCD	Monitor	$0.00	$0.00	$0.00	$0.00	1	4	1	1		1.00	1.00	1.00	1.00	1.00	1.00	7		2
1	721	Energy Star or Better Monitor	Monitor	$0.00	$0.00	$0.00	$0.00	1	4	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	7		1
1	722	Monitor Power Management Enabling	Monitor	$0.00	$8.00	$0.00	$8.00	1	4	1	1	$8.00	0.66	1.00	1.00	1.00	1.00	1.00	7		1
1	730	Base Copier	Copier	$0.00	$0.00	$0.00	$0.00	1	6	1	1		1.00	1.00	1.00	1.00	1.00	1.00	7		2
1	731	Energy Star or Better Copier	Copier	$0.00	$0.00	$0.00	$0.00	1	6	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	7		1
1	732	Copier Power Management Enabling	Copier	$0.00	$45.00	$0.00	$45.00	1	6	1	1	$45.00	0.66	1.00	1.00	1.00	1.00	1.00	7		1
1	740	Base Laser Printer	Printer	$0.00	$0.00	$0.00	$0.00	1	5	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	7		2
1	741	Printer Power Management Enabling	Printer	$0.00	$45.00	$0.00	$45.00	1	5	1	1	$45.00	0.66	1.00	1.00	1.00	1.00	1.00	7		1
1	800	Base Commercial Ovens	unit	$0.00	$0.00	$0.00	$0.00	1	10	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	8		2
1	801	Convection Oven	unit	$1,627.80	$0.00	$0.00	$1,627.80	1	10	0	0	$1,627.80	1.00	0.25	1.00	1.00	1.00	1.00	8		2
1	810	Base Commercial Fryers	unit	$0.00	$0.00	$0.00	$0.00	1	10	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	8		2
1	811	Efficient Fryer	unit	$2,824.80	$0.00	$0.00	$2,824.80	1	10	0	0	$2,824.80	1.00	0.25	1.00	1.00	1.00	1.00	8		2
1	900	Base Vending Machines	machine	$0.00	$0.00	$0.00	$0.00	1	10	1	1	$0.00	1.00	1.00	1.00	1.00	1.00	1.00	9		2
1	901	Vending Misers (cooled machines only)	machine	$180.00	$35.50	$0.00	$215.50	1	10	1	1	$215.50	0.66	1.00	1.00	1.00	1.00	1.00	9		1

B.2 Measure Inputs - Commercial

BASE TECHNOLOGY EUIs
(kWh/square foot)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Health Building Type 8	Warehouse Building Type 9	Hotel/Motel Building Type 10	Other Building Type 11
1	110	Base Fluorescent Fixture, T12, 34W, EB	4.42	4.96	5.23	12.34	3.38	3.42	6.09	11.54	1.28	1.67	2.88
1	120	Base T8, EB	2.54	2.85	3.01	7.10	1.94	1.97	3.50	6.63	0.74	0.96	1.66
1	130	Base Incandescent Flood, 75W to Screw-in CFL	14.66	16.43	17.34	40.91	11.20	11.34	20.18	38.25	4.24	5.55	9.56
1	140	Base Incandescent Flood, 75W to Hardwired CFL	14.66	16.43	17.34	40.91	11.20	11.34	20.18	38.25	4.24	5.55	9.56
1	145	Base CFL	3.88	4.35	4.59	10.82	2.96	3.00	5.34	10.12	1.12	1.47	2.53
1	150	Base High Bay Metal Halide, 400W	4.55	5.10	5.38	12.69	3.47	3.52	6.26	11.87	1.32	1.72	2.96
1	160	Base Exit Sign	0.08	0.25	0.08	0.04	0.10	0.06	0.02	0.09	0.02	0.04	0.04
1	200	Base Outdoor Mercury Vapor 400W Lamp	0.31	1.41	0.31	0.67	0.22	0.49	0.05	0.24	0.14	0.51	1.18
1	210	Base Outdoor HID Lamp	0.34	1.99	1.32	1.27	0.40	0.84	0.35	0.26	0.20	0.24	0.64
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	4.00	10.86	4.11	9.14	4.42	3.23	14.46	6.33	0.62	5.96	2.46
1	320	Base DX Packaged System, EER=10.3, 10 tons	6.93	18.83	7.13	15.85	7.66	5.59	25.07	10.98	1.07	10.34	4.27
1	340	Base Packaged HP System, EER=10.3, 10 tons	6.93	18.83	7.13	15.85	7.66	5.59	25.07	10.98	1.07	10.34	4.27
1	360	Base PTAC, EER=8.3, 1 ton	7.99	21.73	8.23	18.29	8.84	6.45	28.93	12.66	1.23	11.93	4.93
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	1.62	2.93	1.41	3.14	1.61	1.82	7.94	2.04	0.24	1.36	1.11
1	500	Base Refrigeration System				29.89							
1	600	Base Water Heating	0.29	2.44	0.12	0.48	0.85	0.43	2.17	3.73	0.01	1.50	0.37
1	700	Base Desktop PC	0.50	0.06	0.06	0.04	0.31	0.74	0.25	0.05	0.07	0.03	0.09
1	710	Base Monitor, CRT	0.49	0.05	0.06	0.04	0.31	0.72	0.25	0.05	0.07	0.03	0.09
1	720	Base Monitor, LCD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	730	Base Copier	0.27	0.06	0.06	0.05	0.08	0.12	0.07	0.05	0.05	0.03	0.07
1	740	Base Laser Printer	0.48	0.08	0.11	0.06	0.23	0.56	0.30	0.09	0.10	0.06	0.12
1	800	Base Commercial Ovens	0.02	1.43	0.02	1.04	0.11	0.04	0.24	0.06	0.00	0.12	0.03
1	810	Base Commercial Fryers	0.01	3.90	0.02	0.57	0.04	0.01	0.06	0.00	0.00	0.01	0.00
1	900	Base Vending Machines	0.33	0.44	0.05	0.08	0.22	0.12	0.10	0.10	0.17	0.18	0.07

B.2 Measure Inputs - Commercial

ENERGY SAVINGS (percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	110	Base Fluorescent Fixture, T12, 34W, EB											
1	111	Premium T8, Elecctronic Ballast	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%
1	112	Premium T8, EB, Reflector	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%
1	113	Occupancy Sensor	30.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
1	114	Continuous Dimming	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	115	Lighing Control Tuneup	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	120	Base T8, EB											
1	121	ROB Premium T8, 1EB	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%
1	122	ROB Premium T8, EB, Reflector	64.3%	64.3%	64.3%	64.3%	64.3%	64.3%	64.3%	64.3%	64.3%	64.3%	64.3%
1	123	Occupancy Sensor	30.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
1	124	Lighing Control Tuneup	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	130	Base Incandescent Flood, 75W to Screw-in CFL											
1	131	CFL Screw-in 18W	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%
1	140	Base Incandescent Flood, 75W to Hardwired CFL											
1	141	CFL Hardwired, Modular 18W	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%
1	145	Base CFL											
1	150	Base High Bay Metal Halide, 400W											
1	151	PSMH, magnetic ballast	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%
1	152	PSMH, electronic ballast	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%
1	153	High Bay T5	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%
1	160	Base Exit Sign											
1	161	LED Exit Sign	80.8%	80.8%	80.8%	80.8%	80.8%	80.8%	80.8%	80.8%	80.8%	80.8%	80.8%
1	200	Base Outdoor Mercury Vapor 400W Lamp											
1	201	High Pressure Sodium 250W Lamp	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
1	202	Outdoor Lighting Controls (Photocell/Timecl	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%
1	210	Base Outdoor HID Lamp											
1	211	Outdoor Lighting Controls (Photocell/Timecl	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons											
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%
1	302	High Efficiency Chiller Motors	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
1	304	EMS - Chiller	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	305	Chiller Tune Up/Diagnostics	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
1	306	VSD for Chiller Pumps and Towers	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	307	EMS Optimization	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	308	Aerosole Duct Sealing	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	309	Duct/Pipe Insulation	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
1	311	Window Film (Standard)	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%
1	313	Ceiling Insulation	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%
1	314	Roof Insulation	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%
1	315	Cool Roof - Chiller	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%
1	317	Thermal Energy Storage (TES)	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%
1	320	Base DX Packaged System, EER=10.3, 10 tons											
1	321	DX Packaged System, EER=10.9, 10 tons	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
1	322	Hybrid Dessicant-DX System (Trane CDQ)	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
1	323	Geothermal Heat Pump, EER=13, 10 tons	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%
1	326	DX Tune Up/ Advanced Diagnostics	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	327	DX Coil Cleaning	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
1	328	Optimize Controls - DX	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	329	Aerosole Duct Sealing	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	330	Duct/Pipe Insulation	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

B.2 Measure Inputs - Commercial

ENERGY SAVINGS (percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	332	Window Film (Standard)	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
1	334	Ceiling Insulation	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%
1	335	Roof Insulation	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%
1	336	Cool Roof - DX	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%
1	340	Base Packaged HP System, EER=10.3, 10 tons											
1	341	Packaged HP System, EER=10.9, 10 tons	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
1	342	Geothermal Heat Pump, EER=13, 10 tons	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%
1	344	Aerosole Duct Sealing	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	345	Duct/Pipe Insulation	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
1	347	Window Film (Standard)	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
1	349	Ceiling Insulation	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%
1	350	Roof Insulation	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%
1	351	Cool Roof - DX	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%
1	360	Base PTAC, EER=8.3, 1 ton											
1	361	HE PTAC, EER=9.6, 1 ton	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
1	362	Occupancy Sensor (hotels)	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%											
1	401	High Efficiency Fan Motor, 15hp, 1800rpm,	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
1	402	Variable Speed Drive Control	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
1	403	Air Handler Optimization	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	404	Electronically Commutated Motors (ECM) o	14.5%	14.5%	14.5%	14.5%	14.5%	14.5%	14.5%	14.5%	14.5%	14.5%	14.5%
1	405	Demand Control Ventilation (DCV)	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
1	406	Energy Recovery Ventilation (ERV)	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
1	407	Separate Makeup Air / Exhaust Hoods AC	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
1	500	Base Refrigeration System											
1	501	High-efficiency fan motors				12.0%							
1	502	Strip curtains for walk-ins				4.0%							
1	503	Night covers for display cases				5.8%							
1	504	Evaporator fan controller for MT walk-ins				0.6%							
1	505	Efficient compressor motor retrofit				6.8%							
1	506	Compressor VSD retrofit				6.2%							
1	507	Floating head pressure controls				6.8%							
1	508	Refrigeration Commissioning				5.0%							
1	509	Demand Hot Gas Defrost				2.5%							
1	510	Demand Defrost Electric				7.8%							
1	511	Anti-sweat (humidistat) controls				5.0%							
1	513	High R-Value Glass Doors				1.6%							
1	514	Multiplex Compressor System				14.3%							
1	515	Oversized Air Cooled Condenser				8.1%							
1	516	Freezer-Cooler Replacement Gaskets				6.6%							
1	517	LED Display Lighting				0.8%							
1	600	Base Water Heating											
1	601	High Efficiency Water Heater (electric)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
1	603	Heat Pump Water Heater (air source)	68.3%	68.3%	68.3%	68.3%	68.3%	68.3%	68.3%	68.3%	68.3%	68.3%	68.3%
1	604	Solar Water Heater	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
1	606	Demand controlled circulating systems	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	608	Heat Recovery Unit	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%
1	609	Heat Trap	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
1	610	Hot Water Pipe Insulation	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
1	700	Base Desktop PC											

B.2 Measure Inputs - Commercial

ENERGY SAVINGS (percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	701	PC Manual Power Management Enabling	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%
1	702	PC Network Power Management Enabling	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%
1	710	Base Monitor, CRT											
1	711	Energy Star or Better Monitor	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%
1	712	Monitor Power Management Enabling	53.4%	53.4%	53.4%	53.4%	53.4%	53.4%	53.4%	53.4%	53.4%	53.4%	53.4%
1	720	Base Monitor, LCD											
1	721	Energy Star or Better Monitor	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
1	722	Monitor Power Management Enabling	27.9%	27.9%	27.9%	27.9%	27.9%	27.9%	27.9%	27.9%	27.9%	27.9%	27.9%
1	730	Base Copier											
1	731	Energy Star or Better Copier	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%
1	732	Copier Power Management Enabling	19.4%	19.4%	19.4%	19.4%	19.4%	19.4%	19.4%	19.4%	19.4%	19.4%	19.4%
1	740	Base Laser Printer											
1	741	Printer Power Management Enabling	49.2%	49.2%	49.2%	49.2%	49.2%	49.2%	49.2%	49.2%	49.2%	49.2%	49.2%
1	800	Base Commercial Ovens											
1	801	Convection Oven	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%
1	810	Base Commercial Fryers											
1	811	Efficient Fryer	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
1	900	Base Vending Machines											
1	901	Vending Misers	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%

B.2 Measure Inputs - Commercial

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	110	Base Fluorescent Fixture, T12, 34W, EB	42.4%	20.7%	32.9%	64.6%	65.9%	61.0%	68.3%	29.2%	45.5%	11.1%	20.6%
1	111	Premium T8, Elecctronic Ballast	42.4%	20.7%	32.9%	64.6%	65.9%	61.0%	68.3%	29.2%	45.5%	11.1%	20.6%
1	112	Premium T8, EB, Reflector	42.4%	20.7%	32.9%	64.6%	65.9%	61.0%	68.3%	29.2%	45.5%	11.1%	20.6%
1	113	Occupancy Sensor	42.4%	20.7%	32.9%	64.6%	65.9%	61.0%	68.3%	29.2%	45.5%	11.1%	20.6%
1	114	Continuous Dimming	42.4%	20.7%	32.9%	64.6%	65.9%	61.0%	68.3%	29.2%	45.5%	11.1%	20.6%
1	115	Lighing Control Tuneup	42.4%	20.7%	32.9%	64.6%	65.9%	61.0%	68.3%	29.2%	45.5%	11.1%	20.6%
1	120	Base T8, EB	42.4%	31.1%	32.9%	21.5%	22.0%	20.3%	22.8%	43.8%	15.2%	16.7%	31.0%
1	121	ROB Premium T8, 1EB	42.4%	31.1%	32.9%	21.5%	22.0%	20.3%	22.8%	43.8%	15.2%	16.7%	31.0%
1	122	ROB Premium T8, EB, Reflector	42.4%	31.1%	32.9%	21.5%	22.0%	20.3%	22.8%	43.8%	15.2%	16.7%	31.0%
1	123	Occupancy Sensor	42.4%	31.1%	32.9%	21.5%	22.0%	20.3%	22.8%	43.8%	15.2%	16.7%	31.0%
1	124	Lighing Control Tuneup	42.4%	31.1%	32.9%	21.5%	22.0%	20.3%	22.8%	43.8%	15.2%	16.7%	31.0%
1	130	Base Incandescent Flood, 75W to Screw-in	6.3%	27.1%	14.2%	3.0%	4.7%	3.3%	4.3%	15.2%	12.6%	40.4%	6.5%
1	131	CFL Screw-in 18W	6.3%	27.1%	14.2%	3.0%	4.7%	3.3%	4.3%	15.2%	12.6%	40.4%	6.5%
1	140	Base Incandescent Flood, 75W to Hardwire	2.1%	9.0%	4.7%	1.0%	1.6%	1.1%	1.4%	5.1%	4.2%	13.5%	2.2%
1	141	CFL Hardwired, Modular 18W	2.1%	9.0%	4.7%	1.0%	1.6%	1.1%	1.4%	5.1%	4.2%	13.5%	2.2%
1	145	Base CFL	2.8%	12.0%	6.3%	1.3%	2.1%	1.5%	1.9%	6.7%	5.6%	18.0%	2.9%
1	150	Base High Bay Metal Halide, 400W	4.0%	0.0%	8.8%	8.6%	3.8%	12.8%	1.4%	0.1%	16.9%	0.2%	36.8%
1	151	PSMH, magnetic ballast	4.0%	0.0%	8.8%	8.6%	3.8%	12.8%	1.4%	0.1%	16.9%	0.2%	36.8%
1	152	PSMH, electronic ballast	4.0%	0.0%	8.8%	8.6%	3.8%	12.8%	1.4%	0.1%	16.9%	0.2%	36.8%
1	153	High Bay T5	4.0%	0.0%	8.8%	8.6%	3.8%	12.8%	1.4%	0.1%	16.9%	0.2%	36.8%
1	160	Base Exit Sign	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	161	LED Exit Sign	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	200	Base Outdoor Mercury Vapor 400W Lamp	89.7%	85.0%	86.2%	90.2%	97.2%	90.0%	94.5%	99.0%	93.4%	97.7%	97.4%
1	201	High Pressure Sodium 250W Lamp	89.7%	85.0%	86.2%	90.2%	97.2%	90.0%	94.5%	99.0%	93.4%	97.7%	97.4%
1	202	Outdoor Lighting Controls (Photocell/Timecl	89.7%	85.0%	86.2%	90.2%	97.2%	90.0%	94.5%	99.0%	93.4%	97.7%	97.4%
1	210	Base Outdoor HID Lamp	89.7%	85.0%	86.2%	90.2%	97.2%	90.0%	94.5%	99.0%	93.4%	97.7%	97.4%
1	211	Outdoor Lighting Controls (Photocell/Timecl	89.7%	85.0%	86.2%	90.2%	97.2%	90.0%	94.5%	99.0%	93.4%	97.7%	97.4%
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 t	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	302	High Efficiency Chiller Motors	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	304	EMS - Chiller	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	305	Chiller Tune Up/Diagnostics	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	306	VSD for Chiller Pumps and Towers	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	307	EMS Optimization	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	308	Aerosole Duct Sealing	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	309	Duct/Pipe Insulation	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	311	Window Film (Standard)	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	313	Ceiling Insulation	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	314	Roof Insulation	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	315	Cool Roof - Chiller	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	317	Thermal Energy Storage (TES)	26.2%	1.7%	14.3%	6.7%	51.7%	41.7%	76.6%	10.6%	0.6%	24.4%	14.0%
1	320	Base DX Packaged System, EER=10.3, 10	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	321	DX Packaged System, EER=10.9, 10 tons	20.1%	26.2%	28.0%	40.7%	11.8%	12.4%	2.7%	28.5%	7.4%	20.8%	7.3%
1	322	Hybrid Dessicant-DX System (Trane CDQ)	20.1%	26.2%	28.0%	40.7%	11.8%	12.4%	2.7%	28.5%	7.4%	20.8%	7.3%
1	323	Geothermal Heat Pump, EER=13, 10 tons	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	326	DX Tune Up/ Advanced Diagnostics	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%

B.2 Measure Inputs - Commercial

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	327	DX Coil Cleaning	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	328	Optimize Controls - DX	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	329	Aerosole Duct Sealing	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	330	Duct/Pipe Insulation	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	332	Window Film (Standard)	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	334	Ceiling Insulation	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	335	Roof Insulation	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	336	Cool Roof - DX	40.1%	52.4%	56.0%	81.3%	23.7%	24.8%	5.4%	56.9%	14.8%	41.5%	14.6%
1	340	Base Packaged HP System, EER=10.3, 10	8.7%	3.6%	1.6%	2.9%	5.8%	1.5%	0.4%	2.1%	0.4%	0.2%	0.4%
1	341	Packaged HP System, EER=10.9, 10 tons	8.7%	3.6%	1.6%	2.9%	5.8%	1.5%	0.4%	2.1%	0.4%	0.2%	0.4%
1	342	Geothermal Heat Pump, EER=13, 10 tons	8.7%	3.6%	1.6%	2.9%	5.8%	1.5%	0.4%	2.1%	0.4%	0.2%	0.4%
1	344	Aerosole Duct Sealing	8.7%	3.6%	1.6%	2.9%	5.8%	1.5%	0.4%	2.1%	0.4%	0.2%	0.4%
1	345	Duct/Pipe Insulation	8.7%	3.6%	1.6%	2.9%	5.8%	1.5%	0.4%	2.1%	0.4%	0.2%	0.4%
1	347	Window Film (Standard)	8.7%	3.6%	1.6%	2.9%	5.8%	1.5%	0.4%	2.1%	0.4%	0.2%	0.4%
1	349	Ceiling Insulation	8.7%	3.6%	1.6%	2.9%	5.8%	1.5%	0.4%	2.1%	0.4%	0.2%	0.4%
1	350	Roof Insulation	8.7%	3.6%	1.6%	2.9%	5.8%	1.5%	0.4%	2.1%	0.4%	0.2%	0.4%
1	351	Cool Roof - DX	8.7%	3.6%	1.6%	2.9%	5.8%	1.5%	0.4%	2.1%	0.4%	0.2%	0.4%
1	360	Base PTAC, EER=8.3, 1 ton	6.7%	9.1%	9.4%	0.0%	11.3%	10.1%	1.8%	18.7%	0.0%	5.7%	0.0%
1	361	HE PTAC, EER=9.6, 1 ton	6.7%	9.1%	9.4%	0.0%	11.3%	10.1%	1.8%	18.7%	0.0%	5.7%	0.0%
1	362	Occupancy Sensor (hotels)	6.7%	9.1%	9.4%	0.0%	11.3%	10.1%	1.8%	18.7%	0.0%	5.7%	0.0%
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	401	High Efficiency Fan Motor, 15hp, 1800rpm,	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	402	Variable Speed Drive Control	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	403	Air Handler Optimization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	404	Electronically Commutated Motors (ECM) o	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	405	Demand Control Ventilation (DCV)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	406	Energy Recovery Ventilation (ERV)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	407	Separate Makeup Air / Exhaust Hoods AC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	500	Base Refrigeration System				100.0%							
1	501	High-efficiency fan motors				100.0%							
1	502	Strip curtains for walk-ins				100.0%							
1	503	Night covers for display cases				100.0%							
1	504	Evaporator fan controller for MT walk-ins				100.0%							
1	505	Efficient compressor motor retrofit				100.0%							
1	506	Compressor VSD retrofit				100.0%							
1	507	Floating head pressure controls				100.0%							
1	508	Refrigeration Commissioning				100.0%							
1	509	Demand Hot Gas Defrost				100.0%							
1	510	Demand Defrost Electric				100.0%							
1	511	Anti-sweat (humidistat) controls				100.0%							
1	513	High R-Value Glass Doors				100.0%							
1	514	Multiplex Compressor System				100.0%							
1	515	Oversized Air Cooled Condenser				100.0%							
1	516	Freezer-Cooler Replacement Gaskets				100.0%							
1	517	LED Display Lighting				100.0%							
1	600	Base Water Heating	61.5%	41.6%	58.7%	56.7%	42.8%	71.3%	8.1%	33.6%	50.0%	37.1%	53.1%

B.2 Measure Inputs - Commercial

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	601	High Efficiency Water Heater (electric)	61.5%	41.6%	58.7%	56.7%	42.8%	71.3%	8.1%	33.6%	50.0%	37.1%	53.1%
1	603	Heat Pump Water Heater (air source)	61.5%	41.6%	58.7%	56.7%	42.8%	71.3%	8.1%	33.6%	50.0%	37.1%	53.1%
1	604	Solar Water Heater	61.5%	41.6%	58.7%	56.7%	42.8%	71.3%	8.1%	33.6%	50.0%	37.1%	53.1%
1	606	Demand controlled circulating systems	61.5%	41.6%	58.7%	56.7%	42.8%	71.3%	8.1%	33.6%	50.0%	37.1%	53.1%
1	608	Heat Recovery Unit	61.5%	41.6%	58.7%	56.7%	42.8%	71.3%	8.1%	33.6%	50.0%	37.1%	53.1%
1	609	Heat Trap	61.5%	41.6%	58.7%	56.7%	42.8%	71.3%	8.1%	33.6%	50.0%	37.1%	53.1%
1	610	Hot Water Pipe Insulation	61.5%	41.6%	58.7%	56.7%	42.8%	71.3%	8.1%	33.6%	50.0%	37.1%	53.1%
1	700	Base Desktop PC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	701	PC Manual Power Management Enabling	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	702	PC Network Power Management Enabling	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	710	Base Monitor	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	711	Energy Star or Better Monitor	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	712	Monitor Power Management Enabling	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	720	Base Monitor	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	721	Energy Star or Better Monitor	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	722	Monitor Power Management Enabling	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	730	Base Copier	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	731	Energy Star or Better Copier	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	732	Copier Power Management Enabling	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	740	Base Laser Printer	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	741	Printer Power Management Enabling	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	800	Base Commercial Ovens	79.4%	55.5%	70.4%	55.4%	52.1%	86.7%	55.3%	55.6%	83.2%	71.9%	66.6%
1	801	Convection Oven	79.4%	55.5%	70.4%	55.4%	52.1%	86.7%	55.3%	55.6%	83.2%	71.9%	66.6%
1	810	Base Commercial Fryers	79.4%	55.5%	70.4%	55.4%	52.1%	86.7%	55.3%	55.6%	83.2%	71.9%	66.6%
1	811	Efficient Fryer	79.4%	55.5%	70.4%	55.4%	52.1%	86.7%	55.3%	55.6%	83.2%	71.9%	66.6%
1	900	Base Vending Machines	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	901	Vending Misers	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

B.2 Measure Inputs - Commercial

FEASIBILITY FACTOR
(percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healtl Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	110	Base Fluorescent Fixture, T12, 34W, EB	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	111	Premium T8, Elecctronic Ballast	70.0%	70.0%	70.0%	70.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
1	112	Premium T8, EB, Reflector	30.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
1	113	Occupancy Sensor	40.0%	10.0%	10.0%	10.0%	50.0%	50.0%	50.0%	50.0%	50.0%	20.0%	20.0%
1	114	Continuous Dimming	40.0%	50.0%	12.0%	26.0%	30.0%	30.0%	10.0%	10.0%	10.0%	30.0%	30.0%
1	115	Lighing Control Tuneup	40.0%	10.0%	40.0%	25.0%	25.0%	40.0%	40.0%	40.0%	40.0%	40.0%	25.0%
1	120	Base T8, EB	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	121	ROB Premium T8, 1EB	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	122	ROB Premium T8, EB, Reflector	30.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
1	123	Occupancy Sensor	40.0%	10.0%	10.0%	10.0%	50.0%	50.0%	50.0%	50.0%	50.0%	20.0%	20.0%
1	124	Lighing Control Tuneup	40.0%	10.0%	40.0%	25.0%	25.0%	40.0%	40.0%	40.0%	40.0%	40.0%	25.0%
1	130	Base Incandescent Flood, 75W to Screw-in	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	131	CFL Screw-in 18W	70.0%	50.0%	50.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
1	140	Base Incandescent Flood, 75W to Hardwire	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	141	CFL Hardwired, Modular 18W	70.0%	50.0%	50.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
1	145	Base CFL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	150	Base High Bay Metal Halide, 400W	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	151	PSMH, magnetic ballast	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	152	PSMH, electronic ballast	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	153	High Bay T5	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	160	Base Exit Sign	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	161	LED Exit Sign	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	200	Base Outdoor Mercury Vapor 400W Lamp	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	201	High Pressure Sodium 250W Lamp	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	202	Outdoor Lighting Controls (Photocell/Timecl	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
1	210	Base Outdoor HID Lamp	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	211	Outdoor Lighting Controls (Photocell/Timecl	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 t	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	302	High Efficiency Chiller Motors	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	304	EMS - Chiller	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	305	Chiller Tune Up/Diagnostics	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	306	VSD for Chiller Pumps and Towers	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	307	EMS Optimization	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	308	Aerosole Duct Sealing	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	309	Duct/Pipe Insulation	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	311	Window Film (Standard)	75.0%	75.0%	50.0%	75.0%	75.0%	75.0%	75.0%	75.0%	50.0%	75.0%	75.0%
1	313	Ceiling Insulation	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	314	Roof Insulation	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	315	Cool Roof - Chiller	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	317	Thermal Energy Storage (TES)	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
1	320	Base DX Packaged System, EER=10.3, 10	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	321	DX Packaged System, EER=10.9, 10 tons	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	322	Hybrid Dessicant-DX System (Trane CDQ)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	323	Geothermal Heat Pump, EER=13, 10 tons	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	326	DX Tune Up/ Advanced Diagnostics	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	327	DX Coil Cleaning	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	328	Optimize Controls - DX	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	329	Aerosole Duct Sealing	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	330	Duct/Pipe Insulation	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%

B.2 Measure Inputs - Commercial

FEASIBILITY FACTOR (percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	332	Window Film (Standard)	75.0%	75.0%	50.0%	75.0%	75.0%	75.0%	75.0%	75.0%	50.0%	75.0%	75.0%
1	334	Ceiling Insulation	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	335	Roof Insulation	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	336	Cool Roof - DX	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	340	Base Packaged HP System, EER=10.3, 10	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	341	Packaged HP System, EER=10.9, 10 tons	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	342	Geothermal Heat Pump, EER=13, 10 tons	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	344	Aerosole Duct Sealing	75.0%	75.0%	50.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	345	Duct/Pipe Insulation	75.0%	75.0%	50.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	347	Window Film (Standard)	75.0%	75.0%	50.0%	75.0%	75.0%	75.0%	75.0%	75.0%	50.0%	75.0%	75.0%
1	349	Ceiling Insulation	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	350	Roof Insulation	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	351	Cool Roof - DX	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	360	Base PTAC, EER=8.3, 1 ton	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	361	HE PTAC, EER=9.6, 1 ton	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	362	Occupancy Sensor (hotels)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	401	High Efficiency Fan Motor, 15hp, 1800rpm,	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	402	Variable Speed Drive Control	70.7%	0.0%	18.6%	0.0%	66.8%	88.1%	85.7%	85.7%	85.7%	6.5%	34.8%
1	403	Air Handler Optimization	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	404	Electronically Commutated Motors (ECM) o	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	405	Demand Control Ventilation (DCV)	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	406	Energy Recovery Ventilation (ERV)	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	407	Separate Makeup Air / Exhaust Hoods AC	0.0%	100.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	500	Base Refrigeration System				100.0%							
1	501	High-efficiency fan motors				100.0%							
1	502	Strip curtains for walk-ins				100.0%							
1	503	Night covers for display cases				50.0%							
1	504	Evaporator fan controller for MT walk-ins				100.0%							
1	505	Efficient compressor motor retrofit				100.0%							
1	506	Compressor VSD retrofit				50.0%							
1	507	Floating head pressure controls				100.0%							
1	508	Refrigeration Commissioning				100.0%							
1	509	Demand Hot Gas Defrost				100.0%							
1	510	Demand Defrost Electric				100.0%							
1	511	Anti-sweat (humidistat) controls				100.0%							
1	513	High R-Value Glass Doors				100.0%							
1	514	Multiplex Compressor System				100.0%							
1	515	Oversized Air Cooled Condenser				100.0%							
1	516	Freezer-Cooler Replacement Gaskets				100.0%							
1	517	LED Display Lighting				100.0%							
1	600	Base Water Heating	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	601	High Efficiency Water Heater (electric)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	603	Heat Pump Water Heater (air source)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	604	Solar Water Heater	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	606	Demand controlled circulating systems	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	608	Heat Recovery Unit	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	609	Heat Trap	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	610	Hot Water Pipe Insulation	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	700	Base Desktop PC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

B.2 Measure Inputs - Commercial

FEASIBILITY FACTOR (percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	701	PC Manual Power Management Enabling	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	702	PC Network Power Management Enabling	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	710	Base Monitor, CRT	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	711	Energy Star or Better Monitor	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	712	Monitor Power Management Enabling	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	720	Base Monitor, LCD	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	721	Energy Star or Better Monitor	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	722	Monitor Power Management Enabling	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	730	Base Copier	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	731	Energy Star or Better Copier	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	732	Copier Power Management Enabling	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	740	Base Laser Printer	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	741	Printer Power Management Enabling	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	800	Base Commercial Ovens	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	801	Convection Oven	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	810	Base Commercial Fryers	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	811	Efficient Fryer	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	900	Base Vending Machines	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	901	Vending Misers	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%

B.2 Measure Inputs - Commercial

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	110	Base Fluorescent Fixture, T12, 34W, EB	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	111	Premium T8, Elecctronic Ballast	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%
1	112	Premium T8, EB, Reflector	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	113	Occupancy Sensor	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%
1	114	Continuous Dimming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	115	Lighing Control Tuneup	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
1	120	Base T8, EB	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	121	ROB Premium T8, 1EB	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%	94.9%
1	122	ROB Premium T8, EB, Reflector	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	123	Occupancy Sensor	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%	91.6%
1	124	Lighing Control Tuneup	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
1	130	Base Incandescent Flood, 75W to Screw-in CFL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	131	CFL Screw-in 18W	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	140	Base Incandescent Flood, 75W to Hardwired CFL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	141	CFL Hardwired, Modular 18W	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	145	Base CFL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	150	Base High Bay Metal Halide, 400W	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	151	PSMH, magnetic ballast	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%
1	152	PSMH, electronic ballast	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%
1	153	High Bay T5	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%
1	160	Base Exit Sign	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	161	LED Exit Sign	61.2%	77.8%	73.3%	80.0%	69.9%	63.8%	74.7%	74.7%	74.7%	66.5%	75.4%
1	200	Base Outdoor Mercury Vapor 400W Lamp	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	201	High Pressure Sodium 250W Lamp	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%
1	210	Base Outdoor HID Lamp	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%
1	302	High Efficiency Chiller Motors	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
1	304	EMS - Chiller	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
1	305	Chiller Tune Up/Diagnostics	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	306	VSD for Chiller Pumps and Towers	61.7%	61.7%	61.7%	61.7%	61.7%	61.7%	61.7%	61.7%	61.7%	61.7%	61.7%
1	307	EMS Optimization	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	308	Aerosole Duct Sealing	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%
1	309	Duct/Pipe Insulation	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
1	311	Window Film (Standard)	13.5%	96.9%	94.0%	51.2%	83.0%	91.7%	34.8%	34.8%	34.8%	66.7%	82.7%
1	313	Ceiling Insulation	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
1	314	Roof Insulation	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
1	315	Cool Roof - Chiller	48.5%	50.4%	62.7%	46.1%	79.7%	94.1%	64.2%	64.2%	64.2%	100.0%	92.4%
1	317	Thermal Energy Storage (TES)	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
1	320	Base DX Packaged System, EER=10.3, 10 tons	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	321	DX Packaged System, EER=10.9, 10 tons	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
1	322	Hybrid Dessicant-DX System (Trane CDQ)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	323	Geothermal Heat Pump, EER=13, 10 tons	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%
1	326	DX Tune Up/ Advanced Diagnostics	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
1	327	DX Coil Cleaning	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	328	Optimize Controls - DX	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
1	329	Aerosole Duct Sealing	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%
1	330	Duct/Pipe Insulation	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
1	332	Window Film (Standard)	13.5%	96.9%	94.0%	51.2%	83.0%	91.7%	34.8%	34.8%	34.8%	66.7%	82.7%
1	334	Ceiling Insulation	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%

B.2 Measure Inputs - Commercial

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	335	Roof Insulation	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
1	336	Cool Roof - DX	48.5%	50.4%	62.7%	46.1%	79.7%	94.1%	64.2%	64.2%	64.2%	100.0%	92.4%
1	340	Base Packaged HP System, EER=10.3, 10 tons	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	341	Packaged HP System, EER=10.9, 10 tons	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
1	342	Geothermal Heat Pump, EER=13, 10 tons	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%
1	344	Aerosole Duct Sealing	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%
1	345	Duct/Pipe Insulation	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
1	347	Window Film (Standard)	13.5%	96.9%	94.0%	51.2%	83.0%	91.7%	34.8%	34.8%	34.8%	66.7%	82.7%
1	349	Ceiling Insulation	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
1	350	Roof Insulation	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
1	351	Cool Roof - DX	48.5%	50.4%	62.7%	46.1%	79.7%	94.1%	64.2%	64.2%	64.2%	100.0%	92.4%
1	360	Base PTAC, EER=8.3, 1 ton	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	361	HE PTAC, EER=9.6, 1 ton	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	362	Occupancy Sensor (hotels)	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	402	Variable Speed Drive Control	39.3%	95.0%	75.0%	75.0%	50.0%	50.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	403	Air Handler Optimization	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	404	Electronically Commutated Motors (ECM) on an Air H	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	405	Demand Control Ventilation (DCV)	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	406	Energy Recovery Ventilation (ERV)	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	407	Separate Makeup Air / Exhaust Hoods AC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	500	Base Refrigeration System				100.0%							
1	501	High-efficiency fan motors				95.0%							
1	502	Strip curtains for walk-ins				70.0%							
1	503	Night covers for display cases				95.0%							
1	504	Evaporator fan controller for MT walk-ins				80.0%							
1	505	Efficient compressor motor retrofit				70.0%							
1	506	Compressor VSD retrofit				80.0%							
1	507	Floating head pressure controls				25.0%							
1	508	Refrigeration Commissioning				50.0%							
1	509	Demand Hot Gas Defrost				30.0%							
1	510	Demand Defrost Electric				95.0%							
1	511	Anti-sweat (humidistat) controls				75.0%							
1	513	High R-Value Glass Doors				95.0%							
1	514	Multiplex Compressor System				50.0%							
1	515	Oversized Air Cooled Condenser				50.0%							
1	516	Freezer-Cooler Replacement Gaskets				50.0%							
1	517	LED Display Lighting				95.0%							
1	600	Base Water Heating	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	601	High Efficiency Water Heater (electric)	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%
1	603	Heat Pump Water Heater (air source)	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%
1	604	Solar Water Heater	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%
1	606	Demand controlled circulating systems	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%
1	608	Heat Recovery Unit	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	609	Heat Trap	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	610	Hot Water Pipe Insulation	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	700	Base Desktop PC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	701	PC Manual Power Management Enabling	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	702	PC Network Power Management Enabling	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	710	Base Monitor, CRT	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	711	Energy Star or Better Monitor	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

B.2 Measure Inputs - Commercial

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	712	Monitor Power Management Enabling	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
1	720	Base Monitor, LCD	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	721	Energy Star or Better Monitor	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	722	Monitor Power Management Enabling	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
1	730	Base Copier	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	731	Energy Star or Better Copier	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	732	Copier Power Management Enabling	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%
1	740	Base Laser Printer	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	741	Printer Power Management Enabling	46.0%	46.0%	46.0%	46.0%	46.0%	46.0%	46.0%	46.0%	46.0%	46.0%	46.0%
1	800	Base Commercial Ovens	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	801	Convection Oven	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%
1	810	Base Commercial Fryers	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	811	Efficient Fryer	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%
1	900	Base Vending Machines	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	901	Vending Misers	95.0%	100.0%	87.3%	100.0%	75.0%	75.0%	100.0%	100.0%	100.0%	53.0%	100.0%

B.2 Measure Inputs - Commercial

TECHNOLOGY SATURATION
(units/square foot)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healtl Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	110	Base Fluorescent Fixture, T12, 34W, EB	0.0173	0.0158	0.0188	0.0245	0.0171	0.0210	0.0149	0.0426	0.0051	0.0064	0.0110
1	111	Premium T8, Elecctronic Ballast	0.0173	0.0158	0.0188	0.0245	0.0171	0.0210	0.0149	0.0426	0.0051	0.0064	0.0110
1	112	Premium T8, EB, Reflector	0.0173	0.0158	0.0188	0.0245	0.0171	0.0210	0.0149	0.0426	0.0051	0.0064	0.0110
1	113	Occupancy Sensor	0.0173	0.0158	0.0188	0.0245	0.0171	0.0210	0.0149	0.0426	0.0051	0.0064	0.0110
1	114	Continuous Dimming	0.0173	0.0158	0.0188	0.0245	0.0171	0.0210	0.0149	0.0426	0.0051	0.0064	0.0110
1	115	Lighing Control Tuneup	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	120	Base T8, EB	0.0119	0.0109	0.0130	0.0169	0.0118	0.0145	0.0103	0.0294	0.0035	0.0044	0.0076
1	121	ROB Premium T8, 1EB	0.0119	0.0109	0.0130	0.0169	0.0118	0.0145	0.0103	0.0294	0.0035	0.0044	0.0076
1	122	ROB Premium T8, EB, Reflector	0.0119	0.0109	0.0130	0.0169	0.0118	0.0145	0.0103	0.0294	0.0035	0.0044	0.0076
1	123	Occupancy Sensor	0.0119	0.0109	0.0130	0.0169	0.0118	0.0145	0.0103	0.0294	0.0035	0.0044	0.0076
1	124	Lighing Control Tuneup	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	130	Base Incandescent Flood, 75W to Screw-in	0.0549	0.0503	0.0599	0.0781	0.0543	0.0669	0.0475	0.1356	0.0163	0.0203	0.0349
1	131	CFL Screw-in 18W	0.0549	0.0503	0.0599	0.0781	0.0543	0.0669	0.0475	0.1356	0.0163	0.0203	0.0349
1	140	Base Incandescent Flood, 75W to Hardwire	0.0549	0.0503	0.0599	0.0781	0.0543	0.0669	0.0475	0.1356	0.0163	0.0203	0.0349
1	141	CFL Hardwired, Modular 18W	0.0549	0.0503	0.0599	0.0781	0.0543	0.0669	0.0475	0.1356	0.0163	0.0203	0.0349
1	145	Base CFL	0.0473	0.0433	0.0516	0.0673	0.0468	0.0577	0.0409	0.0774	0.0193	0.0175	0.0301
1	150	Base High Bay Metal Halide, 400W	0.0027	0.0025	0.0030	0.0039	0.0027	0.0033	0.0024	0.0045	0.0011	0.0010	0.0017
1	151	PSMH, magnetic ballast	0.0027	0.0025	0.0030	0.0039	0.0027	0.0033	0.0024	0.0045	0.0011	0.0010	0.0017
1	152	PSMH, electronic ballast	0.0027	0.0025	0.0030	0.0039	0.0027	0.0033	0.0024	0.0045	0.0011	0.0010	0.0017
1	153	High Bay T5	0.0027	0.0025	0.0030	0.0039	0.0027	0.0033	0.0024	0.0045	0.0011	0.0010	0.0017
1	160	Base Exit Sign	0.0004	0.0011	0.0003	0.0002	0.0006	0.0003	0.0001	0.0004	0.0001	0.0002	0.0002
1	161	LED Exit Sign	0.0004	0.0011	0.0003	0.0002	0.0006	0.0003	0.0001	0.0004	0.0001	0.0002	0.0002
1	200	Base Outdoor Mercury Vapor 400W Lamp	0.0007	0.0065	0.0005	0.0008	0.0004	0.0005	0.0001	0.0004	0.0002	0.0015	0.0040
1	201	High Pressure Sodium 250W Lamp	0.0007	0.0065	0.0005	0.0008	0.0004	0.0005	0.0001	0.0004	0.0002	0.0015	0.0040
1	202	Outdoor Lighting Controls (Photocell/Timecl	0.0002	0.0016	0.0001	0.0002	0.0001	0.0001	0.0000	0.0001	0.0000	0.0004	0.0010
1	210	Base Outdoor HID Lamp	0.0019	0.0288	0.0062	0.0077	0.0024	0.0014	0.0011	0.0010	0.0006	0.0039	0.0060
1	211	Outdoor Lighting Controls (Photocell/Timecl	0.0005	0.0072	0.0015	0.0019	0.0006	0.0004	0.0003	0.0002	0.0001	0.0010	0.0015
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 t	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	302	High Efficiency Chiller Motors	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	304	EMS - Chiller	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	305	Chiller Tune Up/Diagnostics	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	306	VSD for Chiller Pumps and Towers	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	307	EMS Optimization	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	308	Aerosole Duct Sealing	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	309	Duct/Pipe Insulation	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500
1	311	Window Film (Standard)	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425
1	313	Ceiling Insulation	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000
1	314	Roof Insulation	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
1	315	Cool Roof - Chiller	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
1	317	Thermal Energy Storage (TES)	0.0037	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	320	Base DX Packaged System, EER=10.3, 10	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	321	DX Packaged System, EER=10.9, 10 tons	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	322	Hybrid Dessicant-DX System (Trane CDQ)	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	323	Geothermal Heat Pump, EER=13, 10 tons	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	326	DX Tune Up/ Advanced Diagnostics	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	327	DX Coil Cleaning	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	328	Optimize Controls - DX	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	329	Aerosole Duct Sealing	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	330	Duct/Pipe Insulation	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500

B.2 Measure Inputs - Commercial

TECHNOLOGY SATURATION
(units/square foot)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	332	Window Film (Standard)	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425
1	334	Ceiling Insulation	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000
1	335	Roof Insulation	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
1	336	Cool Roof - DX	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
1	340	Base Packaged HP System, EER=10.3, 10	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	341	Packaged HP System, EER=10.9, 10 tons	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	342	Geothermal Heat Pump, EER=13, 10 tons	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	344	Aerosole Duct Sealing	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	345	Duct/Pipe Insulation	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500
1	347	Window Film (Standard)	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425	0.0425
1	349	Ceiling Insulation	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000	0.7000
1	350	Roof Insulation	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
1	351	Cool Roof - DX	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
1	360	Base PTAC, EER=8.3, 1 ton	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	361	HE PTAC, EER=9.6, 1 ton	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	362	Occupancy Sensor (hotels)	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	0.0008	0.0017	0.0008	0.0009	0.0008	0.0010	0.0014	0.0014	0.0001	0.0008	0.0004
1	401	High Efficiency Fan Motor, 15hp, 1800rpm,	0.0008	0.0017	0.0008	0.0009	0.0008	0.0010	0.0014	0.0014	0.0001	0.0008	0.0004
1	402	Variable Speed Drive Control	0.0008	0.0017	0.0008	0.0009	0.0008	0.0010	0.0014	0.0014	0.0001	0.0008	0.0004
1	403	Air Handler Optimization	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	404	Electronically Commutated Motors (ECM) o	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	405	Demand Control Ventilation (DCV)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	406	Energy Recovery Ventilation (ERV)	0.0024	0.0037	0.0016	0.0035	0.0026	0.0020	0.0042	0.0039	0.0004	0.0017	0.0014
1	407	Separate Makeup Air / Exhaust Hoods AC	0.0008	0.0017	0.0008	0.0009	0.0008	0.0010	0.0014	0.0014	0.0001	0.0008	0.0004
1	500	Base Refrigeration System				0.00003							
1	501	High-efficiency fan motors				0.00003							
1	502	Strip curtains for walk-ins				0.00003							
1	503	Night covers for display cases				0.01230							
1	504	Evaporator fan controller for MT walk-ins				0.00015							
1	505	Efficient compressor motor retrofit				0.00003							
1	506	Compressor VSD retrofit				0.00003							
1	507	Floating head pressure controls				0.00003							
1	508	Refrigeration Commissioning				0.00155							
1	509	Demand Hot Gas Defrost				0.00130							
1	510	Demand Defrost Electric				0.00130							
1	511	Anti-sweat (humidistat) controls				0.00003							
1	513	High R-Value Glass Doors				0.00130							
1	514	Multiplex Compressor System				0.00155							
1	515	Oversized Air Cooled Condenser				0.00155							
1	516	Freezer-Cooler Replacement Gaskets				0.00692							
1	517	LED Display Lighting				0.00130							
1	600	Base Water Heating	0.0021	0.0114	0.0009	0.0038	0.0024	0.0015	0.0017	0.0137	0.0004	0.0063	0.0021
1	601	High Efficiency Water Heater (electric)	0.0021	0.0114	0.0009	0.0038	0.0024	0.0015	0.0017	0.0137	0.0004	0.0063	0.0021
1	603	Heat Pump Water Heater (air source)	0.0021	0.0114	0.0009	0.0038	0.0024	0.0015	0.0017	0.0137	0.0004	0.0063	0.0021
1	604	Solar Water Heater	0.0021	0.0114	0.0009	0.0038	0.0024	0.0015	0.0017	0.0137	0.0004	0.0063	0.0021
1	606	Demand controlled circulating systems	0.0001	0.0008	0.0000	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0001
1	608	Heat Recovery Unit	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	609	Heat Trap	0.0021	0.0114	0.0009	0.0038	0.0024	0.0015	0.0017	0.0137	0.0004	0.0063	0.0021
1	610	Hot Water Pipe Insulation	0.0017	0.0088	0.0007	0.0029	0.0018	0.0012	0.0013	0.0106	0.0003	0.0049	0.0016

B.2 Measure Inputs - Commercial

TECHNOLOGY SATURATION
(units/square foot)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healt Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	700	Base Desktop PC	0.0017	0.0002	0.0002	0.0001	0.0011	0.0025	0.0008	0.0002	0.0002	0.0001	0.0003
1	701	PC Manual Power Management Enabling	0.0017	0.0002	0.0002	0.0001	0.0011	0.0025	0.0008	0.0002	0.0002	0.0001	0.0003
1	702	PC Network Power Management Enabling	0.0017	0.0002	0.0002	0.0001	0.0011	0.0025	0.0008	0.0002	0.0002	0.0001	0.0003
1	710	Base Monitor, CRT	0.0016	0.0002	0.0002	0.0001	0.0010	0.0024	0.0008	0.0002	0.0002	0.0001	0.0003
1	711	Energy Star or Better Monitor	0.0016	0.0002	0.0002	0.0001	0.0010	0.0024	0.0008	0.0002	0.0002	0.0001	0.0003
1	712	Monitor Power Management Enabling	0.0016	0.0002	0.0002	0.0001	0.0010	0.0024	0.0008	0.0002	0.0002	0.0001	0.0003
1	720	Base Monitor, LCD	0.0001	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
1	721	Energy Star or Better Monitor	0.0001	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
1	722	Monitor Power Management Enabling	0.0001	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
1	730	Base Copier	0.0003	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0001
1	731	Energy Star or Better Copier	0.0003	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0001
1	732	Copier Power Management Enabling	0.0003	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0001
1	740	Base Laser Printer	0.0007	0.0001	0.0002	0.0001	0.0003	0.0008	0.0004	0.0001	0.0001	0.0001	0.0002
1	741	Printer Power Management Enabling	0.0007	0.0001	0.0002	0.0001	0.0003	0.0008	0.0004	0.0001	0.0001	0.0001	0.0002
1	800	Base Commercial Ovens	0.0089	0.0820	0.0042	0.0497	0.0193	0.0069	0.0115	0.0086	0.0005	0.0860	0.0119
1	801	Convection Oven	0.0089	0.0820	0.0042	0.0497	0.0193	0.0069	0.0115	0.0086	0.0005	0.0860	0.0119
1	810	Base Commercial Fryers	0.0013	0.0771	0.0022	0.0234	0.0051	0.0013	0.0028	0.0002	0.0007	0.0019	0.0000
1	811	Efficient Fryer	0.0013	0.0771	0.0022	0.0234	0.0051	0.0013	0.0028	0.0002	0.0007	0.0019	0.0000
1	900	Base Vending Machines	0.0001	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	901	Vending Misers	0.0001	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

B.2 Measure Inputs - Commercial

Hour Adjustment For Lighting
(Hours/year)

Segment	Measure #	Measure Description	Office Building Type 1	Restaurant Building Type 2	Retail Building Type 3	FoodStore Building Type 4	School Building Type 5	College Building Type 6	Hospital Building Type 7	Other Healtl Building Type 8	Warehouse Building Type 9	Hotel Building Type 10	Other Building Type 11
1	110	Base Fluorescent Fixture, T12, 34W, EB	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	111	Premium T8, Elecctronic Ballast	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	112	Premium T8, EB, Reflector	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	113	Occupancy Sensor	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	114	Continuous Dimming	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	115	Lighing Control Tuneup	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	120	Base T8, EB	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	121	ROB Premium T8, 1EB	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	122	ROB Premium T8, EB, Reflector	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	123	Occupancy Sensor	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	124	Lighing Control Tuneup	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	130	Base Incandescent Flood, 75W to Screw-in	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	131	CFL Screw-in 18W	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	140	Base Incandescent Flood, 75W to Hardwire	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	141	CFL Hardwired, Modular 18W	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	145	Base CFL	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	150	Base High Bay Metal Halide, 400W	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	151	PSMH, magnetic ballast	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	152	PSMH, electronic ballast	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	153	High Bay T5	3560	4359	3859	6983	2752	2260	5667	3760	3473	3646	2688
1	160	Base Exit Sign	8615	8615	8615	8615	8615	8615	8615	8615	8615	8615	8615
1	161	LED Exit Sign	8615	8615	8615	8615	8615	8615	8615	8615	8615	8615	8615
1	200	Base Outdoor Mercury Vapor 400W Lamp	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380
1	201	High Pressure Sodium 250W Lamp	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380
1	202	Outdoor Lighting Controls (Photocell/Timecl	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380
1	210	Base Outdoor HID Lamp	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380
1	211	Outdoor Lighting Controls (Photocell/Timecl	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380	4380

B.3 Measure Inputs - Industrial

MEASURE COSTS

Segment	Measure #	Measure Description	Cost Units	Unit Equipment Cost	Unit Labor Cost	NPV of Lifetime O & M Cost	Implementation Cost Factor	Cost Units per Savings Unit	Service Life	Full = 1 Incr. = 0 Initial Cost	Replace Cost	Full Unit Cost	Relative Energy Reduction Factors SP	WP	OP	na	na	na	End Use	Implementatic Type 1=1 time 2=ROB
1	100	Base Compressed Air	$/kWh	$0.000	$0.000	$0.000	$0.000	1	14.5	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	101	Compressed Air-O&M	$/kWh	$0.009	$0.002	$0.000	$0.011	1	10	1	1	$0.011	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	102	Compressed Air - Controls	$/kWh	$0.016	$0.003	$0.000	$0.019	1	10	1	1	$0.019	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	103	Compressed Air - System Optimization	$/kWh	$0.015	$0.003	$0.000	$0.017	1	10	1	1	$0.017	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	104	Compressed Air- Sizing	$/kWh	$0.004	$0.001	$0.000	$0.005	1	10	1	1	$0.005	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	105	Comp Air - Replace 1-5 HP motor	$/kWh	$0.048	$0.009	$0.000	$0.058	1	14.5	1	1	$0.058	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	106	Comp Air - ASD (1-5 hp)	$/kWh	$0.070	$0.013	$0.000	$0.083	1	14.5	1	1	$0.083	0.09	1.00	1.00	1.00	1.00	1.00	1	2
1	107	Comp Air - Motor practices-1 (1-5 HP)	$/kWh	$0.019	$0.004	$0.000	$0.023	1	14.5	1	1	$0.023	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	108	Comp Air - Replace 6-100 HP motor	$/kWh	$0.027	$0.005	$0.000	$0.032	1	10	1	1	$0.032	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	109	Comp Air - ASD (6-100 hp)	$/kWh	$0.002	$0.000	$0.000	$0.003	1	10	1	1	$0.003	0.09	1.00	1.00	1.00	1.00	1.00	1	2
1	110	Comp Air - Motor practices-1 (6-100 HP)	$/kWh	$0.005	$0.001	$0.000	$0.006	1	10	1	1	$0.006	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	111	Comp Air - Replace 100+ HP motor	$/kWh	$0.008	$0.002	$0.000	$0.010	1	6	1	1	$0.010	1.00	1.00	1.00	1.00	1.00	1.00	1	2
1	112	Comp Air - ASD (100+ hp)	$/kWh	$0.005	$0.001	$0.000	$0.006	1	6	1	1	$0.006	0.09	1.00	1.00	1.00	1.00	1.00	1	2
1	113	Comp Air - Motor practices-1 (100+ HP)	$/kWh	$0.002	$0.000	$0.000	$0.002	1	6	1	1	$0.002	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	114	Power recovery	$/kWh	$0.003	$0.001	$0.000	$0.003	1	10	1	1	$0.003	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	115	Refinery Controls	$/kWh	$0.003	$0.001	$0.000	$0.004	1	10	1	1	$0.004	1.00	1.00	1.00	1.00	1.00	1.00	1	1
1	200	Base Fans	$/kWh	$0.000	$0.000	$0.000	$0.000	1	14.5	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	201	Fans - O&M	$/kWh	$0.001	$0.000	$0.000	$0.001	1	10	1	1	$0.001	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	202	Fans - Controls	$/kWh	$0.084	$0.016	$0.000	$0.100	1	10	1	1	$0.100	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	203	Fans - System Optimization	$/kWh	$0.055	$0.010	$0.000	$0.065	1	10	1	1	$0.065	0.47	1.00	1.00	1.00	1.00	1.00	2	1
1	204	Fans- Improve components	$/kWh	$0.005	$0.001	$0.000	$0.005	1	10	1	1	$0.005	1.00	1.00	1.00	1.00	1.00	1.00	2	2
1	205	Fans - Replace 1-5 HP motor	$/kWh	$0.048	$0.009	$0.000	$0.058	1	14.5	1	1	$0.058	1.00	1.00	1.00	1.00	1.00	1.00	2	2
1	206	Fans - ASD (1-5 hp)	$/kWh	$0.070	$0.013	$0.000	$0.083	1	14.5	1	1	$0.083	0.09	1.00	1.00	1.00	1.00	1.00	2	2
1	207	Fans - Motor practices-1 (1-5 HP)	$/kWh	$0.019	$0.004	$0.000	$0.023	1	14.5	1	1	$0.023	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	208	Fans - Replace 6-100 HP motor	$/kWh	$0.027	$0.005	$0.000	$0.032	1	10	1	1	$0.032	1.00	1.00	1.00	1.00	1.00	1.00	2	2
1	209	Fans - ASD (6-100 hp)	$/kWh	$0.002	$0.000	$0.000	$0.003	1	10	1	1	$0.003	0.09	1.00	1.00	1.00	1.00	1.00	2	2
1	210	Fans - Motor practices-1 (6-100 HP)	$/kWh	$0.005	$0.001	$0.000	$0.006	1	10	1	1	$0.006	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	211	Fans - Replace 100+ HP motor	$/kWh	$0.008	$0.002	$0.000	$0.010	1	6	1	1	$0.010	1.00	1.00	1.00	1.00	1.00	1.00	2	2
1	212	Fans - ASD (100+ hp)	$/kWh	$0.005	$0.001	$0.000	$0.006	1	6	1	1	$0.006	0.09	1.00	1.00	1.00	1.00	1.00	2	2
1	213	Fans - Motor practices-1 (100+ HP)	$/kWh	$0.002	$0.000	$0.000	$0.002	1	6	1	1	$0.002	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	214	Optimize drying process	$/kWh	$0.046	$0.009	$0.000	$0.054	1	10	1	1	$0.054	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	215	Power recovery	$/kWh	$0.003	$0.001	$0.000	$0.003	1	10	1	1	$0.003	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	216	Refinery Controls	$/kWh	$0.003	$0.001	$0.000	$0.004	1	10	1	1	$0.004	1.00	1.00	1.00	1.00	1.00	1.00	2	1
1	300	Base Pumps	$/kWh	$0.000	$0.000	$0.000	$0.000	1	14.5	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	301	Pumps - O&M	$/kWh	$0.005	$0.001	$0.000	$0.005	1	10	1	1	$0.005	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	302	Pumps - Controls	$/kWh	$0.025	$0.005	$0.000	$0.029	1	10	1	1	$0.029	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	303	Pumps - System Optimization	$/kWh	$0.060	$0.011	$0.000	$0.071	1	10	1	1	$0.071	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	304	Pumps - Sizing	$/kWh	$0.018	$0.003	$0.000	$0.022	1	10	1	1	$0.022	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	305	Pumps - Replace 1-5 HP motor	$/kWh	$0.048	$0.009	$0.000	$0.058	1	14.5	1	1	$0.058	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	306	Pumps - ASD (1-5 hp)	$/kWh	$0.070	$0.013	$0.000	$0.083	1	14.5	1	1	$0.083	0.09	1.00	1.00	1.00	1.00	1.00	3	2
1	307	Pumps - Motor practices-1 (1-5 HP)	$/kWh	$0.019	$0.004	$0.000	$0.023	1	14.5	1	1	$0.023	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	308	Pumps - Replace 6-100 HP motor	$/kWh	$0.027	$0.005	$0.000	$0.032	1	10	1	1	$0.032	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	309	Pumps - ASD (6-100 hp)	$/kWh	$0.002	$0.000	$0.000	$0.003	1	10	1	1	$0.003	0.09	1.00	1.00	1.00	1.00	1.00	3	2
1	310	Pumps - Motor practices-1 (6-100 HP)	$/kWh	$0.005	$0.001	$0.000	$0.006	1	10	1	1	$0.006	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	311	Pumps - Replace 100+ HP motor	$/kWh	$0.008	$0.002	$0.000	$0.010	1	6	1	1	$0.010	1.00	1.00	1.00	1.00	1.00	1.00	3	2
1	312	Pumps - ASD (100+ hp)	$/kWh	$0.005	$0.001	$0.000	$0.006	1	6	1	1	$0.006	0.09	1.00	1.00	1.00	1.00	1.00	3	2
1	313	Pumps - Motor practices-1 (100+ HP)	$/kWh	$0.002	$0.000	$0.000	$0.002	1	6	1	1	$0.002	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	314	Power recovery	$/kWh	$0.003	$0.001	$0.000	$0.003	1	10	1	1	$0.003	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	315	Refinery Controls	$/kWh	$0.003	$0.001	$0.000	$0.004	1	10	1	1	$0.004	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	317	Low Pressure Nozzle	$/kWh	$0.019	$0.004	$0.000	$0.022	1	8	1	1	$0.022	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	318	Micro Watering System	$/kWh	$0.054	$0.010	$0.000	$0.064	1	20	1	1	$0.064	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	319	Pump Retrofit - Irrigation	$/kWh	$0.010	$0.002	$0.000	$0.012	1	9	1	1	$0.012	1.00	1.00	1.00	1.00	1.00	1.00	3	1
1	400	Base Drives	$/kWh	$0.000	$0.000	$0.000	$0.000	1	20	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	401	Bakery - Process (Mixing) - O&M	$/kWh	$0.005	$0.001	$0.000	$0.005	1	10	1	1	$0.005	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	402	O&M/drives spinning machines	$/kWh	$0.029	$0.006	$0.000	$0.035	1	10	1	1	$0.035	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	403	Air conveying systems	$/kWh	$0.035	$0.007	$0.000	$0.041	1	14	1	1	$0.041	0.24	1.00	1.00	1.00	1.00	1.00	4	2
1	404	Replace V-Belts	$/kWh	$0.005	$0.001	$0.000	$0.006	1	10	1	1	$0.006	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	405	Drives - EE motor	$/kWh	$0.006	$0.001	$0.000	$0.007	1	10	1	1	$0.007	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	406	Gap Forming papermachine	$/kWh	$0.007	$0.001	$0.000	$0.009	1	20	1	1	$0.009	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	407	High Consistency forming	$/kWh	$0.007	$0.001	$0.000	$0.008	1	20	1	1	$0.008	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	408	Optimization control PM	$/kWh	$0.011	$0.002	$0.000	$0.014	1	10	1	1	$0.014	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	409	Efficient practices printing press	$/kWh	$0.009	$0.002	$0.000	$0.011	1	20	1	1	$0.011	1.00	1.00	1.00	1.00	1.00	1.00	4	1

B.3 Measure Inputs - Industrial

MEASURE COSTS

Segment	Measure #	Measure Description	Cost Units	Unit Equipment Cost	Unit Labor Cost	NPV of Lifetime O & M Cost	Implementation Cost Factor	Cost Units per Savings Unit	Service Life	Full = 1 Incr. = 0 Initial Cost	Replace Cost	Full Unit Cost	Relative Energy Reduction Factors SP	WP	OP	na	na	na	End Use	Implementatic Type 1=1 time 2=ROB
1	410	Efficient Printing press (fewer cylinders)	$/kWh	$0.055	$0.010	$0.000	$0.065	1	10	1	1	$0.065	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	411	Light cylinders	$/kWh	$0.064	$0.012	$0.000	$0.076	1	10	1	1	$0.076	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	412	Efficient drives	$/kWh	$0.005	$0.001	$0.000	$0.006	1	10	1	1	$0.006	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	413	Clean Room - Controls	$/kWh	$0.020	$0.004	$0.000	$0.024	1	10	1	1	$0.024	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	414	Clean Room - New Designs	$/kWh	$0.120	$0.023	$0.000	$0.143	1	10	1	1	$0.143	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	415	Drives - Process Controls (batch + site)	$/kWh	$0.022	$0.004	$0.000	$0.026	1	10	1	1	$0.026	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	416	Process Drives - ASD	$/kWh	$0.002	$0.000	$0.000	$0.002	1	10	1	1	$0.002	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	417	O&M - Extruders/Injection Moulding	$/kWh	$0.005	$0.001	$0.000	$0.005	1	12	1	1	$0.005	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	418	Extruders/injection Moulding-multipump	$/kWh	$0.090	$0.017	$0.000	$0.107	1	12	1	1	$0.107	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	419	Direct drive Extruders	$/kWh	$0.280	$0.053	$0.000	$0.333	1	12	1	1	$0.333	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	420	Injection Moulding - Impulse Cooling	$/kWh	$0.063	$0.012	$0.000	$0.075	1	12	1	1	$0.075	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	421	Injection Moulding - Direct drive	$/kWh	$0.088	$0.017	$0.000	$0.105	1	12	1	1	$0.105	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	422	Efficient grinding	$/kWh	$0.210	$0.040	$0.000	$0.250	1	15	1	1	$0.250	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	423	Process control	$/kWh	$0.002	$0.000	$0.000	$0.002	1	10	1	1	$0.002	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	424	Process optimization	$/kWh	$0.027	$0.005	$0.000	$0.032	1	10	1	1	$0.032	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	425	Drives - Process Control	$/kWh	$0.014	$0.003	$0.000	$0.016	1	15	1	1	$0.016	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	426	Efficient drives - rolling	$/kWh	$0.008	$0.002	$0.000	$0.010	1	10	1	1	$0.010	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	427	Drives - Optimization process (M&T)	$/kWh	$0.007	$0.001	$0.000	$0.009	1	10	1	1	$0.009	1.00	1.00	1.00	1.00	1.00	1.00	4	1
1	428	Drives - Scheduling	$/kWh	$0.009	$0.002	$0.000	$0.011	1	10	1	1	$0.011	0.18	1.00	1.00	1.00	1.00	1.00	4	1
1	429	Machinery	$/kWh	$0.011	$0.002	$0.000	$0.014	1	10	1	1	$0.014	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	430	Efficient Machinery	$/kWh	$0.006	$0.001	$0.000	$0.007	1	10	1	1	$0.007	1.00	1.00	1.00	1.00	1.00	1.00	4	2
1	500	Base Heating	$/kWh	$0.000	$0.000	$0.000	$0.000	1	20	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	5	1
1	501	Bakery - Process	$/kWh	$0.046	$0.009	$0.000	$0.054	1	15	1	1	$0.054	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	502	Drying (UV/IR)	$/kWh	$0.068	$0.013	$0.000	$0.081	1	8	1	1	$0.081	0.57	1.00	1.00	1.00	1.00	1.00	5	2
1	503	Heat Pumps - Drying	$/kWh	$0.160	$0.030	$0.000	$0.191	1	15	1	1	$0.191	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	504	Top-heating (glass)	$/kWh	$0.004	$0.001	$0.000	$0.004	1	8	1	1	$0.004	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	505	Efficient electric melting	$/kWh	$0.030	$0.006	$0.000	$0.036	1	20	1	1	$0.036	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	506	Intelligent extruder (DOE)	$/kWh	$0.015	$0.003	$0.000	$0.017	1	10	1	1	$0.017	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	507	Near Net Shape Casting	$/kWh	$0.011	$0.002	$0.000	$0.013	1	15	1	1	$0.013	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	508	Heating - Process Control	$/kWh	$0.014	$0.003	$0.000	$0.016	1	15	1	1	$0.016	1.00	1.00	1.00	1.00	1.00	1.00	5	1
1	509	Efficient Curing ovens	$/kWh	$0.073	$0.014	$0.000	$0.087	1	15	1	1	$0.087	1.00	1.00	1.00	1.00	1.00	1.00	5	2
1	510	Heating - Optimization process (M&T)	$/kWh	$0.007	$0.001	$0.000	$0.009	1	10	1	1	$0.009	1.00	1.00	1.00	1.00	1.00	1.00	5	1
1	511	Heating - Scheduling	$/kWh	$0.009	$0.002	$0.000	$0.011	1	10	1	1	$0.011	0.18	1.00	1.00	1.00	1.00	1.00	5	1
1	550	Base Refrigeration	$/kWh	$0.000	$0.000	$0.000	$0.000	1	20	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	6	1
1	551	Efficient Refrigeration - Operations	$/kWh	$0.007	$0.001	$0.000	$0.008	1	10	1	1	$0.008	1.00	1.00	1.00	1.00	1.00	1.00	6	1
1	552	Optimization Refrigeration	$/kWh	$0.099	$0.019	$0.000	$0.118	1	15	1	1	$0.118	1.00	1.00	1.00	1.00	1.00	1.00	6	1
1	600	Base Other Process	$/kWh	$0.000	$0.000	$0.000	$0.000	1	15	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	7	1
1	601	Other Process Controls (batch + site)	$/kWh	$0.022	$0.004	$0.000	$0.026	1	10	1	1	$0.026	1.00	1.00	1.00	1.00	1.00	1.00	7	1
1	602	Efficient desalter	$/kWh	$0.036	$0.007	$0.000	$0.043	1	10	1	1	$0.043	1.00	1.00	1.00	1.00	1.00	1.00	7	2
1	603	New transformers welding	$/kWh	$0.046	$0.009	$0.000	$0.054	1	15	1	1	$0.054	1.00	1.00	1.00	1.00	1.00	1.00	7	2
1	604	Efficient processes (welding, etc.)	$/kWh	$0.046	$0.009	$0.000	$0.054	1	15	1	1	$0.054	1.00	1.00	1.00	1.00	1.00	1.00	7	2
1	605	Process control	$/kWh	$0.015	$0.003	$0.000	$0.017	1	15	1	1	$0.017	1.00	1.00	1.00	1.00	1.00	1.00	7	1
1	606	Power recovery	$/kWh	$0.003	$0.001	$0.000	$0.003	1	10	1	1	$0.003	1.00	1.00	1.00	1.00	1.00	1.00	7	1
1	607	Refinery Controls	$/kWh	$0.003	$0.001	$0.000	$0.004	1	10	1	1	$0.004	1.00	1.00	1.00	1.00	1.00	1.00	7	1
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	ton	$220.000		$0.000	$220.000	1	20	1	1	$220.000	1.00	1.00	1.00	1.00	1.00	1.00	8	2
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	ton	$275.000		$0.000	$275.000	1	20	0	0	$255.000	0.20	0.25	1.00	1.00	1.00	1.00	8	2
1	702	High Efficiency Chiller Motors	ton	$19.491		$0.000	$19.491	1	20	1	1	$19.491	1.00	0.25	1.00	1.00	1.00	1.00	8	1
1	703	EMS - Chiller	ton	$60.000		$0.000	$60.000	1	10	1	1	$60.000	0.20	0.25	1.00	1.00	1.00	1.00	8	1
1	704	Chiller Tune Up/Diagnostics	sqft	$0.000		$0.100	$0.000	1	10	1	1	$0.100	1.00	0.25	1.00	1.00	1.00	1.00	8	1
1	705	VSD for Chiller Pumps and Towers	ton	$32.000	$10.000	$0.000	$42.000	1	15	1	1	$42.000	0.20	0.25	1.00	1.00	1.00	1.00	8	1
1	706	EMS Optimization - Chiller	sqft	$0.000		$0.030	$0.000	1	5	1	1	$0.030	1.00	0.25	1.00	1.00	1.00	1.00	8	1
1	707	Aerosole Duct Sealing - Chiller	ton	$18.580		$1.040	$18.580	1	10	1	1	$19.620	1.00	0.25	1.00	1.00	1.00	1.00	8	1
1	708	Duct/Pipe Insulation - Chiller	sqft	$0.675	$2.400	$0.000	$3.076	1	10	1	1	$3.076	1.00	0.25	1.00	1.00	1.00	1.00	8	1
1	709	Window Film (Standard) - Chiller	sf-window	$3.070		$0.000	$3.070	1	10	1	1	$3.070	1.00	0.25	1.00	1.00	1.00	1.00	8	1
1	710	Roof Insulation - Chiller	sf-roof	$0.148		$0.000	$0.148	1	20	1	1	$0.148	1.00	0.25	1.00	1.00	1.00	1.00	8	1
1	711	Cool Roof - Chiller	sf-roof	$1.334		$0.000	$1.334	1	15	1	1	$1.334	1.00	0.25	1.00	1.00	1.00	1.00	8	1
1	712	Thermal Energy Storage (TES) - Chiller	ton	$376.286		$0.000	$376.286	1	50	1	1	$376.286	1.00	0.25	1.00	1.00	1.00	1.00	8	1
1	720	Base DX Packaged System, EER=10.3, 10 tons	ton	$672.40		$0.00	$672.400	1	15	1	1	$672.40	1.00	1.00	1.00	1.00	1.00	1.00	8	2
1	721	DX Packaged System, EER=10.9, 10 tons	ton	$804.40	$0.00	$0.00	$804.400	1	15	0	0	$804.40	0.50	0.00	1.00	1.00	1.00	1.00	8	1
1	722	Hybrid Dessicant-DX System (Trane CDQ)	ton	$1,165.67		$0.00	$1,165.667	1	15	0	0	$1,165.67	1.00	0.00	1.00	1.00	1.00	1.00	8	2
1	723	Geothermal Heat Pump, EER=13, 10 tons	ton	$1,857.14		$0.00	$1,857.143	1	15	0	0	$1,857.14	1.00	0.00	1.00	1.00	1.00	1.00	8	1
1	724	DX Tune Up/ Advanced Diagnostics	sqft	$0.00		$0.13	$0.000	1	10	1	1	$0.13	1.00	0.00	1.00	1.00	1.00	1.00	8	1

B.3 Measure Inputs - Industrial

MEASURE COSTS

Segment	Measure #	Measure Description	Cost Units	Unit Equipment Cost	Unit Labor Cost	NPV of Lifetime O & M Cost	Implementation Cost Factor	Cost Units per Savings Unit	Service Life	Full = 1 Incr. = 0 Initial Cost	Replace Cost	Full Unit Cost	Relative Energy Reduction Factors SP	WP	OP	na	na	na	End Use	Implementatic Type 1=1 time 2=ROB
1	725	DX Coil Cleaning	ton	$8.77		$1.13	$8.772	1	5	1	1	$9.90	1.00	0.00	1.00	1.00	1.00	1.00	8	1
1	726	Optimize Controls	sqft	$0.00		$0.04	$0.000	1	5	1	1	$0.04	1.00	0.00	1.00	1.00	1.00	1.00	8	1
1	727	Aerosole Duct Sealing	ton	$18.58		$1.04	$18.580	1	10	1	1	$19.62	1.00	0.00	1.00	1.00	1.00	1.00	8	1
1	728	Duct/Pipe Insulation	sqft	$0.68	$2.40	$0.00	$3.076	1	10	1	1	$3.08	1.00	0.00	1.00	1.00	1.00	1.00	8	1
1	729	Window Film (Standard)	sf-window	$3.22		$0.00	$3.223	1	10	1	1	$3.22	1.00	0.00	1.00	1.00	1.00	1.00	8	1
1	730	Roof Insulation	sf-roof	$0.15		$0.00	$0.148	1	20	1	1	$0.15	1.00	0.00	1.00	1.00	1.00	1.00	8	1
1	731	Cool Roof - DX	sf-roof	$1.33		$0.00	$1.334	1	15	1	1	$1.33	1.00	0.00	1.00	1.00	1.00	1.00	8	1
1	800	Base Lighting	fixture	$0.000	$0.000	$0.000	$0.000	1	10	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	9	1
1	801	Premium T8, Elecctronic Ballast	fixture	$8.000	$0.000	$0.000	$8.000	1	15	1	1	$8.000	1.00	1.00	1.00	1.00	1.00	1.00	9	1
1	802	CFL Hardwired, Modular 18W	fixture	$18.390	$23.230	$0.000	$41.620	1	5	1	1	$41.620	1.00	1.00	1.00	1.00	1.00	1.00	9	1
1	803	CFL Screw-in 18W	fixture	$5.760		$0.000	$5.760	1	2	1	1	$5.760	1.00	1.00	1.00	1.00	1.00	1.00	9	1
1	804	High Bay T5	fixture	$55.200	$0.000	$0.000	$55.200	1	10	1	1	$55.200	1.00	1.00	1.00	1.00	1.00	1.00	9	1
1	805	Occupancy Sensor	fixture	$45.000		$0.000	$45.000	1	9	1	1	$45.000	0.20	1.00	1.00	1.00	1.00	1.00	9	1
1	900	Base Other	$/kWh	$0.000	$0.000	$0.000	$0.000	1	15	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	10	1
1	901	Replace V-belts	$/kWh	$0.000	$0.000	$0.000	$0.000	1	5	1	1	$0.000	1.00	1.00	1.00	1.00	1.00	1.00	10	2
1	902	Membranes for wastewater	$/kWh	$0.032	$0.006	$0.000	$0.038	1	15	1	1	$0.038	1.00	1.00	1.00	1.00	1.00	1.00	10	2

B.3 Measure Inputs - Industrial

ENERGY SAVINGS
(percent)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	100	Base Compressed Air	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	101	Compressed Air-O&M	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%
1	102	Compressed Air - Controls	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
1	103	Compressed Air - System Optimization	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
1	104	Compressed Air- Sizing	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
1	105	Comp Air - Replace 1-5 HP motor	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
1	106	Comp Air - ASD (1-5 hp)	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
1	107	Comp Air - Motor practices-1 (1-5 HP)	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
1	108	Comp Air - Replace 6-100 HP motor	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
1	109	Comp Air - ASD (6-100 hp)	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
1	110	Comp Air - Motor practices-1 (6-100 HP)	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
1	111	Comp Air - Replace 100+ HP motor	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
1	112	Comp Air - ASD (100+ hp)	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
1	113	Comp Air - Motor practices-1 (100+ HP)	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
1	114	Power recovery	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	115	Refinery Controls	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	200	Base Fans	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	201	Fans - O&M	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
1	202	Fans - Controls	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
1	203	Fans - System Optimization	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%
1	204	Fans- Improve components	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	205	Fans - Replace 1-5 HP motor	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
1	206	Fans - ASD (1-5 hp)	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
1	207	Fans - Motor practices-1 (1-5 HP)	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
1	208	Fans - Replace 6-100 HP motor	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
1	209	Fans - ASD (6-100 hp)	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
1	210	Fans - Motor practices-1 (6-100 HP)	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
1	211	Fans - Replace 100+ HP motor	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
1	212	Fans - ASD (100+ hp)	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
1	213	Fans - Motor practices-1 (100+ HP)	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
1	214	Optimize drying process	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	215	Power recovery	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	216	Refinery Controls	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	300	Base Pumps	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	301	Pumps - O&M	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	302	Pumps - Controls	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
1	303	Pumps - System Optimization	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
1	304	Pumps - Sizing	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
1	305	Pumps - Replace 1-5 HP motor	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
1	306	Pumps - ASD (1-5 hp)	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
1	307	Pumps - Motor practices-1 (1-5 HP)	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
1	308	Pumps - Replace 6-100 HP motor	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
1	309	Pumps - ASD (6-100 hp)	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
1	310	Pumps - Motor practices-1 (6-100 HP)	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
1	311	Pumps - Replace 100+ HP motor	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
1	312	Pumps - ASD (100+ hp)	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
1	313	Pumps - Motor practices-1 (100+ HP)	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
1	314	Power recovery	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	315	Refinery Controls	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	317	Low Pressure Nozzle	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%
1	318	Micro Watering System	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%
1	319	Pump Retrofit - Irrigation	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%
1	400	Base Drives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	401	Bakery - Process (Mixing) - O&M	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	402	O&M/drives spinning machines	0.0%	16.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	403	Air conveying systems	0.0%	0.0%	41.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	404	Replace V-Belts	0.0%	0.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	405	Drives - EE motor	0.0%	0.0%	3.5%	3.1%	0.0%	0.0%	0.0%	0.0%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	406	Gap Forming papermachine	0.0%	0.0%	0.0%	7.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	407	High Consistency forming	0.0%	0.0%	0.0%	7.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	408	Optimization control PM	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	409	Efficient practices printing press	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	410	Efficient Printing press (fewer cylinders)	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	411	Light cylinders	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	412	Efficient drives	0.0%	0.0%	0.0%	0.0%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	413	Clean Room - Controls	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%
1	414	Clean Room - New Designs	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

B.3 Measure Inputs - Industrial

ENERGY SAVINGS
(percent)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	415	Drives - Process Controls (batch + site)	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	0.0%	0.0%	2.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	416	Process Drives - ASD	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%
1	417	O&M - Extruders/Injection Moulding	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	418	Extruders/injection Moulding-multipump	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	419	Direct drive Extruders	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	420	Injection Moulding - Impulse Cooling	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	421	Injection Moulding - Direct drive	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	422	Efficient grinding	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	423	Process control	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	424	Process optimization	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	425	Drives - Process Control	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	426	Efficient drives - rolling	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	427	Drives - Optimization process (M&T)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	0.0%	10.0%	10.0%	0.0%	0.0%
1	428	Drives - Scheduling	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.5%	5.5%	5.0%	5.5%	5.5%	5.0%	0.0%
1	429	Machinery	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.0%	7.0%	3.5%	10.8%	7.0%	0.0%	0.0%
1	430	Efficient Machinery	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	3.5%
1	500	Base Heating	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	501	Bakery - Process	37.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	502	Drying (UV/IR)	0.0%	26.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	503	Heat Pumps - Drying	0.0%	0.0%	22.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	504	Top-heating (glass)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	505	Efficient electric melting	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	506	Intelligent extruder (DOE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	507	Near Net Shape Casting	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	508	Heating - Process Control	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	509	Efficient Curing ovens	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	0.0%
1	510	Heating - Optimization process (M&T)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	0.0%	10.0%	0.0%	0.0%	0.0%
1	511	Heating - Scheduling	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.5%	5.5%	0.0%	0.0%	0.0%	0.0%	0.0%
1	550	Base Refrigeration	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	551	Efficient Refrigeration - Operations	12.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	552	Optimization Refrigeration	26.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	600	Base Other Process	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	601	Other Process Controls (batch + site)	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	602	Efficient desalter	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	603	New transformers welding	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	0.0%
1	604	Efficient processes (welding, etc.)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%
1	605	Process control	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	0.0%
1	606	Power recovery	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	607	Refinery Controls	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%
1	702	High Efficiency Chiller Motors	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
1	703	EMS - Chiller	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	704	Chiller Tune Up/Diagnostics	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
1	705	VSD for Chiller Pumps and Towers	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	706	EMS Optimization - Chiller	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	707	Aerosole Duct Sealing - Chiller	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	708	Duct/Pipe Insulation - Chiller	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	709	Window Film (Standard) - Chiller	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%
1	710	Roof Insulation - Chiller	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%
1	711	Cool Roof - Chiller	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%
1	712	Thermal Energy Storage (TES) - Chiller	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%	-6.6%
1	720	Base DX Packaged System, EER=10.3, 10 tons	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	721	DX Packaged System, EER=10.9, 10 tons	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
1	722	Hybrid Dessicant-DX System (Trane CDQ)	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
1	723	Geothermal Heat Pump, EER=13, 10 tons	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%
1	724	DX Tune Up/ Advanced Diagnostics	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	725	DX Coil Cleaning	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
1	726	Optimize Controls	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	727	Aerosole Duct Sealing	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	728	Duct/Pipe Insulation	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
1	729	Window Film (Standard)	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
1	730	Roof Insulation	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%
1	731	Cool Roof - DX	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%
1	800	Base Lighting	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	801	Premium T8, Elecctronic Ballast	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%	31.4%
1	802	CFL Hardwired, Modular 18W	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%

B.3 Measure Inputs - Industrial

ENERGY SAVINGS
(percent)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	803	CFL Screw-in 18W	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%	72.0%
1	804	High Bay T5	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%
1	805	Occupancy Sensor	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
1	900	Base Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	901	Replace V-belts	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
1	902	Membranes for wastewater	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

B.3 Measure Inputs - Industrial

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	100	Base Compressed Air	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	101	Compressed Air-O&M	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	102	Compressed Air - Controls	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	103	Compressed Air - System Optimization	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	104	Compressed Air- Sizing	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	105	Comp Air - Replace 1-5 HP motor	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	106	Comp Air - ASD (1-5 hp)	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	107	Comp Air - Motor practices-1 (1-5 HP)	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	108	Comp Air - Replace 6-100 HP motor	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	109	Comp Air - ASD (6-100 hp)	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	110	Comp Air - Motor practices-1 (6-100 HP)	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	111	Comp Air - Replace 100+ HP motor	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	112	Comp Air - ASD (100+ hp)	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	113	Comp Air - Motor practices-1 (100+ HP)	8%	4%	5%	4%	3%	3%	12%	4%	6%	3%	11%	16%	10%	15%	9%	10%	15%
1	114	Power recovery	0%	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	115	Refinery Controls	0%	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	200	Base Fans	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	201	Fans - O&M	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	202	Fans - Controls	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	203	Fans - System Optimization	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	204	Fans- Improve components	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	205	Fans - Replace 1-5 HP motor	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	206	Fans - ASD (1-5 hp)	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	207	Fans - Motor practices-1 (1-5 HP)	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	208	Fans - Replace 6-100 HP motor	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	209	Fans - ASD (6-100 hp)	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	210	Fans - Motor practices-1 (6-100 HP)	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	211	Fans - Replace 100+ HP motor	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	212	Fans - ASD (100+ hp)	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	213	Fans - Motor practices-1 (100+ HP)	9%	7%	9%	16%	6%	7%	7%	7%	14%	8%	6%	6%	3%	7%	4%	4%	15%
1	214	Optimize drying process	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	215	Power recovery	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	216	Refinery Controls	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	300	Base Pumps	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	301	Pumps - O&M	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	302	Pumps - Controls	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	303	Pumps - System Optimization	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	304	Pumps - Sizing	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	305	Pumps - Replace 1-5 HP motor	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	306	Pumps - ASD (1-5 hp)	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	307	Pumps - Motor practices-1 (1-5 HP)	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	308	Pumps - Replace 6-100 HP motor	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	309	Pumps - ASD (6-100 hp)	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	310	Pumps - Motor practices-1 (6-100 HP)	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	311	Pumps - Replace 100+ HP motor	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	312	Pumps - ASD (100+ hp)	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	313	Pumps - Motor practices-1 (100+ HP)	16%	10%	11%	26%	9%	27%	48%	9%	18%	10%	8%	7%	4%	9%	6%	5%	51%
1	314	Power recovery	0%	0%	0%	0%	0%	0%	48%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	315	Refinery Controls	0%	0%	0%	0%	0%	0%	48%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	317	Low Pressure Nozzle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	318	Micro Watering System	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	319	Pump Retrofit - Irrigation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	400	Base Drives	15%	33%	41%	35%	31%	21%	0%	34%	21%	11%	20%	20%	9%	14%	13%	18%	0%
1	401	Bakery - Process (Mixing) - O&M	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	402	O&M/drives spinning machines	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	403	Air conveying systems	0%	0%	41%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	404	Replace V-Belts	0%	0%	41%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	405	Drives - EE motor	0%	0%	41%	35%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%
1	406	Gap Forming papermachine	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	407	High Consistency forming	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	408	Optimization control PM	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	409	Efficient practices printing press	0%	0%	0%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	410	Efficient Printing press (fewer cylinders)	0%	0%	0%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	411	Light cylinders	0%	0%	0%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	412	Efficient drives	0%	0%	0%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	413	Clean Room - Controls	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%
1	414	Clean Room - New Designs	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

B.3 Measure Inputs - Industrial

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	415	Drives - Process Controls (batch + site)	0%	0%	0%	0%	0%	21%	0%	0%	21%	11%	0%	0%	0%	0%	0%	0%	0%
1	416	Process Drives - ASD	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%
1	417	O&M - Extruders/Injection Moulding	0%	0%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	418	Extruders/injection Moulding-multipump	0%	0%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	419	Direct drive Extruders	0%	0%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	420	Injection Moulding - Impulse Cooling	0%	0%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	421	Injection Moulding - Direct drive	0%	0%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	422	Efficient grinding	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%
1	423	Process control	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%
1	424	Process optimization	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%
1	425	Drives - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%
1	426	Efficient drives - rolling	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%
1	427	Drives - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	20%	0%	14%	13%	0%	0%
1	428	Drives - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	20%	9%	14%	13%	18%	0%
1	429	Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	20%	9%	14%	13%	0%	0%
1	430	Efficient Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%
1	500	Base Heating	3%	9%	5%	0%	0%	0%	0%	0%	20%	28%	23%	7%	13%	10%	11%	9%	0%
1	501	Bakery - Process	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	502	Drying (UV/IR)	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	503	Heat Pumps - Drying	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	504	Top-heating (glass)	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%
1	505	Efficient electric melting	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	0%
1	506	Intelligent extruder (DOE)	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	0%
1	507	Near Net Shape Casting	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	0%
1	508	Heating - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	0%
1	509	Efficient Curing ovens	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23%	7%	13%	10%	11%	9%	0%
1	510	Heating - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23%	7%	0%	10%	0%	0%	0%
1	511	Heating - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23%	7%	0%	0%	0%	0%	0%
1	550	Base Refrigeration	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	551	Efficient Refrigeration - Operations	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	552	Optimization Refrigeration	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	600	Base Other Process	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	1%	1%	4%	2%	2%	1%	0%
1	601	Other Process Controls (batch + site)	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	602	Efficient desalter	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	603	New transformers welding	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	2%	2%	0%	0%
1	604	Efficient processes (welding, etc.)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%
1	605	Process control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
1	606	Power recovery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	607	Refinery Controls	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	702	High Efficiency Chiller Motors	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	703	EMS - Chiller	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	704	Chiller Tune Up/Diagnostics	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	705	VSD for Chiller Pumps and Towers	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	706	EMS Optimization - Chiller	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	707	Aerosole Duct Sealing - Chiller	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	708	Duct/Pipe Insulation - Chiller	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	709	Window Film (Standard) - Chiller	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	710	Roof Insulation - Chiller	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	711	Cool Roof - Chiller	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	712	Thermal Energy Storage (TES) - Chiller	2%	5%	2%	1%	4%	1%	0%	2%	1%	1%	2%	4%	5%	4%	4%	3%	2%
1	720	Base DX Packaged System, EER=10.3, 10 tons	3%	6%	3%	2%	7%	2%	1%	5%	2%	1%	4%	8%	10%	7%	11%	7%	2%
1	721	DX Packaged System, EER=10.9, 10 tons	3%	6%	3%	2%	7%	2%	1%	5%	2%	1%	4%	8%	10%	7%	11%	7%	2%
1	722	Hybrid Dessicant-DX System (Trane CDQ)	3%	6%	3%	2%	7%	2%	1%	5%	2%	1%	4%	8%	10%	7%	11%	7%	2%
1	723	Geothermal Heat Pump, EER=13, 10 tons	3%	6%	3%	2%	7%	2%	1%	5%	2%	1%	4%	8%	10%	7%	11%	7%	2%
1	724	DX Tune Up/ Advanced Diagnostics	3%	6%	3%	2%	7%	2%	1%	5%	2%	1%	4%	8%	10%	7%	11%	7%	2%
1	725	DX Coil Cleaning	3%	6%	3%	2%	7%	2%	1%	5%	2%	1%	4%	8%	10%	7%	11%	7%	2%
1	726	Optimize Controls	3%	5%	3%	2%	3%	1%	1%	4%	2%	1%	2%	7%	7%	4%	7%	5%	2%
1	727	Aerosole Duct Sealing	3%	5%	3%	2%	3%	1%	1%	4%	2%	1%	2%	7%	7%	4%	7%	5%	2%
1	728	Duct/Pipe Insulation	3%	5%	3%	2%	3%	1%	1%	4%	2%	1%	2%	7%	7%	4%	7%	5%	2%
1	729	Window Film (Standard)	3%	5%	3%	2%	3%	1%	1%	4%	2%	1%	2%	7%	7%	4%	7%	5%	2%
1	730	Roof Insulation	3%	5%	3%	2%	3%	1%	1%	4%	2%	1%	2%	7%	7%	4%	7%	5%	2%
1	731	Cool Roof - DX	3%	5%	3%	2%	3%	1%	1%	4%	2%	1%	2%	7%	7%	4%	7%	5%	2%
1	800	Base Lighting	7%	9%	9%	4%	11%	4%	2%	8%	5%	3%	9%	14%	13%	15%	18%	14%	2%
1	801	Premium T8, Elecctronic Ballast	7%	9%	9%	4%	11%	4%	2%	8%	5%	3%	9%	14%	13%	15%	18%	14%	2%
1	802	CFL Hardwired, Modular 18W	7%	9%	9%	4%	11%	4%	2%	8%	5%	3%	9%	14%	13%	15%	18%	14%	2%

B.3 Measure Inputs - Industrial

APPLICABILITY FACTOR
(percent)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	803	CFL Screw-in 18W	7%	9%	9%	4%	11%	4%	2%	8%	5%	3%	9%	14%	13%	15%	18%	14%	2%
1	804	High Bay T5	7%	9%	9%	4%	11%	4%	2%	8%	5%	3%	9%	14%	13%	15%	18%	14%	2%
1	805	Occupancy Sensor	7%	9%	9%	4%	11%	4%	2%	8%	5%	3%	9%	14%	13%	15%	18%	14%	2%
1	900	Base Other	7%	9%	9%	4%	11%	4%	2%	8%	5%	3%	9%	14%	13%	15%	18%	14%	0%
1	901	Replace V-belts	7%	9%	9%	4%	11%	4%	2%	8%	5%	3%	9%	14%	13%	15%	18%	14%	0%
1	902	Membranes for wastewater	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

B.3 Measure Inputs - Industrial

FEASIBILITY FACTOR
(percent)

Segment	Measure #	Measure Description	SIC20 Food Building Type 1	SIC22_23 Textiles Building Type 2	SIC24_25 Lumber Building Type 3	SIC26 Paper Building Type 4	SIC27 Printing Building Type 5	SIC28 Chemicals Building Type 6	SIC29 Petroleum Building Type 7	SIC30 Rubber-Plastics Building Type 8	SIC32 Stone-Clay-Glass Building Type 9	SIC33 Primary Metals Building Type 10	SIC34 Fab Metals Building Type 11	SIC35 Ind Machinery Building Type 12	SIC36 Electronics Building Type 13	SIC37 Transp Eqp Building Type 14	SIC38 Instruments Building Type 15	SIC39_21_31 Misc Building Type 16	WWT Building Type 17
1	100	Base Compressed Air	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	101	Compressed Air-O&M	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	102	Compressed Air - Controls	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	103	Compressed Air - System Optimization	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	104	Compressed Air- Sizing	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	105	Comp Air - Replace 1-5 HP motor	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
1	106	Comp Air - ASD (1-5 hp)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
1	107	Comp Air - Motor practices-1 (1-5 HP)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
1	108	Comp Air - Replace 6-100 HP motor	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1	109	Comp Air - ASD (6-100 hp)	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1	110	Comp Air - Motor practices-1 (6-100 HP)	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1	111	Comp Air - Replace 100+ HP motor	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
1	112	Comp Air - ASD (100+ hp)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
1	113	Comp Air - Motor practices-1 (100+ HP)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
1	114	Power recovery	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	115	Refinery Controls	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	200	Base Fans	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	201	Fans - O&M	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	202	Fans - Controls	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	203	Fans - System Optimization	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	204	Fans- Improve components	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	205	Fans - Replace 1-5 HP motor	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
1	206	Fans - ASD (1-5 hp)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
1	207	Fans - Motor practices-1 (1-5 HP)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
1	208	Fans - Replace 6-100 HP motor	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1	209	Fans - ASD (6-100 hp)	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1	210	Fans - Motor practices-1 (6-100 HP)	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1	211	Fans - Replace 100+ HP motor	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
1	212	Fans - ASD (100+ hp)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
1	213	Fans - Motor practices-1 (100+ HP)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
1	214	Optimize drying process	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	215	Power recovery	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	216	Refinery Controls	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	300	Base Pumps	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	301	Pumps - O&M	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	302	Pumps - Controls	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	303	Pumps - System Optimization	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	304	Pumps - Sizing	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	305	Pumps - Replace 1-5 HP motor	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
1	306	Pumps - ASD (1-5 hp)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
1	307	Pumps - Motor practices-1 (1-5 HP)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
1	308	Pumps - Replace 6-100 HP motor	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1	309	Pumps - ASD (6-100 hp)	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1	310	Pumps - Motor practices-1 (6-100 HP)	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%
1	311	Pumps - Replace 100+ HP motor	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
1	312	Pumps - ASD (100+ hp)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
1	313	Pumps - Motor practices-1 (100+ HP)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
1	314	Power recovery	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	315	Refinery Controls	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	317	Low Pressure Nozzle	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%
1	318	Micro Watering System	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%
1	319	Pump Retrofit - Irrigation	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%
1	400	Base Drives	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	401	Bakery - Process (Mixing) - O&M	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	402	O&M/drives spinning machines	0%	60%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	403	Air conveying systems	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	404	Replace V-Belts	0%	0%	70%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	405	Drives - EE motor	0%	0%	100%	100%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
1	406	Gap Forming papermachine	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	407	High Consistency forming	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	408	Optimization control PM	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	409	Efficient practices printing press	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	410	Efficient Printing press (fewer cylinders)	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	411	Light cylinders	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	412	Efficient drives	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	413	Clean Room - Controls	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%
1	414	Clean Room - New Designs	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

B.3 Measure Inputs - Industrial

FEASIBILITY FACTOR
(percent)

Segment	Measure #	Measure Description	SIC20 Food Building Type 1	SIC22_23 Textiles Building Type 2	SIC24_25 Lumber Building Type 3	SIC26 Paper Building Type 4	SIC27 Printing Building Type 5	SIC28 Chemicals Building Type 6	SIC29 Petroleum Building Type 7	SIC30 Rubber-Plastics Building Type 8	SIC32 Stone-Clay-Glass Building Type 9	SIC33 Primary Metals Building Type 10	SIC34 Fab Metals Building Type 11	SIC35 Ind Machinery Building Type 12	SIC36 Electronics Building Type 13	SIC37 Transp Eqp Building Type 14	SIC38 Instruments Building Type 15	SIC39_21_31 Misc Building Type 16	WWT Building Type 17
1	415	Drives - Process Controls (batch + site)	0%	0%	0%	0%	0%	86%	0%	0%	100%	100%	0%	0%	0%	0%	0%	0%	0%
1	416	Process Drives - ASD	0%	0%	0%	0%	0%	70%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%
1	417	O&M - Extruders/Injection Moulding	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	418	Extruders/injection Moulding-multipump	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	419	Direct drive Extruders	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	420	Injection Moulding - Impulse Cooling	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	421	Injection Moulding - Direct drive	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	422	Efficient grinding	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
1	423	Process control	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
1	424	Process optimization	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%
1	425	Drives - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%
1	426	Efficient drives - rolling	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%
1	427	Drives - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	40%	0%	40%	40%	0%	0%
1	428	Drives - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	40%	40%	40%	40%	0%	0%
1	429	Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%	50%	50%	50%	0%	0%
1	430	Efficient Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%
1	500	Base Heating	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	501	Bakery - Process	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	502	Drying (UV/IR)	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	503	Heat Pumps - Drying	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	504	Top-heating (glass)	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%
1	505	Efficient electric melting	0%	0%	0%	0%	0%	0%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%
1	506	Intelligent extruder (DOE)	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%
1	507	Near Net Shape Casting	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
1	508	Heating - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%
1	509	Efficient Curing ovens	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	70%	50%	50%	50%	50%	50%	50%
1	510	Heating - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	40%	0%	40%	0%	0%	0%
1	511	Heating - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	40%	0%	0%	0%	0%	0%
1	550	Base Refrigeration	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	551	Efficient Refrigeration - Operations	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	552	Optimization Refrigeration	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	600	Base Other Process	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	601	Other Process Controls (batch + site)	0%	0%	0%	0%	0%	86%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	602	Efficient desalter	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	603	New transformers welding	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	50%	0%	100%	50%	0%	0%
1	604	Efficient processes (welding, etc.)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
1	605	Process control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
1	606	Power recovery	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	607	Refinery Controls	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	702	High Efficiency Chiller Motors	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	703	EMS - Chiller	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	704	Chiller Tune Up/Diagnostics	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	705	VSD for Chiller Pumps and Towers	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	706	EMS Optimization - Chiller	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	707	Aerosole Duct Sealing - Chiller	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	708	Duct/Pipe Insulation - Chiller	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	709	Window Film (Standard) - Chiller	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	710	Roof Insulation - Chiller	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
1	711	Cool Roof - Chiller	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
1	712	Thermal Energy Storage (TES) - Chiller	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
1	720	Base DX Packaged System, EER=10.3, 10 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	721	DX Packaged System, EER=10.9, 10 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	722	Hybrid Dessicant-DX System (Trane CDQ)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
1	723	Geothermal Heat Pump, EER=13, 10 tons	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
1	724	DX Tune Up/ Advanced Diagnostics	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
1	725	DX Coil Cleaning	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
1	726	Optimize Controls	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
1	727	Aerosole Duct Sealing	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
1	728	Duct/Pipe Insulation	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
1	729	Window Film (Standard)	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
1	730	Roof Insulation	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
1	731	Cool Roof - DX	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
1	800	Base Lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	801	Premium T8, Elecctronic Ballast	76%	86%	87%	80%	96%	77%	77%	80%	62%	66%	85%	87%	90%	89%	91%	93%	93%
1	802	CFL Hardwired, Modular 18W	8.7%	3.9%	4.1%	7.9%	1.3%	5.2%	5.2%	8.9%	10.2%	13.4%	5.5%	4.5%	3.9%	3.8%	3.3%	3.1%	3.1%

B.3 Measure Inputs - Industrial

FEASIBILITY FACTOR
(percent)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	803	CFL Screw-in 18W	8.7%	3.9%	4.1%	7.9%	1.3%	5.2%	5.2%	8.9%	10.2%	13.4%	5.5%	4.5%	3.9%	3.8%	3.3%	3.1%	3.1%
1	804	High Bay T5	6%	6%	5%	4%	2%	12%	12%	2%	18%	7%	4%	4%	2%	3%	3%	0%	0%
1	805	Occupancy Sensor	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
1	900	Base Other	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	901	Replace V-belts	73%	71%	80%	79%	39%	0%	7%	53%	70%	20%	53%	40%	33%	55%	32%	55%	55%
1	902	Membranes for wastewater	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

B.3 Measure Inputs - Industrial

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	SIC20 Food Building Type 1	SIC22_23 Textiles Building Type 2	SIC24_25 Lumber Building Type 3	SIC26 Paper Building Type 4	SIC27 Printing Building Type 5	SIC28 Chemicals Building Type 6	SIC29 Petroleum Building Type 7	SIC30 Rubber-Plastics Building Type 8	SIC32 Stone-Clay-Glass Building Type 9	SIC33 Primary Metals Building Type 10	SIC34 Fab Metals Building Type 11	SIC35 Ind Machinery Building Type 12	SIC36 Electronics Building Type 13	SIC37 Transp Eqp Building Type 14	SIC38 Instruments Building Type 15	SIC39_21_31 Misc Building Type 16	WWT Building Type 17
1	100	Base Compressed Air	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	101	Compressed Air-O&M	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
1	102	Compressed Air - Controls	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
1	103	Compressed Air - System Optimization	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
1	104	Compressed Air- Sizing	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
1	105	Comp Air - Replace 1-5 HP motor	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%
1	106	Comp Air - ASD (1-5 hp)	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%
1	107	Comp Air - Motor practices-1 (1-5 HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	108	Comp Air - Replace 6-100 HP motor	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
1	109	Comp Air - ASD (6-100 hp)	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
1	110	Comp Air - Motor practices-1 (6-100 HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	111	Comp Air - Replace 100+ HP motor	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
1	112	Comp Air - ASD (100+ hp)	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
1	113	Comp Air - Motor practices-1 (100+ HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	114	Power recovery	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	115	Refinery Controls	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	200	Base Fans	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	201	Fans - O&M	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
1	202	Fans - Controls	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
1	203	Fans - System Optimization	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
1	204	Fans- Improve components	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
1	205	Fans - Replace 1-5 HP motor	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%
1	206	Fans - ASD (1-5 hp)	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%	77%
1	207	Fans - Motor practices-1 (1-5 HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	208	Fans - Replace 6-100 HP motor	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
1	209	Fans - ASD (6-100 hp)	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%
1	210	Fans - Motor practices-1 (6-100 HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	211	Fans - Replace 100+ HP motor	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
1	212	Fans - ASD (100+ hp)	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%
1	213	Fans - Motor practices-1 (100+ HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	214	Optimize drying process	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	215	Power recovery	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	216	Refinery Controls	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	300	Base Pumps	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	301	Pumps - O&M	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
1	302	Pumps - Controls	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
1	303	Pumps - System Optimization	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
1	304	Pumps - Sizing	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
1	305	Pumps - Replace 1-5 HP motor	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%
1	306	Pumps - ASD (1-5 hp)	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
1	307	Pumps - Motor practices-1 (1-5 HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	308	Pumps - Replace 6-100 HP motor	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
1	309	Pumps - ASD (6-100 hp)	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
1	310	Pumps - Motor practices-1 (6-100 HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	311	Pumps - Replace 100+ HP motor	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
1	312	Pumps - ASD (100+ hp)	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
1	313	Pumps - Motor practices-1 (100+ HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	314	Power recovery	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	315	Refinery Controls	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	317	Low Pressure Nozzle	100%	100%	100%	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		100%
1	318	Micro Watering System	100%	100%	100%	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		100%
1	319	Pump Retrofit - Irrigation	100%	100%	100%	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		100%
1	400	Base Drives	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	401	Bakery - Process (Mixing) - O&M	70%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	402	O&M/drives spinning machines	100%	40%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	403	Air conveying systems	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	404	Replace V-Belts	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	405	Drives - EE motor	100%	100%	40%	55%	100%	100%	100%	100%	30%	100%	100%	100%	100%	100%	100%	100%	100%
1	406	Gap Forming papermachine	100%	100%	100%	10%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	407	High Consistency forming	100%	100%	100%	10%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	408	Optimization control PM	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	409	Efficient practices printing press	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	410	Efficient Printing press (fewer cylinders)	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	411	Light cylinders	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	412	Efficient drives	100%	100%	100%	100%	30%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	413	Clean Room - Controls	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%
1	414	Clean Room - New Designs	100%	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

B.3 Measure Inputs - Industrial

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	415	Drives - Process Controls (batch + site)	100%	100%	100%	100%	100%	50%	100%	100%	50%	50%	100%	100%	100%	100%	100%	100%	100%
1	416	Process Drives - ASD	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%
1	417	O&M - Extruders/Injection Moulding	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	418	Extruders/injection Moulding-multipump	100%	100%	100%	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	419	Direct drive Extruders	100%	100%	100%	100%	100%	100%	100%	10%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	420	Injection Moulding - Impulse Cooling	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	421	Injection Moulding - Direct drive	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	422	Efficient grinding	100%	100%	100%	100%	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%
1	423	Process control	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%
1	424	Process optimization	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%
1	425	Drives - Process Control	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%
1	426	Efficient drives - rolling	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%
1	427	Drives - Optimization process (M&T)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	50%	100%	40%	50%	100%	100%
1	428	Drives - Scheduling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	30%	30%	30%	30%	30%	30%	100%
1	429	Machinery	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	25%	25%	20%	25%	100%	100%
1	430	Efficient Machinery	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%
1	500	Base Heating	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	501	Bakery - Process	30%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	502	Drying (UV/IR)	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	503	Heat Pumps - Drying	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	504	Top-heating (glass)	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	50%
1	505	Efficient electric melting	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%
1	506	Intelligent extruder (DOE)	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%
1	507	Near Net Shape Casting	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%
1	508	Heating - Process Control	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%
1	509	Efficient Curing ovens	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	25%	25%	25%	25%	25%	100%
1	510	Heating - Optimization process (M&T)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	50%	100%	40%	100%	100%	100%
1	511	Heating - Scheduling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	30%	30%	100%	100%	100%	100%	100%
1	550	Base Refrigeration	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	551	Efficient Refrigeration - Operations	22%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	552	Optimization Refrigeration	15%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	600	Base Other Process	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	601	Other Process Controls (batch + site)	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	602	Efficient desalter	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	603	New transformers welding	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	50%	100%	50%	50%	100%	100%
1	604	Efficient processes (welding, etc.)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%
1	605	Process control	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%
1	606	Power recovery	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	607	Refinery Controls	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	702	High Efficiency Chiller Motors	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
1	703	EMS - Chiller	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
1	704	Chiller Tune Up/Diagnostics	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
1	705	VSD for Chiller Pumps and Towers	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
1	706	EMS Optimization - Chiller	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
1	707	Aerosole Duct Sealing - Chiller	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%
1	708	Duct/Pipe Insulation - Chiller	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
1	709	Window Film (Standard) - Chiller	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
1	710	Roof Insulation - Chiller	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
1	711	Cool Roof - Chiller	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1	712	Thermal Energy Storage (TES) - Chiller	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%	91%
1	720	Base DX Packaged System, EER=10.3, 10 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	721	DX Packaged System, EER=10.9, 10 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	722	Hybrid Dessicant-DX System (Trane CDQ)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	723	Geothermal Heat Pump, EER=13, 10 tons	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
1	724	DX Tune Up/ Advanced Diagnostics	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
1	725	DX Coil Cleaning	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
1	726	Optimize Controls	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
1	727	Aerosole Duct Sealing	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%
1	728	Duct/Pipe Insulation	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
1	729	Window Film (Standard)	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
1	730	Roof Insulation	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
1	731	Cool Roof - DX	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
1	800	Base Lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	801	Premium T8, Elecctronic Ballast	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%
1	802	CFL Hardwired, Modular 18W	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%

B.3 Measure Inputs - Industrial

INCOMPLETE FACTOR
(percent)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	803	CFL Screw-in 18W	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
1	804	High Bay T5	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
1	805	Occupancy Sensor	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
1	900	Base Other	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	901	Replace V-belts	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
1	902	Membranes for wastewater	100%	15%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

B.3 Measure Inputs - Industrial

TECHNOLOGY SATURATION
(units/square foot)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	100	Base Compressed Air	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	101	Compressed Air-O&M	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	102	Compressed Air - Controls	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	103	Compressed Air - System Optimization	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	104	Compressed Air- Sizing	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	105	Comp Air - Replace 1-5 HP motor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	106	Comp Air - ASD (1-5 hp)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	107	Comp Air - Motor practices-1 (1-5 HP)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	108	Comp Air - Replace 6-100 HP motor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	109	Comp Air - ASD (6-100 hp)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	110	Comp Air - Motor practices-1 (6-100 HP)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	111	Comp Air - Replace 100+ HP motor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	112	Comp Air - ASD (100+ hp)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	113	Comp Air - Motor practices-1 (100+ HP)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	114	Power recovery	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	115	Refinery Controls	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	200	Base Fans	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	201	Fans - O&M	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	202	Fans - Controls	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	203	Fans - System Optimization	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	204	Fans- Improve components	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	205	Fans - Replace 1-5 HP motor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	206	Fans - ASD (1-5 hp)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	207	Fans - Motor practices-1 (1-5 HP)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	208	Fans - Replace 6-100 HP motor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	209	Fans - ASD (6-100 hp)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	210	Fans - Motor practices-1 (6-100 HP)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	211	Fans - Replace 100+ HP motor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	212	Fans - ASD (100+ hp)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	213	Fans - Motor practices-1 (100+ HP)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	214	Optimize drying process	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	215	Power recovery	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	216	Refinery Controls	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	300	Base Pumps	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	301	Pumps - O&M	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	302	Pumps - Controls	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	303	Pumps - System Optimization	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	304	Pumps - Sizing	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	305	Pumps - Replace 1-5 HP motor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	306	Pumps - ASD (1-5 hp)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	307	Pumps - Motor practices-1 (1-5 HP)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	308	Pumps - Replace 6-100 HP motor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	309	Pumps - ASD (6-100 hp)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	310	Pumps - Motor practices-1 (6-100 HP)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	311	Pumps - Replace 100+ HP motor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	312	Pumps - ASD (100+ hp)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	313	Pumps - Motor practices-1 (100+ HP)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	314	Power recovery	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	315	Refinery Controls	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	317	Low Pressure Nozzle	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	318	Micro Watering System	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	319	Pump Retrofit - Irrigation	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	400	Base Drives	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	401	Bakery - Process (Mixing) - O&M	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	402	O&M/drives spinning machines	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	403	Air conveying systems	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	404	Replace V-Belts	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	405	Drives - EE motor	1.0000	1.0000	1.0000	0.8860	1.0000	1.0000	1.0000	1.0000	0.8330	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	406	Gap Forming papermachine	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	407	High Consistency forming	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	408	Optimization control PM	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	409	Efficient practices printing press	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	410	Efficient Printing press (fewer cylinders)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	411	Light cylinders	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	412	Efficient drives	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	413	Clean Room - Controls	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.2500	1.0000	1.0000	1.0000	1.0000
1	414	Clean Room - New Designs	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

B.3 Measure Inputs - Industrial

TECHNOLOGY SATURATION
(units/square foot)

Segment	Measure #	Measure Description	SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
			Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	415	Drives - Process Controls (batch + site)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	416	Process Drives - ASD	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0320	1.0320
1	417	O&M - Extruders/Injection Moulding	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	418	Extruders/injection Moulding-multipump	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	419	Direct drive Extruders	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	420	Injection Moulding - Impulse Cooling	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	421	Injection Moulding - Direct drive	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	422	Efficient grinding	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	423	Process control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	424	Process optimization	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	425	Drives - Process Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	426	Efficient drives - rolling	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	427	Drives - Optimization process (M&T)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	428	Drives - Scheduling	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	429	Machinery	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5000	1.5430	1.0000	1.0000	1.0000
1	430	Efficient Machinery	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	500	Base Heating	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	501	Bakery - Process	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	502	Drying (UV/IR)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	503	Heat Pumps - Drying	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	504	Top-heating (glass)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	505	Efficient electric melting	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	506	Intelligent extruder (DOE)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	507	Near Net Shape Casting	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	508	Heating - Process Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	509	Efficient Curing ovens	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	510	Heating - Optimization process (M&T)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	511	Heating - Scheduling	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	550	Base Refrigeration	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	551	Efficient Refrigeration - Operations	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	552	Optimization Refrigeration	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	600	Base Other Process	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	601	Other Process Controls (batch + site)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	602	Efficient desalter	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	603	New transformers welding	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	604	Efficient processes (welding, etc.)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	605	Process control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	606	Power recovery	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	607	Refinery Controls	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
1	702	High Efficiency Chiller Motors	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
1	703	EMS - Chiller	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
1	704	Chiller Tune Up/Diagnostics	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417
1	705	VSD for Chiller Pumps and Towers	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
1	706	EMS Optimization - Chiller	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417
1	707	Aerosole Duct Sealing - Chiller	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
1	708	Duct/Pipe Insulation - Chiller	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417
1	709	Window Film (Standard) - Chiller	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103
1	710	Roof Insulation - Chiller	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417
1	711	Cool Roof - Chiller	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417	0.2417
1	712	Thermal Energy Storage (TES) - Chiller	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
1	720	Base DX Packaged System, EER=10.3, 10 tons	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
1	721	DX Packaged System, EER=10.9, 10 tons	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
1	722	Hybrid Dessicant-DX System (Trane CDQ)	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
1	723	Geothermal Heat Pump, EER=13, 10 tons	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
1	724	DX Tune Up/ Advanced Diagnostics	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394
1	725	DX Coil Cleaning	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
1	726	Optimize Controls	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394
1	727	Aerosole Duct Sealing	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
1	728	Duct/Pipe Insulation	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394
1	729	Window Film (Standard)	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059
1	730	Roof Insulation	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394
1	731	Cool Roof - DX	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394	0.1394
1	800	Base Lighting	0.0034	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037
1	801	Premium T8, Elecctronic Ballast	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034
1	802	CFL Hardwired, Modular 18W	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033

B.3 Measure Inputs - Industrial

TECHNOLOGY SATURATION
(units/square foot)

			SIC20 Food	SIC22_23 Textiles	SIC24_25 Lumber	SIC26 Paper	SIC27 Printing	SIC28 Chemicals	SIC29 Petroleum	SIC30 Rubber-Plastics	SIC32 Stone-Clay-Glass	SIC33 Primary Metals	SIC34 Fab Metals	SIC35 Ind Machinery	SIC36 Electronics	SIC37 Transp Eqp	SIC38 Instruments	SIC39_21_31 Misc	WWT
Segment	Measure #	Measure Description	Building Type 1	Building Type 2	Building Type 3	Building Type 4	Building Type 5	Building Type 6	Building Type 7	Building Type 8	Building Type 9	Building Type 10	Building Type 11	Building Type 12	Building Type 13	Building Type 14	Building Type 15	Building Type 16	Building Type 17
1	803	CFL Screw-in 18W	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033
1	804	High Bay T5	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
1	805	Occupancy Sensor	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
1	900	Base Other	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	901	Replace V-belts	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	902	Membranes for wastewater	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Appendix C

Non-Additive Energy Efficiency Measure Results

C.1 Non-Additive Energy Efficiency Measure Results - Residential

DSM ASSYST SUMMARY — Year 2008 — Vintage E — Batch 1

Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Household	Base UEC	UEC	Peak Watts/ Household	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	100	Base 13 SEER Split-System Air Conditioner & Strip Heater	Single Detached	0%	0%	0.00	6574.00	6574.00	2695.63	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	14 SEER Split-System Air Conditioner	Single Detached	6%	7%	629.66	6595.99	6168.97	2505.88	18	98.3	45.75	0.00	0.24	513	0.6	14
1	102	15 SEER Split-System Air Conditioner	Single Detached	11%	14%	1371.89	6585.76	5838.33	2318.67	18	178.5	91.19	0.00	0.30	581	0.5	17
1	103	17 SEER Split-System Air Conditioner	Single Detached	18%	24%	2738.10	6585.83	5403.08	2051.80	18	284.1	155.84	0.00	0.37	683	0.4	22
1	104	19 SEER Split-System Air Conditioner	Single Detached	23%	31%	4120.30	6575.51	5067.96	1869.43	18	365.5	200.44	0.00	0.44	806	0.3	26
1	105	14 SEER Split-System Heat Pump	Single Detached	20%	7%	1591.91	6643.61	5291.97	2523.97	15	311.1	46.08	231.05	0.20	1,340	0.7	11
1	106	15 SEER Split-System Heat Pump	Single Detached	26%	14%	2629.39	6600.68	4905.41	2323.92	15	404.9	91.39	254.29	0.26	1,158	0.5	14
1	107	17 SEER Split-System Heat Pump	Single Detached	33%	24%	4844.82	6595.80	4415.52	2054.91	15	523.8	156.07	282.20	0.37	1,257	0.4	21
1	108	13 EER Geothermal Heat Pump	Single Detached	33%	24%	11185.00	6582.56	4406.65	2050.78	15	263.0	78.36	141.68	0.87	2,908	0.2	48
1	109	HVAC Proper Sizing	Single Detached	2%	6%	0.00	6638.79	6509.21	2554.56	15	15.7	20.34	0.00	0.00	0	99999.0	0
1	110	Attic Venting	Single Detached	5%	3%	141.00	6607.03	6276.74	2641.44	10	115.4	23.67	54.12	0.09	433	1.5	4
1	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	Single Detached	9%	8%	4565.44	6603.73	6009.14	2498.98	40	219.3	77.03	207.99	1.16	3,291	0.1	72
1	112	AC Maintenance (Outdoor Coil Cleaning)	Single Detached	6%	6%	60.00	6743.94	6319.09	2601.18	4	123.7	47.80	0.00	0.05	139	2.5	1
1	113	AC Maintenance (Indoor Coil Cleaning)	Single Detached	6%	6%	100.00	6657.89	6238.46	2567.99	4	130.3	50.33	0.00	0.09	235	1.5	2
1	114	Proper Refrigerant Charging and Air Flow	Single Detached	9%	8%	115.08	6939.86	6330.09	2613.41	10	118.4	45.09	0.00	0.04	103	3.5	2
1	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	Single Detached	6%	5%	89.94	6739.67	6334.24	2630.70	15	104.7	34.32	0.00	0.04	114	3.7	2
1	116	Duct Repair	Single Detached	7%	8%	450.00	6621.23	6148.92	2503.49	18	206.3	92.38	118.27	0.15	344	0.9	9
1	117	Reflective Roof	Single Detached	13%	12%	650.94	6738.39	5888.10	2429.91	15	139.8	54.78	0.00	0.13	329	1.1	7
1	118	Radient Barrier	Single Detached	12%	16%	1802.15	6613.68	5820.08	2278.00	10	274.4	150.04	76.25	0.47	863	0.3	21
1	119	Window Film	Single Detached	2%	1%	159.85	6586.39	6462.46	2660.64	10	40.6	13.13	-5.16	0.27	829	0.5	12
1	120	Window Tinting	Single Detached	2%	2%	108.54	6586.40	6462.43	2646.02	40	40.6	17.92	0.00	0.13	299	1.0	8
1	121	Default Window With Sunscreen	Single Detached	4%	7%	115.83	6586.56	6335.29	2519.19	10	115.9	83.73	-12.91	0.10	133	1.4	4
1	122	Single Pane Clear Windows to Double Pane Low-E Windows	Single Detached	15%	15%	1563.77	6674.09	5673.22	2339.25	40	437.2	173.59	105.16	0.24	592	0.5	15
1	124	Ceiling R-0 to R-19 Insulation	Single Detached	8%	7%	1075.03	7121.99	6530.08	2712.44	20	16.0	5.61	15.16	0.29	826	0.5	17
1	125	Ceiling R-19 to R-38 Insulation	Single Detached	0%	0%	1075.03	6579.38	6552.04	2688.23	20	8.5	2.99	8.09	6.28	17,885	0.0	367
1	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	Single Detached	1%	1%	3863.26	6590.72	6524.79	2679.33	20	17.9	6.29	16.99	9.36	26,651	0.0	547
1	127	Weather Strip/Caulk w/Blower Door	Single Detached	2%	0%	69.66	6654.06	6520.63	2724.41	5	19.4	0.59	0.34	0.17	5,541	0.8	5
1	130	Base 13 SEER Split-System Heat Pump	Single Detached	0%	0%	0.00	5929.27	5929.27	2431.26	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	14 SEER Split-System Heat Pump	Single Detached	8%	7%	1591.91	5954.07	5472.60	2262.00	15	164.7	61.38	34.10	0.56	1,496	0.2	31
1	132	15 SEER Split-System Heat Pump	Single Detached	14%	14%	2629.39	5942.59	5096.02	2092.23	15	300.5	122.29	65.93	0.52	1,287	0.3	29
1	133	17 SEER Split-System Heat Pump	Single Detached	23%	24%	4844.82	5942.79	4590.66	1851.46	15	482.8	208.99	117.02	0.60	1,395	0.2	33
1	134	13 EER Geothermal Heat Pump	Single Detached	23%	24%	11185.00	5934.58	4584.32	1848.90	15	242.5	104.99	58.79	1.40	3,226	0.1	77
1	135	HVAC Proper Sizing	Single Detached	2%	6%	0.00	5989.83	5868.71	2299.40	15	10.9	14.13	0.00	0.00	0	99999.0	0
1	136	Attic Venting	Single Detached	5%	3%	141.00	5959.06	5661.17	2382.39	10	77.4	15.86	36.27	0.10	480	1.4	4
1	137	Sealed Attics	Single Detached	9%	7%	4565.44	5956.10	5419.51	2260.46	40	147.1	49.83	228.69	1.28	3,781	0.1	79
1	138	AC Maintenance (Outdoor Coil Cleaning)	Single Detached	7%	6%	60.00	6088.22	5690.85	2342.92	4	86.0	33.22	0.00	0.06	149	2.4	1
1	139	AC Maintenance (Indoor Coil Cleaning)	Single Detached	7%	6%	100.00	6007.69	5615.59	2311.93	4	90.5	34.96	0.00	0.10	252	1.4	2
1	140	Proper Refrigerant Charging and Air Flow	Single Detached	9%	8%	115.08	6271.83	5700.90	2354.28	10	82.4	31.37	0.00	0.04	110	3.3	2
1	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	Single Detached	12%	9%	89.94	6241.16	5477.91	2317.86	15	146.5	46.31	88.33	0.02	63	6.9	1
1	142	Duct Repair	Single Detached	7%	9%	450.00	5968.98	5571.88	2233.04	18	128.9	69.62	92.22	0.18	339	0.7	11
1	143	Reflective Roof	Single Detached	13%	12%	650.94	6083.02	5287.78	2193.58	15	97.2	36.74	0.00	0.14	365	1.0	8
1	144	Radient Barrier	Single Detached	12%	16%	2402.86	5965.06	5249.29	2054.59	10	183.9	100.56	51.11	0.70	1,276	0.2	31
1	145	Window Film	Single Detached	2%	1%	159.85	5941.61	5818.20	2402.80	10	30.0	8.16	-2.73	0.27	991	0.5	12
1	146	Window Tinting	Single Detached	2%	2%	108.54	5941.62	5818.17	2381.85	40	30.1	13.26	0.00	0.13	300	1.0	8
1	147	Default Window With Sunscreen	Single Detached	4%	7%	115.83	5940.60	5713.97	2272.13	10	77.6	56.11	-8.65	0.11	147	1.3	5
1	148	Single Pane Clear Windows to Double Pane Low-E Windows	Single Detached	15%	15%	1563.77	6019.54	5116.83	2109.84	40	293.0	116.34	70.48	0.26	657	0.5	16
1	150	Ceiling R-0 to R-19 Insulation	Single Detached	9%	7%	1075.03	6443.20	5888.08	2453.92	20	11.1	3.77	17.32	0.31	913	0.4	18
1	151	Ceiling R-19 to R-38 Insulation	Single Detached	0%	0%	1075.03	5934.30	5908.74	2424.66	20	5.9	2.01	9.21	6.72	19,829	0.0	393
1	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	Single Detached	1%	1%	3863.26	5944.36	5884.86	2417.29	20	12.0	4.07	18.68	10.37	30,614	0.0	606
1	153	Weather Strip/Caulk w/Blower Door	Single Detached	2%	0%	69.66	6001.48	5881.13	2457.22	5	13.0	0.40	0.23	0.19	6,143	0.7	5
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat	Single Detached	0%	0%	0.00	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	14 SEER Split-System Air Conditioner	Single Detached	8%	7%	629.66	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	162	15 SEER Split-System Air Conditioner	Single Detached	14%	14%	1371.89	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	163	17 SEER Split-System Air Conditioner	Single Detached	23%	24%	2738.10	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	164	19 SEER Split-System Air Conditioner	Single Detached	29%	31%	4120.30	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	165	HVAC Proper Sizing	Single Detached	2%	7%	0.00	0.00	0.00	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	166	Attic Venting	Single Detached	5%	3%	141.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	167	Sealed Attic w/Sprayed Foam Insulated Roof Deck	Single Detached	9%	8%	4565.44	0.00	0.00	0.00	40	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	168	AC Maintenance (Outdoor Coil Cleaning)	Single Detached	7%	6%	60.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	169	AC Maintenance (Indoor Coil Cleaning)	Single Detached	7%	6%	100.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	170	Proper Refrigerant Charging and Air Flow	Single Detached	9%	9%	115.08	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	171	Electronically Commutated Motors (ECM) on an Air Handler Unit	Single Detached	6%	5%	89.94	0.00	0.00	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	172	Duct Repair	Single Detached	6%	7%	450.00	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	173	Reflective Roof	Single Detached	13%	13%	650.94	0.00	0.00	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	174	Radient Barrier	Single Detached	12%	16%	1802.15	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.1 Non-Additive Energy Efficiency Measure Results - Residential

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Household	Base UEC	UEC	Peak Watts/ Household	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	175	Window Film	Single Detached	2%	2%	159.85	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	176	Window Tinting	Single Detached	2%	2%	108.54	0.00	0.00	0.00	40	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	177	Default Window With Sunscreen	Single Detached	4%	5%	115.83	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	178	Single Pane Clear Windows to Double Pane Low-E Windows	Single Detached	15%	12%	1563.77	0.00	0.00	0.00	40	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	180	Ceiling R-0 to R-19 Insulation	Single Detached	8%	7%	1075.03	0.00	0.00	0.00	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	181	Ceiling R-19 to R-38 Insulation	Single Detached	0%	0%	1075.03	0.00	0.00	0.00	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	182	Wall 2x4 R-0 to Blow-In R-13 Insulation	Single Detached	1%	1%	3863.26	0.00	0.00	0.00	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	183	Weather Strip/Caulk w/Blower Door	Single Detached	2%	0%	69.66	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	190	Base 9 EER Room Air Conditioner & Strip Heater	Single Detached	0%	0%	1200.00	2935.92	2935.92	1203.86	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	191	HE Room Air Conditioner - EER 11	Single Detached	15%	18%	324.00	2938.39	2497.14	985.80	15	13.5	6.68	0.00	0.12	249	1.1	7
1	192	HE Room Air Conditioner - EER 12	Single Detached	21%	25%	824.97	2935.92	2329.71	902.89	15	18.6	9.24	0.00	0.23	462	0.6	13
1	196	Reflective Roof	Single Detached	13%	12%	650.94	3009.34	2629.61	1090.36	15	3.9	1.49	0.00	0.29	764	0.5	16
1	197	Window Film	Single Detached	2%	1%	159.85	2941.46	2886.11	1191.09	10	1.1	0.31	-0.10	0.60	2,210	0.2	27
1	198	Window Tinting	Single Detached	2%	2%	108.54	2941.46	2886.10	1181.70	40	1.1	0.51	0.00	0.30	669	0.4	18
1	199	Default Window With Sunscreen	Single Detached	4%	7%	115.83	2941.53	2829.32	1125.06	10	3.3	2.36	-0.36	0.21	297	0.6	10
1	200	Single Pane Clear Windows to Double Pane Low-E Windows	Single Detached	15%	15%	1563.77	2980.62	2533.64	1044.70	40	12.3	4.90	2.97	0.53	1,327	0.2	33
1	202	Ceiling R-0 to R-19 Insulation	Single Detached	18%	14%	1075.03	3540.62	2887.46	1244.11	20	1.1	0.35	0.39	0.26	827	0.5	15
1	203	Ceiling R-19 to R-38 Insulation	Single Detached	1%	1%	1075.03	2941.26	2914.13	1197.42	20	0.5	0.17	0.19	6.33	19,908	0.0	370
1	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	Single Detached	1%	1%	3863.26	2943.39	2913.96	1197.56	20	0.5	0.16	0.18	20.97	65,954	0.0	1,225
1	205	Weather Strip/Caulk w/Blower Door	Single Detached	2%	0%	69.66	2971.68	2912.09	1216.71	5	0.5	0.02	0.01	0.38	12,406	0.4	11
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	Single Detached	0%	0%	4.80	87.60	87.60	4.58	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	Single Detached	70%	70%	19.52	91.42	27.43	1.43	27	40.0	2.09	2.98	0.05	882	2.9	3
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	Single Detached	0%	0%	8.40	766.50	766.50	40.10	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	Single Detached	70%	70%	34.16	799.91	239.97	12.56	5	350.0	18.31	26.11	0.02	343	7.6	1
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	Single Detached	0%	0%	1.80	394.20	394.20	20.62	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	Single Detached	70%	70%	7.32	411.38	123.41	6.46	2	180.0	9.42	13.43	0.02	290	9.0	0
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	Single Detached	0%	0%	12.00	87.60	87.60	4.58	31	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	251	ROB 2L4'T8, 1EB	Single Detached	28%	28%	8.00	88.84	63.97	3.35	48	20.9	1.10	1.56	0.05	924	2.7	3
1	252	RET 2L4'T8, 1EB	Single Detached	28%	28%	20.00	88.84	63.97	3.35	48	20.9	1.10	1.56	0.12	2,310	1.1	8
1	260	Base Outdoor Lighting	Single Detached	0%	0%	12.00	164.25	164.25	8.59	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	261	CFL - medium screw based <30 Watts	Single Detached	70%	70%	8.00	172.82	51.85	2.71	2	74.7	3.91	5.57	0.04	754	3.5	1
1	262	Photocell/timeclock	Single Detached	15%	15%	20.00	165.49	140.67	7.36	32	15.7	0.82	1.17	0.12	2,339	1.1	8
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ice)	Single Detached	0%	0%	822.60	1196.00	1196.00	158.98	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	HE Refrigerator - Energy Star version of above	Single Detached	20%	20%	99.20	1230.67	984.53	130.87	14	185.7	24.68	22.92	0.07	523	2.0	4
1	350	Base Freezer	Single Detached	0%	0%	421.80	740.00	740.00	98.36	11	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	351	HE Freezer	Single Detached	10%	10%	49.80	747.45	672.71	89.42	11	16.3	2.17	2.01	0.13	976	1.1	6
1	400	Base 40 gal. Water Heating (EF=0.92)	Single Detached	0%	0%	251.11	2618.92	2618.92	199.34	13	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	Heat Pump Water Heater (EF=2.9)	Single Detached	68%	68%	1410.85	2711.48	860.19	65.48	10	649.7	49.45	143.14	0.16	2,082	0.9	7
1	402	HE Water Heater (EF=0.93)	Single Detached	1%	1%	72.30	2620.33	2592.15	197.31	13	19.8	1.51	4.36	0.46	5,996	0.3	24
1	403	Solar Water Heat	Single Detached	70%	100%	3598.89	2659.18	798.10	0.00	15	1009.0	109.73	0.00	0.33	2,997	0.4	18
1	404	AC Heat Recovery Units	Single Detached	11%	50%	475.00	2627.87	2329.58	99.68	10	160.3	53.93	0.00	0.33	984	0.4	15
1	405	Low Flow Showerhead	Single Detached	8%	8%	29.32	2704.98	2502.11	190.45	10	69.0	5.26	15.21	0.03	395	4.6	1
1	406	Pipe Wrap	Single Detached	2%	2%	28.10	2629.36	2576.78	196.14	13	23.4	1.78	5.14	0.10	1,249	1.4	5
1	407	Faucet Aerators	Single Detached	3%	3%	9.32	2642.75	2563.46	195.12	10	36.9	2.81	8.12	0.02	321	5.6	1
1	408	Water Heater Blanket	Single Detached	10%	10%	14.00	2699.92	2429.92	184.96	7	83.8	6.38	18.46	0.01	173	10.4	0
1	409	Water Heater Temperature Check and Adjustment	Single Detached	1%	1%	5.00	2632.08	2605.76	198.34	5	5.8	0.44	1.29	0.06	804	2.2	2
1	410	Water Heater Timeclock	Single Detached	5%	5%	60.00	2632.08	2500.47	190.33	10	52.5	4.00	11.57	0.09	1,245	1.4	4
1	411	Heat Trap	Single Detached	9%	9%	22.00	2642.70	2404.86	183.05	10	94.9	7.22	20.91	0.02	253	7.1	1
1	500	Base Clotheswasher (MEF=1.6)	Single Detached	0%	0%	588.39	886.14	886.14	124.51	11	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	Energy Star CW CEE Tier 1 (MEF=1.8)	Single Detached	11%	11%	185.25	908.16	807.25	113.42	11	68.5	9.63	9.61	0.36	2,544	0.4	17
1	502	Energy Star CW CEE Tier 2 (MEF=2.0)	Single Detached	20%	20%	313.67	895.09	716.08	100.61	11	147.7	20.76	20.71	0.34	2,428	0.4	16
1	503	Energy Star CW CEE Tier 3 (MEF=2.2)	Single Detached	27%	27%	442.10	888.57	646.23	90.80	11	208.4	29.28	29.21	0.36	2,528	0.4	17
1	600	Base Clothes Dryer (EF=3.01)	Single Detached	0%	0%	319.02	1124.01	1124.01	181.44	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	610	High Efficiency CD (EF=3.01 w/moisture sensor)	Single Detached	15%	15%	238.24	1141.13	969.96	156.57	18	124.6	20.11	9.38	0.23	1,395	0.6	13
1	700	Base Dishwasher (EF=0.46)	Single Detached	0%	0%	292.65	653.38	653.38	64.07	13	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Energy Star DW (EF=0.68)	Single Detached	32%	32%	397.44	705.24	477.07	46.78	13	132.8	13.02	9.43	0.31	3,159	0.4	16
1	800	Base Pool Pump and Motor (1.5 hp)	Single Detached	0%	0%	345.03	3121.00	3121.00	666.34	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Two Speed Pool Pump (1.5 hp)	Single Detached	49%	49%	182.18	3199.39	1631.69	348.37	5	394.9	84.31	16.39	0.04	175	3.7	1
1	802	High Efficiency One Speed Pool Pump (1.5 hp)	Single Detached	25%	25%	50.91	3160.51	2370.38	506.08	5	199.0	42.49	8.26	0.02	97	6.6	1
1	803	Variable-Speed Pool Pump (<1 hp)	Single Detached	75%	75%	954.97	3144.58	786.15	167.84	10	619.1	132.17	25.70	0.08	394	1.6	4
1	804	PV-Powered Pool Pumps	Single Detached	100%	100%	4654.97	3152.53	0.00	0.00	10	546.1	116.60	22.67	0.31	1,438	0.4	14
1	900	Base CRT TV	Single Detached	0%	0%	0.00	122.70	122.70	15.38	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Energy Star TV	Single Detached	9%	9%	0.00	128.05	116.16	14.56	7	3.0	0.38	0.33	0.00	0	99999.0	0
1	910	Base Large-screen TV	Single Detached	0%	0%	0.00	140.00	140.00	17.54	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	911	Energy Star TV	Single Detached	30%	30%	0.00	152.54	106.78	13.38	7	13.3	1.67	1.46	0.00	0	99999.0	0

C.1 Non-Additive Energy Efficiency Measure Results - Residential

DSM ASSYST SUMMARY						Year	2008										
Vintage	E																
Batch	1			Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Household	Base UEC	UEC	Watts/ Household	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	920	Base Set-Top Box	Single Detached	0%	0%	0.00	129.97	129.97	16.29	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	921	Energy Star Set-Top Box	Single Detached	40%	40%	0.00	129.97	78.55	9.84	7	38.2	4.79	4.20	0.00	0	99999.0	0
1	930	Base DVD Player	Single Detached	0%	0%	0.00	36.00	36.00	4.51	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	931	Energy Star DVD Player	Single Detached	55%	55%	0.00	50.90	22.94	2.87	7	9.7	1.21	1.06	0.00	0	99999.0	0
1	940	Base VCR	Single Detached	0%	0%	0.00	47.00	47.00	5.89	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	941	Energy Star VCR	Single Detached	58%	58%	0.00	99.93	42.00	5.26	7	3.9	0.49	0.43	0.00	0	99999.0	0
1	950	Base Desktop PC	Single Detached	0%	0%	0.00	237.00	237.00	29.70	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	951	Energy Star Desktop PC	Single Detached	13%	13%	0.00	241.87	209.40	26.24	7	16.2	2.03	1.78	0.00	0	99999.0	0
1	960	Base Laptop PC	Single Detached	0%	0%	0.00	72.00	72.00	9.02	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	961	Energy Star Laptop PC	Single Detached	18%	18%	0.00	73.98	60.77	7.62	7	1.8	0.23	0.20	0.00	0	99999.0	0
1	100	Base 13 SEER Split-System Air Conditioner & Strip Heater	Multi Attached	0%	0%	0.00	3956.22	3956.22	1710.63	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	14 SEER Split-System Air Conditioner	Multi Attached	6%	7%	629.66	3968.34	3732.95	1600.33	18	33.8	16.59	0.00	0.43	882	0.3	25
1	102	15 SEER Split-System Air Conditioner	Multi Attached	10%	13%	1371.89	3962.71	3550.64	1491.49	18	61.4	33.08	0.00	0.54	1,000	0.3	31
1	103	17 SEER Split-System Air Conditioner	Multi Attached	16%	22%	2738.10	3962.74	3310.68	1336.35	18	97.8	56.53	0.00	0.68	1,175	0.2	39
1	104	19 SEER Split-System Air Conditioner	Multi Attached	21%	28%	4120.30	3957.05	3125.81	1230.27	18	125.7	72.72	0.00	0.80	1,387	0.2	46
1	105	14 SEER Split-System Heat Pump	Multi Attached	21%	8%	1591.91	3999.66	3156.32	1597.68	15	121.1	18.92	80.97	0.32	2,037	0.4	18
1	106	15 SEER Split-System Heat Pump	Multi Attached	26%	14%	2629.39	3972.51	2937.36	1471.29	15	154.3	36.72	87.20	0.43	1,799	0.3	24
1	107	17 SEER Split-System Heat Pump	Multi Attached	33%	24%	4844.82	3969.30	2661.54	1305.37	15	196.0	61.60	95.06	0.62	1,987	0.2	35
1	108	13 EER Geothermal Heat Pump	Multi Attached	33%	24%	11185.00	3979.97	2668.70	1308.88	15	97.5	30.63	47.27	1.44	4,576	0.1	80
1	109	HVAC Proper Sizing	Multi Attached	2%	6%	0.00	3995.22	3917.23	1621.11	15	5.9	8.05	0.00	0.00	0	99999.0	0
1	110	Attic Venting	Multi Attached	5%	3%	141.00	3976.10	3777.34	1676.24	10	13.5	2.93	5.72	0.15	682	0.9	7
1	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	Multi Attached	9%	8%	2645.48	3974.11	3616.31	1585.84	40	82.4	30.50	70.30	1.11	3,006	0.1	69
1	112	AC Maintenance (Outdoor Coil Cleaning)	Multi Attached	6%	6%	60.00	4058.50	3802.81	1650.69	4	46.5	18.93	0.00	0.09	220	1.5	2
1	113	AC Maintenance (Indoor Coil Cleaning)	Multi Attached	6%	6%	100.00	4006.71	3754.28	1629.63	4	48.9	19.93	0.00	0.15	371	0.9	4
1	114	Proper Refrigerant Charging and Air Flow	Multi Attached	9%	8%	115.08	4176.41	3809.43	1658.45	10	44.5	17.85	0.00	0.07	162	2.1	3
1	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	Multi Attached	6%	5%	89.94	4055.93	3811.93	1669.42	15	39.3	13.59	0.00	0.06	180	2.2	3
1	116	Duct Repair	Multi Attached	5%	5%	450.00	3975.39	3783.70	1628.40	18	52.2	24.67	26.96	0.38	804	0.4	22
1	117	Reflective Roof	Multi Attached	13%	13%	377.19	4062.10	3514.46	1530.18	15	56.2	23.21	0.00	0.12	281	1.2	6
1	118	Radient Barrier	Multi Attached	8%	11%	1044.27	3972.11	3654.35	1534.30	10	68.6	39.53	17.15	0.68	1,185	0.2	31
1	119	Window Film	Multi Attached	3%	2%	36.34	3967.76	3852.37	1676.28	10	23.6	8.04	-2.70	0.07	192	2.1	3
1	120	Window Tinting	Multi Attached	3%	3%	24.67	3967.76	3852.35	1661.92	40	23.6	10.98	0.00	0.03	69	4.0	2
1	121	Default Window With Sunscreen	Multi Attached	4%	7%	26.33	3963.78	3812.55	1598.66	10	43.5	33.16	-4.36	0.04	48	3.8	2
1	122	Single Pane Clear Windows to Double Pane Low-E Windows	Multi Attached	15%	15%	355.49	4016.46	3414.12	1484.47	40	164.2	68.74	35.54	0.09	212	1.5	6
1	124	Ceiling R-0 to R-19 Insulation	Multi Attached	8%	7%	622.94	4239.90	3910.18	1711.16	20	10.5	3.87	8.93	0.30	815	0.5	18
1	125	Ceiling R-19 to R-38 Insulation	Multi Attached	0%	0%	622.94	3957.61	3942.22	1705.53	20	3.4	1.26	2.90	6.47	17,461	0.0	378
1	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	Multi Attached	1%	1%	874.21	3963.80	3924.15	1699.22	20	7.3	2.70	6.22	3.52	9,509	0.0	206
1	127	Weather Strip/Caulk w/Blower Door	Multi Attached	2%	0%	69.66	4004.40	3924.10	1728.89	5	7.3	0.23	0.12	0.28	8,731	0.5	8
1	130	Base 13 SEER Split-System Heat Pump	Multi Attached	0%	0%	0.00	3529.49	3529.49	1526.12	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	14 SEER Split-System Heat Pump	Multi Attached	8%	7%	1591.91	3543.41	3273.19	1425.94	15	13.9	5.46	2.59	0.99	2,527	0.1	55
1	132	15 SEER Split-System Heat Pump	Multi Attached	13%	13%	2629.39	3536.98	3061.38	1325.27	15	25.4	10.90	5.01	0.93	2,172	0.1	52
1	133	17 SEER Split-System Heat Pump	Multi Attached	22%	23%	4844.82	3537.10	2776.26	1182.09	15	40.9	18.66	8.92	1.07	2,351	0.1	59
1	134	13 EER Geothermal Heat Pump	Multi Attached	22%	23%	11185.00	3543.30	2781.13	1184.16	15	20.3	9.27	4.43	2.47	5,419	0.1	137
1	135	HVAC Proper Sizing	Multi Attached	2%	6%	0.00	3565.55	3493.44	1443.35	15	1.0	1.33	0.00	0.00	0	99999.0	0
1	136	Attic Venting	Multi Attached	5%	3%	141.00	3547.23	3369.90	1495.44	10	2.2	0.47	0.91	0.17	764	0.8	7
1	137	Sealed Attics	Multi Attached	9%	7%	2645.48	3545.46	3226.08	1418.90	40	13.2	4.71	18.43	1.25	3,490	0.1	77
1	138	AC Maintenance (Outdoor Coil Cleaning)	Multi Attached	7%	6%	60.00	3624.11	3387.57	1470.67	4	7.7	3.14	0.00	0.10	237	1.4	2
1	139	AC Maintenance (Indoor Coil Cleaning)	Multi Attached	7%	6%	100.00	3576.18	3342.76	1451.21	4	8.1	3.30	0.00	0.16	401	0.8	4
1	140	Proper Refrigerant Charging and Air Flow	Multi Attached	9%	8%	115.08	3733.42	3393.55	1477.80	10	7.4	2.96	0.00	0.07	175	1.9	3
1	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	Multi Attached	12%	9%	89.94	3715.15	3260.82	1454.93	15	13.1	4.37	7.12	0.03	100	4.1	2
1	142	Duct Repair	Multi Attached	4%	6%	450.00	3545.15	3388.61	1443.72	18	7.6	4.35	4.92	0.47	817	0.3	27
1	143	Reflective Roof	Multi Attached	14%	13%	377.19	3626.86	3123.26	1367.41	15	9.3	3.69	0.00	0.13	317	1.1	7
1	144	Radient Barrier	Multi Attached	8%	11%	1392.36	3543.67	3260.18	1368.81	10	11.0	6.32	2.74	1.02	1,771	0.1	46
1	145	Window Film	Multi Attached	3%	2%	36.34	3540.87	3427.07	1498.44	10	4.2	1.19	-0.34	0.07	232	2.1	3
1	146	Window Tinting	Multi Attached	3%	3%	24.67	3540.88	3427.04	1478.08	40	4.2	1.94	0.00	0.03	70	4.0	2
1	147	Default Window With Sunscreen	Multi Attached	4%	7%	26.33	3536.24	3401.32	1426.22	10	7.0	5.30	-0.70	0.04	53	3.4	2
1	148	Single Pane Clear Windows to Double Pane Low-E Windows	Multi Attached	15%	15%	355.49	3583.23	3045.86	1324.36	40	26.2	10.99	5.68	0.10	238	1.3	6
1	150	Ceiling R-0 to R-19 Insulation	Multi Attached	8%	7%	622.94	3790.87	3487.07	1530.58	20	1.7	0.62	2.42	0.33	917	0.4	19
1	151	Ceiling R-19 to R-38 Insulation	Multi Attached	0%	0%	622.94	3530.77	3516.62	1521.61	20	0.6	0.20	0.78	7.03	19,687	0.0	411
1	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	Multi Attached	1%	1%	874.21	3536.26	3500.87	1516.40	20	1.2	0.42	1.63	3.95	11,043	0.0	231
1	153	Weather Strip/Caulk w/Blower Door	Multi Attached	2%	0%	69.66	3572.48	3500.84	1542.41	5	1.2	0.04	0.02	0.31	9,786	0.4	9
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat	Multi Attached	0%	0%	0.00	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	14 SEER Split-System Air Conditioner	Multi Attached	8%	7%	629.66	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	162	15 SEER Split-System Air Conditioner	Multi Attached	13%	13%	1371.89	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	163	17 SEER Split-System Air Conditioner	Multi Attached	21%	23%	2738.10	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	164	19 SEER Split-System Air Conditioner	Multi Attached	27%	29%	4120.30	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.1 Non-Additive Energy Efficiency Measure Results - Residential

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 1																	
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Household	Base UEC	UEC	Peak Watts/ Household	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	165	HVAC Proper Sizing	Multi Attached	2%	7%	0.00	0.00	0.00	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	166	Attic Venting	Multi Attached	5%	3%	141.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	167	Sealed Attic w/Sprayed Foam Insulated Roof Deck	Multi Attached	9%	8%	2645.48	0.00	0.00	0.00	40	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	168	AC Maintenance (Outdoor Coil Cleaning)	Multi Attached	7%	6%	60.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	169	AC Maintenance (Indoor Coil Cleaning)	Multi Attached	7%	6%	100.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	170	Proper Refrigerant Charging and Air Flow	Multi Attached	9%	9%	115.08	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	171	Electronically Commutated Motors (ECM) on an Air Handler Unit	Multi Attached	6%	5%	89.94	0.00	0.00	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	172	Duct Repair	Multi Attached	4%	4%	450.00	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	173	Reflective Roof	Multi Attached	14%	13%	377.19	0.00	0.00	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	174	Radient Barrier	Multi Attached	8%	11%	1044.27	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	175	Window Film	Multi Attached	4%	3%	36.34	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	176	Window Tinting	Multi Attached	4%	4%	24.67	0.00	0.00	0.00	40	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	177	Default Window With Sunscreen	Multi Attached	4%	5%	26.33	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	178	Single Pane Clear Windows to Double Pane Low-E Windows	Multi Attached	15%	12%	355.49	0.00	0.00	0.00	40	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	180	Ceiling R-0 to R-19 Insulation	Multi Attached	8%	7%	622.94	0.00	0.00	0.00	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	181	Ceiling R-19 to R-38 Insulation	Multi Attached	0%	0%	622.94	0.00	0.00	0.00	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	182	Wall 2x4 R-0 to Blow-In R-13 Insulation	Multi Attached	1%	1%	874.21	0.00	0.00	0.00	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	183	Weather Strip/Caulk w/Blower Door	Multi Attached	2%	0%	69.66	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	190	Base 9 EER Room Air Conditioner & Strip Heater	Multi Attached	0%	0%	1200.00	2558.35	2558.35	1106.20	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	191	HE Room Air Conditioner - EER 11	Multi Attached	15%	18%	324.00	2560.50	2175.97	905.83	15	12.7	6.62	0.00	0.14	271	1.0	8
1	192	HE Room Air Conditioner - EER 12	Multi Attached	21%	25%	824.97	2558.35	2030.07	829.65	15	17.5	9.15	0.00	0.26	503	0.5	15
1	196	Reflective Roof	Multi Attached	13%	12%	377.19	2626.81	2272.68	994.60	15	4.0	1.58	0.00	0.18	450	0.8	10
1	197	Window Film	Multi Attached	3%	2%	36.34	2565.81	2491.19	1088.06	10	1.7	0.48	-0.14	0.10	353	1.4	5
1	198	Window Tinting	Multi Attached	3%	3%	24.67	2565.81	2491.18	1074.71	40	1.7	0.78	0.00	0.05	107	2.6	3
1	199	Default Window With Sunscreen	Multi Attached	4%	7%	26.33	2563.24	2465.44	1033.80	10	3.1	2.34	-0.31	0.06	73	2.4	3
1	200	Single Pane Clear Windows to Double Pane Low-E Windows	Multi Attached	15%	15%	355.49	2597.30	2207.79	959.96	40	11.6	4.86	2.51	0.14	328	0.9	9
1	202	Ceiling R-0 to R-19 Insulation	Multi Attached	12%	9%	622.94	2846.12	2511.64	1118.47	20	1.2	0.39	0.37	0.30	887	0.5	17
1	203	Ceiling R-19 to R-38 Insulation	Multi Attached	1%	0%	622.94	2559.70	2544.66	1101.74	20	0.4	0.12	0.11	6.62	19,732	0.0	387
1	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	Multi Attached	1%	1%	874.21	2563.25	2537.62	1099.73	20	0.5	0.17	0.16	5.45	16,252	0.0	318
1	205	Weather Strip/Caulk w/Blower Door	Multi Attached	2%	0%	69.66	2589.50	2537.58	1118.01	5	0.5	0.02	0.01	0.43	13,501	0.3	13
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	Multi Attached	0%	0%	4.80	87.60	87.60	4.58	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	Multi Attached	70%	70%	19.52	90.12	27.04	1.41	27	17.8	0.93	1.33	0.05	895	2.8	3
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	Multi Attached	0%	0%	8.40	766.50	766.50	40.10	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	Multi Attached	70%	70%	34.16	788.55	236.57	12.38	5	155.9	8.16	11.63	0.02	348	7.5	1
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	Multi Attached	0%	0%	1.80	394.20	394.20	20.62	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	Multi Attached	70%	70%	7.32	405.54	121.66	6.37	2	80.2	4.19	5.98	0.02	294	8.9	0
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	Multi Attached	0%	0%	12.00	87.60	87.60	4.58	31	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	251	ROB 2L4'T8, 1EB	Multi Attached	28%	28%	8.00	88.84	63.97	3.35	48	9.3	0.49	0.69	0.05	924	2.7	3
1	252	RET 2L4'T8, 1EB	Multi Attached	28%	28%	20.00	88.84	63.97	3.35	48	9.3	0.49	0.69	0.12	2,310	1.1	8
1	260	Base Outdoor Lighting	Multi Attached	0%	0%	12.00	164.25	164.25	8.59	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	261	CFL - medium screw based <30 Watts	Multi Attached	70%	70%	8.00	168.22	50.47	2.64	2	33.5	1.75	2.50	0.04	775	3.4	1
1	262	Photocell/timeclock	Multi Attached	15%	15%	20.00	165.49	140.67	7.36	32	6.9	0.36	0.52	0.12	2,339	1.1	8
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ice)	Multi Attached	0%	0%	822.60	1196.00	1196.00	158.98	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	HE Refrigerator - Energy Star version of above	Multi Attached	20%	20%	79.36	1230.67	984.53	130.87	14	81.7	10.86	10.09	0.06	418	2.5	3
1	350	Base Freezer	Multi Attached	0%	0%	421.80	740.00	740.00	98.36	11	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	351	HE Freezer	Multi Attached	10%	10%	39.84	747.45	672.71	89.42	11	2.1	0.28	0.26	0.10	781	1.3	5
1	400	Base 40 gal. Water Heating (EF=0.92)	Multi Attached	0%	0%	251.11	1710.74	1710.74	154.01	13	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	Heat Pump Water Heater (EF=2.9)	Multi Attached	68%	68%	1410.85	1771.21	561.90	50.59	10	205.7	18.52	47.63	0.24	2,694	0.6	11
1	402	HE Water Heater (EF=0.93)	Multi Attached	1%	1%	72.30	1711.66	1693.26	152.44	13	6.3	0.56	1.45	0.70	7,760	0.2	37
1	403	Solar Water Heat	Multi Attached	70%	100%	3598.89	1710.74	513.45	0.00	15	321.6	41.37	0.00	0.51	3,939	0.3	28
1	404	AC Heat Recovery Units	Multi Attached	11%	50%	475.00	1716.59	1521.73	77.02	10	50.8	20.20	0.00	0.51	1,274	0.3	23
1	405	Low Flow Showerhead	Multi Attached	8%	8%	29.32	1740.01	1609.51	144.90	10	29.0	2.61	6.72	0.05	519	2.9	2
1	406	Pipe Wrap	Multi Attached	2%	2%	28.10	1715.52	1681.21	151.35	13	7.9	0.71	1.84	0.15	1,618	0.9	8
1	407	Faucet Aerators	Multi Attached	3%	3%	9.32	1720.12	1668.52	150.21	10	13.6	1.23	3.15	0.04	417	3.6	2
1	408	Water Heater Blanket	Multi Attached	10%	10%	14.00	1763.65	1587.29	142.90	7	26.5	2.39	6.14	0.02	224	6.8	1
1	409	Water Heater Temperature Check and Adjustment	Multi Attached	1%	1%	5.00	1719.34	1702.15	153.24	5	1.8	0.17	0.43	0.09	1,040	1.5	3
1	410	Water Heater Timeclock	Multi Attached	5%	5%	60.00	1719.34	1633.37	147.05	10	16.6	1.50	3.85	0.15	1,612	0.9	7
1	411	Heat Trap	Multi Attached	9%	9%	22.00	1726.28	1570.91	141.42	10	30.1	2.71	6.96	0.03	327	4.7	1
1	500	Base Clotheswasher (MEF=1.6)	Multi Attached	0%	0%	588.39	886.14	886.14	124.51	11	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	Energy Star CW CEE Tier 1 (MEF=1.8)	Multi Attached	11%	11%	185.25	908.16	807.25	113.42	11	19.2	2.70	2.70	0.36	2,544	0.4	17
1	502	Energy Star CW CEE Tier 2 (MEF=2.0)	Multi Attached	20%	20%	313.67	895.09	716.08	100.61	11	41.5	5.83	5.82	0.34	2,428	0.4	16
1	503	Energy Star CW CEE Tier 3 (MEF=2.2)	Multi Attached	27%	27%	442.10	888.57	646.23	90.80	11	58.5	8.22	8.20	0.36	2,528	0.4	17
1	600	Base Clothes Dryer (EF=3.01)	Multi Attached	0%	0%	319.02	797.44	797.44	128.72	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	610	High Efficiency CD (EF=3.01 w/moisture sensor)	Multi Attached	15%	15%	238.24	809.58	688.15	111.08	18	25.7	4.15	1.94	0.32	1,967	0.4	18
1	700	Base Dishwasher (EF=0.46)	Multi Attached	0%	0%	292.65	501.81	501.81	49.21	13	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.1 Non-Additive Energy Efficiency Measure Results - Residential

DSM ASSYST SUMMARY						Year	2008										
Vintage	E																
Batch	1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Household	Base UEC	UEC	Peak Watts/ Household	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	701	Energy Star DW (EF=0.68)	Multi Attached	32%	32%	397.44	541.63	366.40	35.93	13	41.0	4.02	2.91	0.40	4,113	0.3	21
1	800	Base Pool Pump and Motor (1.5 hp)	Multi Attached	0%	0%	345.03	3121.00	3121.00	666.34	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Two Speed Pool Pump (1.5 hp)	Multi Attached	49%	49%	182.18	3199.39	1631.69	348.37	5	1.5	0.31	0.06	0.04	175	3.7	1
1	802	High Efficiency One Speed Pool Pump (1.5 hp)	Multi Attached	25%	25%	50.91	3160.51	2370.38	506.08	5	0.7	0.16	0.03	0.02	97	6.6	1
1	803	Variable-Speed Pool Pump (<1 hp)	Multi Attached	75%	75%	954.97	3144.58	786.15	167.84	10	2.3	0.49	0.09	0.08	394	1.6	4
1	804	PV-Powered Pool Pumps	Multi Attached	100%	100%	4654.97	3152.53	0.00	0.00	10	2.0	0.43	0.08	0.31	1,438	0.4	14
1	900	Base CRT TV	Multi Attached	0%	0%	0.00	122.70	122.70	15.55	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Energy Star TV	Multi Attached	9%	9%	0.00	128.05	116.16	14.72	7	2.0	0.26	0.22	0.00	0	99999.0	0
1	910	Base Large-screen TV	Multi Attached	0%	0%	0.00	140.00	140.00	17.75	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	911	Energy Star TV	Multi Attached	30%	30%	0.00	152.54	106.78	13.54	7	2.2	0.28	0.24	0.00	0	99999.0	0
1	920	Base Set-Top Box	Multi Attached	0%	0%	0.00	129.97	129.97	16.47	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	921	Energy Star Set-Top Box	Multi Attached	40%	40%	0.00	129.97	78.55	9.96	7	11.6	1.47	1.27	0.00	0	99999.0	0
1	930	Base DVD Player	Multi Attached	0%	0%	0.00	36.00	36.00	4.56	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	931	Energy Star DVD Player	Multi Attached	55%	55%	0.00	50.90	22.94	2.91	7	3.8	0.48	0.42	0.00	0	99999.0	0
1	940	Base VCR	Multi Attached	0%	0%	0.00	47.00	47.00	5.96	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	941	Energy Star VCR	Multi Attached	58%	58%	0.00	99.93	42.00	5.32	7	1.6	0.20	0.18	0.00	0	99999.0	0
1	950	Base Desktop PC	Multi Attached	0%	0%	0.00	237.00	237.00	30.04	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	951	Energy Star Desktop PC	Multi Attached	13%	13%	0.00	241.87	209.40	26.54	7	5.4	0.69	0.60	0.00	0	99999.0	0
1	960	Base Laptop PC	Multi Attached	0%	0%	0.00	72.00	72.00	9.13	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	961	Energy Star Laptop PC	Multi Attached	18%	18%	0.00	73.98	60.77	7.70	7	0.6	0.08	0.07	0.00	0	99999.0	0
1	100	Base 13 SEER Split-System Air Conditioner & Strip Heater	Mobile Home	0%	0%	0.00	4580.94	4580.94	2239.21	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	14 SEER Split-System Air Conditioner	Mobile Home	6%	7%	629.66	4595.06	4320.90	2093.97	18	15.9	8.83	0.00	0.37	670	0.4	21
1	102	15 SEER Split-System Air Conditioner	Mobile Home	10%	13%	1371.89	4588.50	4108.56	1950.65	18	28.9	17.61	0.00	0.46	760	0.3	27
1	103	17 SEER Split-System Air Conditioner	Mobile Home	17%	22%	2738.10	4588.54	3829.07	1746.36	18	46.0	30.09	0.00	0.58	892	0.2	34
1	104	19 SEER Split-System Air Conditioner	Mobile Home	21%	28%	4120.30	4581.91	3613.77	1606.68	18	59.2	38.70	0.00	0.69	1,053	0.2	40
1	105	14 SEER Split-System Heat Pump	Mobile Home	20%	7%	1591.91	4628.44	3706.31	2099.60	15	53.5	9.45	45.73	0.29	1,648	0.5	16
1	106	15 SEER Split-System Heat Pump	Mobile Home	25%	14%	2629.39	4598.95	3454.64	1940.11	15	68.9	18.55	49.80	0.39	1,440	0.4	21
1	107	17 SEER Split-System Heat Pump	Mobile Home	32%	23%	4844.82	4595.53	3136.86	1728.20	15	88.4	31.39	54.78	0.56	1,576	0.2	31
1	108	13 EER Geothermal Heat Pump	Mobile Home	32%	23%	11185.00	4580.94	3126.90	1722.71	15	22.2	7.90	13.79	1.30	3,650	0.1	72
1	109	HVAC Proper Sizing	Mobile Home	2%	6%	0.00	4626.10	4535.79	2122.03	15	2.8	4.26	0.00	0.00	0	99999.0	0
1	110	Attic Venting	Mobile Home	5%	3%	141.00	4603.96	4373.82	2194.20	10	20.3	4.96	10.94	0.13	521	1.1	6
1	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	Mobile Home	9%	8%	2434.23	4601.66	4187.31	2075.86	40	38.5	16.14	42.05	0.88	2,113	0.1	55
1	112	AC Maintenance (Outdoor Coil Cleaning)	Mobile Home	6%	6%	60.00	4699.35	4403.33	2160.75	4	21.7	10.01	0.00	0.08	168	1.8	2
1	113	AC Maintenance (Indoor Coil Cleaning)	Mobile Home	6%	6%	100.00	4639.39	4347.15	2133.18	4	22.9	10.54	0.00	0.13	283	1.0	3
1	114	Proper Refrigerant Charging and Air Flow	Mobile Home	9%	8%	115.08	4835.87	4411.00	2170.90	10	20.8	9.45	0.00	0.06	124	2.4	3
1	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	Mobile Home	6%	5%	89.94	4696.38	4413.89	2185.27	15	18.4	7.19	0.00	0.05	137	2.6	3
1	116	Duct Repair	Mobile Home	6%	7%	450.00	4609.00	4328.49	2103.18	18	30.9	16.50	20.38	0.26	486	0.5	15
1	117	Reflective Roof	Mobile Home	13%	12%	347.07	4695.49	4103.02	2018.48	15	24.6	11.48	0.00	0.10	211	1.4	5
1	118	Radient Barrier	Mobile Home	10%	13%	960.88	4603.96	4143.59	1950.40	10	40.2	26.17	12.83	0.43	666	0.3	19
1	119	Window Film	Mobile Home	3%	3%	85.23	4596.11	4444.42	2188.14	10	12.5	4.83	-1.83	0.12	303	1.2	5
1	120	Window Tinting	Mobile Home	3%	4%	57.87	4596.12	4444.38	2166.80	40	12.5	6.60	0.00	0.06	109	2.2	4
1	121	Default Window With Sunscreen	Mobile Home	4%	7%	61.76	4589.70	4414.61	2092.64	10	20.4	17.54	-2.61	0.07	85	1.9	3
1	122	Single Pane Clear Windows to Double Pane Low-E Windows	Mobile Home	15%	15%	833.78	4650.69	3953.28	1943.17	40	76.8	36.37	21.26	0.18	380	0.7	11
1	124	Ceiling R-0 to R-19 Insulation	Mobile Home	7%	6%	573.19	4802.78	4477.42	2211.43	20	9.5	3.98	10.37	0.28	672	0.5	16
1	125	Ceiling R-19 to R-38 Insulation	Mobile Home	0%	0%	573.19	4587.30	4571.76	2235.81	20	0.9	0.38	0.98	5.89	14,077	0.0	344
1	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	Mobile Home	1%	1%	2059.84	4618.75	4572.54	2238.34	20	0.8	0.32	0.84	7.12	17,010	0.0	416
1	127	Weather Strip/Caulk w/Blower Door	Mobile Home	2%	0%	69.66	4636.73	4543.76	2263.11	5	3.4	0.12	0.07	0.24	6,670	0.6	7
1	130	Base 13 SEER Split-System Heat Pump	Mobile Home	0%	0%	0.00	4128.71	4128.71	2018.15	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	14 SEER Split-System Heat Pump	Mobile Home	8%	7%	1591.91	4144.74	3833.40	1887.67	15	12.6	5.60	3.00	0.86	1,940	0.2	48
1	132	15 SEER Split-System Heat Pump	Mobile Home	13%	13%	2629.39	4137.33	3589.59	1756.65	15	23.0	11.16	5.80	0.81	1,668	0.2	45
1	133	17 SEER Split-System Heat Pump	Mobile Home	21%	22%	4844.82	4137.46	3261.94	1570.59	15	37.0	19.08	10.31	0.93	1,807	0.1	52
1	134	13 EER Geothermal Heat Pump	Mobile Home	21%	22%	11185.00	4128.71	3255.04	1567.27	15	9.3	4.81	2.60	2.16	4,182	0.1	120
1	135	HVAC Proper Sizing	Mobile Home	2%	6%	0.00	4170.88	4086.53	1908.69	15	0.9	1.39	0.00	0.00	0	99999.0	0
1	136	Attic Venting	Mobile Home	5%	3%	141.00	4149.45	3942.03	1977.58	10	6.4	1.56	3.44	0.14	578	1.0	6
1	137	Sealed Attics	Mobile Home	9%	7%	2434.23	4147.39	3773.69	1876.37	40	12.1	4.89	21.67	0.98	2,429	0.1	61
1	138	AC Maintenance (Outdoor Coil Cleaning)	Mobile Home	7%	6%	60.00	4239.38	3962.70	1944.82	4	7.1	3.26	0.00	0.08	179	1.7	2
1	139	AC Maintenance (Indoor Coil Cleaning)	Mobile Home	7%	6%	100.00	4183.31	3910.30	1919.10	4	7.5	3.43	0.00	0.14	303	1.0	3
1	140	Proper Refrigerant Charging and Air Flow	Mobile Home	9%	8%	115.08	4367.22	3969.70	1954.24	10	6.8	3.08	0.00	0.06	133	2.3	3
1	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	Mobile Home	12%	9%	89.94	4345.88	3814.41	1924.02	15	12.1	4.55	8.37	0.03	76	4.8	2
1	142	Duct Repair	Mobile Home	5%	7%	450.00	4149.75	3939.31	1892.94	18	8.1	5.20	6.65	0.35	537	0.4	20
1	143	Reflective Roof	Mobile Home	13%	12%	347.07	4235.76	3682.05	1820.85	15	8.0	3.61	0.00	0.11	234	1.3	6
1	144	Radient Barrier	Mobile Home	10%	13%	1281.17	4149.45	3734.53	1757.85	10	12.6	8.22	4.03	0.64	985	0.2	29
1	145	Window Film	Mobile Home	4%	2%	85.23	4143.96	3991.38	1976.19	10	4.4	1.42	-0.46	0.12	359	1.2	5
1	146	Window Tinting	Mobile Home	4%	4%	57.87	4143.97	3991.34	1945.32	40	4.4	2.31	0.00	0.06	109	2.3	4
1	147	Default Window With Sunscreen	Mobile Home	4%	7%	61.76	4136.60	3978.79	1886.05	10	6.4	5.51	-0.82	0.08	94	1.7	4

C.1 Non-Additive Energy Efficiency Measure Results - Residential

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 1				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Household	Base UEC	UEC	Watts/ Household	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	148	Single Pane Clear Windows to Double Pane Low-E Windows	Mobile Home	15%	15%	833.78	4191.56	3563.00	1751.34	40	24.1	11.42	6.68	0.20	422	0.6	12
1	150	Ceiling R-0 to R-19 Insulation	Mobile Home	7%	6%	573.19	4339.76	4030.21	1996.31	20	3.2	1.27	5.64	0.30	733	0.5	17
1	151	Ceiling R-19 to R-38 Insulation	Mobile Home	0%	0%	573.19	4134.74	4119.99	2015.15	20	0.3	0.12	0.53	6.21	15,378	0.0	363
1	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	Mobile Home	1%	1%	2059.84	4162.81	4121.13	2017.99	20	0.2	0.10	0.43	7.90	19,553	0.0	461
1	153	Weather Strip/Caulk w/Blower Door	Mobile Home	2%	0%	69.66	4178.98	4095.19	2039.69	5	1.1	0.04	0.02	0.27	7,400	0.5	8
1	160	Base 13 SEER Split-System Air Conditioner & Gas Heat	Mobile Home	0%	0%	0.00	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	14 SEER Split-System Air Conditioner	Mobile Home	8%	7%	629.66	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	162	15 SEER Split-System Air Conditioner	Mobile Home	13%	13%	1371.89	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	163	17 SEER Split-System Air Conditioner	Mobile Home	21%	22%	2738.10	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	164	19 SEER Split-System Air Conditioner	Mobile Home	27%	28%	4120.30	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	165	HVAC Proper Sizing	Mobile Home	2%	7%	0.00	0.00	0.00	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	166	Attic Venting	Mobile Home	5%	3%	141.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	167	Sealed Attic w/Sprayed Foam Insulated Roof Deck	Mobile Home	9%	8%	2434.23	0.00	0.00	0.00	40	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	168	AC Maintenance (Outdoor Coil Cleaning)	Mobile Home	7%	6%	60.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	169	AC Maintenance (Indoor Coil Cleaning)	Mobile Home	7%	6%	100.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	170	Proper Refrigerant Charging and Air Flow	Mobile Home	9%	9%	115.08	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	171	Electronically Commutated Motors (ECM) on an Air Handler Unit	Mobile Home	6%	5%	89.94	0.00	0.00	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	172	Duct Repair	Mobile Home	4%	4%	450.00	0.00	0.00	0.00	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	173	Reflective Roof	Mobile Home	13%	13%	347.07	0.00	0.00	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	174	Radient Barrier	Mobile Home	10%	13%	960.88	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	175	Window Film	Mobile Home	4%	3%	85.23	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	176	Window Tinting	Mobile Home	4%	4%	57.87	0.00	0.00	0.00	40	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	177	Default Window With Sunscreen	Mobile Home	4%	5%	61.76	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	178	Single Pane Clear Windows to Double Pane Low-E Windows	Mobile Home	15%	12%	833.78	0.00	0.00	0.00	40	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	180	Ceiling R-0 to R-19 Insulation	Mobile Home	7%	6%	573.19	0.00	0.00	0.00	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	181	Ceiling R-19 to R-38 Insulation	Mobile Home	0%	0%	573.19	0.00	0.00	0.00	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	182	Wall 2x4 R-0 to Blow-In R-13 Insulation	Mobile Home	1%	1%	2059.84	0.00	0.00	0.00	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	183	Weather Strip/Caulk w/Blower Door	Mobile Home	2%	0%	69.66	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	190	Base 9 EER Room Air Conditioner & Strip Heater	Mobile Home	0%	0%	1200.00	2473.85	2473.85	1209.24	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	191	HE Room Air Conditioner - EER 11	Mobile Home	15%	18%	324.00	2475.93	2104.14	990.21	15	3.4	2.03	0.00	0.15	248	0.9	8
1	192	HE Room Air Conditioner - EER 12	Mobile Home	21%	25%	824.97	2473.85	1963.07	906.93	15	4.7	2.80	0.00	0.27	460	0.5	15
1	196	Reflective Roof	Mobile Home	13%	12%	347.07	2535.70	2215.76	1095.24	15	1.0	0.45	0.00	0.18	406	0.7	10
1	197	Window Film	Mobile Home	3%	2%	85.23	2482.04	2400.12	1186.71	10	0.5	0.17	-0.05	0.22	668	0.6	10
1	198	Window Tinting	Mobile Home	3%	4%	57.87	2482.04	2400.10	1170.14	40	0.5	0.27	0.00	0.11	202	1.2	7
1	199	Default Window With Sunscreen	Mobile Home	4%	7%	61.76	2478.58	2384.02	1130.09	10	0.8	0.72	-0.11	0.14	158	1.0	6
1	200	Single Pane Clear Windows to Double Pane Low-E Windows	Mobile Home	15%	15%	833.78	2511.51	2134.89	1049.37	40	3.1	1.49	0.87	0.33	704	0.4	21
1	202	Ceiling R-0 to R-19 Insulation	Mobile Home	12%	10%	573.19	2703.32	2366.76	1193.82	20	0.7	0.28	0.30	0.27	718	0.5	16
1	203	Ceiling R-19 to R-38 Insulation	Mobile Home	1%	0%	573.19	2480.16	2464.73	1206.48	20	0.1	0.03	0.03	5.93	15,646	0.0	347
1	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	Mobile Home	1%	1%	2059.84	2494.25	2469.32	1209.76	20	0.0	0.01	0.01	13.20	34,811	0.0	771
1	205	Weather Strip/Caulk w/Blower Door	Mobile Home	2%	0%	69.66	2503.97	2453.77	1222.15	5	0.1	0.01	0.00	0.45	12,351	0.3	13
1	220	Base Lighting (60-Watt incandescent), 0.5 hr/hday	Mobile Home	0%	0%	4.80	87.60	87.60	4.58	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	221	CFL (18-Watt integral ballast), 0.5 hr/day	Mobile Home	70%	70%	19.52	91.87	27.56	1.44	27	7.9	0.41	0.59	0.05	878	2.9	3
1	230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	Mobile Home	0%	0%	8.40	766.50	766.50	40.10	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	231	CFL (18-Watt integral ballast), 2.5 hr/day	Mobile Home	70%	70%	34.16	803.83	241.15	12.62	5	68.7	3.59	5.12	0.02	341	7.7	1
1	240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	Mobile Home	0%	0%	1.80	394.20	394.20	20.62	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	241	CFL (18-Watt integral ballast), 6.0 hr/day	Mobile Home	70%	70%	7.32	413.40	124.02	6.49	2	35.3	1.85	2.64	0.02	288	9.1	0
1	250	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	Mobile Home	0%	0%	12.00	87.60	87.60	4.58	31	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	251	ROB 2L4'T8, 1EB	Mobile Home	28%	28%	8.00	88.84	63.97	3.35	48	4.1	0.22	0.31	0.05	924	2.7	3
1	252	RET 2L4'T8, 1EB	Mobile Home	28%	28%	20.00	88.84	63.97	3.35	48	4.1	0.22	0.31	0.12	2,310	1.1	8
1	260	Base Outdoor Lighting	Mobile Home	0%	0%	12.00	164.25	164.25	8.59	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	261	CFL - medium screw based <30 Watts	Mobile Home	70%	70%	8.00	166.17	49.85	2.61	2	15.0	0.78	1.12	0.04	784	3.3	1
1	262	Photocell/timeclock	Mobile Home	15%	15%	20.00	165.49	140.67	7.36	32	3.1	0.16	0.23	0.12	2,339	1.1	8
1	300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ice)	Mobile Home	0%	0%	822.60	1196.00	1196.00	158.98	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	HE Refrigerator - Energy Star version of above	Mobile Home	20%	20%	99.20	1230.67	984.53	130.87	14	36.1	4.80	4.46	0.07	523	2.0	4
1	350	Base Freezer	Mobile Home	0%	0%	421.80	740.00	740.00	98.36	11	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	351	HE Freezer	Mobile Home	10%	10%	49.80	747.45	672.71	89.42	11	2.7	0.36	0.34	0.13	976	1.1	6
1	400	Base 40 gal. Water Heating (EF=0.92)	Mobile Home	0%	0%	251.11	1987.07	1987.07	154.01	13	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	Heat Pump Water Heater (EF=2.9)	Mobile Home	68%	68%	1410.85	2057.30	652.66	50.59	10	111.3	8.63	22.18	0.21	2,694	0.7	9
1	402	HE Water Heater (EF=0.93)	Mobile Home	1%	1%	72.30	1988.13	1966.76	152.44	13	3.4	0.26	0.68	0.60	7,760	0.2	32
1	403	Solar Water Heat	Mobile Home	70%	100%	3598.89	1987.07	596.35	0.00	15	174.0	19.27	0.00	0.44	3,939	0.3	24
1	404	AC Heat Recovery Units	Mobile Home	11%	50%	475.00	1993.85	1767.53	77.02	10	27.5	9.41	0.00	0.44	1,274	0.3	20
1	405	Low Flow Showerhead	Mobile Home	7%	8%	29.32	2052.36	1898.44	147.14	10	11.8	0.92	2.36	0.04	511	3.5	2
1	406	Pipe Wrap	Mobile Home	2%	2%	28.10	1994.99	1955.09	151.53	13	4.0	0.31	0.80	0.13	1,616	1.1	7
1	407	Faucet Aerators	Mobile Home	3%	3%	9.32	2005.15	1944.99	150.75	10	6.3	0.49	1.26	0.03	416	4.2	1
1	408	Water Heater Blanket	Mobile Home	10%	10%	14.00	2048.52	1843.67	142.90	7	14.4	1.11	2.86	0.02	224	7.9	1

C.1 Non-Additive Energy Efficiency Measure Results - Residential

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 1				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Household	Base UEC	UEC	Watts/ Household	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	409	Water Heater Temperature Check and Adjustment	Mobile Home	1%	1%	5.00	1997.05	1977.08	153.24	5	1.0	0.08	0.20	0.08	1,040	1.7	2
1	410	Water Heater Timeclock	Mobile Home	5%	5%	60.00	1997.05	1897.20	147.05	10	9.0	0.70	1.79	0.12	1,612	1.1	6
1	411	Heat Trap	Mobile Home	9%	9%	22.00	2005.11	1824.65	141.42	10	16.3	1.26	3.24	0.03	327	5.4	1
1	500	Base Clotheswasher (MEF=1.6)	Mobile Home	0%	0%	588.39	886.14	886.14	124.51	11	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	Energy Star CW CEE Tier 1 (MEF=1.8)	Mobile Home	11%	11%	185.25	908.16	807.25	113.42	11	12.6	1.77	1.76	0.36	2,544	0.4	17
1	502	Energy Star CW CEE Tier 2 (MEF=2.0)	Mobile Home	20%	20%	313.67	895.09	716.08	100.61	11	27.1	3.81	3.80	0.34	2,428	0.4	16
1	503	Energy Star CW CEE Tier 3 (MEF=2.2)	Mobile Home	27%	27%	442.10	888.57	646.23	90.80	11	38.3	5.38	5.36	0.36	2,528	0.4	17
1	600	Base Clothes Dryer (EF=3.01)	Mobile Home	0%	0%	319.02	674.15	674.15	108.82	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	610	High Efficiency CD (EF=3.01 w/moisture sensor)	Mobile Home	15%	15%	238.24	684.42	581.75	93.91	18	13.5	2.19	1.02	0.38	2,326	0.4	22
1	700	Base Dishwasher (EF=0.46)	Mobile Home	0%	0%	292.65	501.81	501.81	49.21	13	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Energy Star DW (EF=0.68)	Mobile Home	32%	32%	397.44	541.63	366.40	35.93	13	12.8	1.26	0.91	0.40	4,113	0.3	21
1	800	Base Pool Pump and Motor (1.5 hp)	Mobile Home	0%	0%	345.03	3121.00	3121.00	666.34	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Two Speed Pool Pump (1.5 hp)	Mobile Home	49%	49%	182.18	3199.39	1631.69	348.37	5	5.5	1.18	0.23	0.04	175	3.7	1
1	802	High Efficiency One Speed Pool Pump (1.5 hp)	Mobile Home	25%	25%	50.91	3160.51	2370.38	506.08	5	2.8	0.59	0.12	0.02	97	6.6	1
1	803	Variable-Speed Pool Pump (<1 hp)	Mobile Home	75%	75%	954.97	3144.58	786.15	167.84	10	8.7	1.85	0.36	0.08	394	1.6	4
1	804	PV-Powered Pool Pumps	Mobile Home	100%	100%	4654.97	3152.53	0.00	0.00	10	7.6	1.63	0.32	0.31	1,438	0.4	14
1	900	Base CRT TV	Mobile Home	0%	0%	0.00	122.70	122.70	15.38	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Energy Star TV	Mobile Home	9%	9%	0.00	128.05	116.16	14.56	7	0.9	0.12	0.10	0.00	0	99999.0	0
1	910	Base Large-screen TV	Mobile Home	0%	0%	0.00	140.00	140.00	17.54	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	911	Energy Star TV	Mobile Home	30%	30%	0.00	152.54	106.78	13.38	7	1.0	0.13	0.11	0.00	0	99999.0	0
1	920	Base Set-Top Box	Mobile Home	0%	0%	0.00	129.97	129.97	16.29	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	921	Energy Star Set-Top Box	Mobile Home	40%	40%	0.00	129.97	78.55	9.84	7	5.4	0.68	0.60	0.00	0	99999.0	0
1	930	Base DVD Player	Mobile Home	0%	0%	0.00	36.00	36.00	4.51	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	931	Energy Star DVD Player	Mobile Home	55%	55%	0.00	50.90	22.94	2.87	7	1.6	0.20	0.18	0.00	0	99999.0	0
1	940	Base VCR	Mobile Home	0%	0%	0.00	47.00	47.00	5.89	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	941	Energy Star VCR	Mobile Home	58%	58%	0.00	99.93	42.00	5.26	7	0.8	0.10	0.08	0.00	0	99999.0	0
1	950	Base Desktop PC	Mobile Home	0%	0%	0.00	237.00	237.00	29.70	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	951	Energy Star Desktop PC	Mobile Home	13%	13%	0.00	241.87	209.40	26.24	7	2.6	0.32	0.28	0.00	0	99999.0	0
1	960	Base Laptop PC	Mobile Home	0%	0%	0.00	72.00	72.00	9.02	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	961	Energy Star Laptop PC	Mobile Home	18%	18%	0.00	73.98	60.77	7.62	7	0.3	0.04	0.03	0.00	0	99999.0	0

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch Segment	E 1 Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	110	Base Fluorescent Fixture, T12, 34W, EB	Office	0%	0%	0.72	4.42	4.42	0.65	13	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	Office	31%	43%	0.86	4.49	3.08	0.38	20	66.3	13.16	8.39	0.10	500	1.2	7
1	112	Premium T8, EB, Reflector	Office	66%	89%	1.16	4.42	1.52	0.07	20	61.6	12.22	7.79	0.06	326	1.8	5
1	113	Occupancy Sensor	Office	30%	41%	0.78	4.54	3.18	0.39	11	35.2	6.99	4.46	0.11	548	1.1	6
1	114	Continuous Dimming	Office	50%	68%	4.97	4.42	2.21	0.21	14	62.5	12.40	7.91	0.39	1,947	0.3	26
1	115	Lighting Control Tuneup	Office	5%	7%	0.01	4.59	4.37	0.63	6	1.6	0.32	0.21	0.02	89	6.5	1
1	120	Base T8, EB	Office	0%	0%	0.00	2.54	2.54	0.37	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	Office	16%	21%	0.08	2.56	2.16	0.29	20	27.1	5.39	3.43	0.03	169	3.4	2
1	122	ROB Premium T8, EB, Reflector	Office	64%	87%	0.29	2.54	0.91	0.05	20	34.6	6.88	4.38	0.03	143	4.1	2
1	123	Occupancy Sensor	Office	30%	41%	0.54	2.61	1.83	0.23	11	20.3	4.02	2.56	0.13	657	0.9	8
1	124	Lighting Control Tuneup	Office	5%	7%	0.01	2.64	2.51	0.36	6	0.9	0.19	0.12	0.03	155	3.8	1
1	130	Base Incandescent Flood, 75W to Screw-in CFL	Office	0%	0%	0.24	14.66	14.66	2.14	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	Office	72%	98%	0.56	17.88	5.01	0.06	2	71.1	14.11	9.00	0.02	88	6.6	0
1	140	Base Incandescent Flood, 75W to Hardwired CFL	Office	0%	0%	0.24	14.66	14.66	2.14	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	Office	72%	98%	2.53	17.88	5.01	0.06	6	23.7	4.70	3.00	0.06	285	2.0	2
1	145	Base CFL	Office	0%	0%	0.00	3.88	3.88	0.57	2	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	Office	0%	0%	0.00	4.55	4.55	0.66	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	Office	37%	50%	0.07	4.63	2.93	0.34	13	10.9	2.15	1.37	0.01	36	16.2	0
1	152	PSMH, 250 W, electronic ballast	Office	43%	59%	0.34	4.57	2.60	0.28	13	13.1	2.59	1.65	0.03	159	3.7	2
1	153	High Bay T5	Office	49%	66%	0.15	4.66	2.40	0.23	13	14.5	2.87	1.83	0.01	61	9.5	1
1	160	Base Exit Sign	Office	0%	0%	0.00	0.08	0.08	0.01	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	Office	81%	81%	0.02	0.11	0.02	0.00	16	9.3	1.36	1.57	0.03	209	3.8	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	Office	0%	0%	0.00	0.31	0.31	0.03	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	Office	35%	35%	0.10	0.31	0.20	0.02	5	16.2	1.71	0.53	0.28	2,665	0.4	10
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	Office	22%	22%	0.02	0.39	0.30	0.03	5	1.3	0.13	0.04	0.06	611	1.8	2
1	210	Base Outdoor HID Lamp	Office	0%	0%	0.00	0.34	0.34	0.04	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	Office	22%	22%	0.05	0.43	0.33	0.04	5	1.4	0.15	0.00	0.16	1,548	0.7	6
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Office	0%	0%	0.53	4.00	4.00	0.90	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Office	12%	18%	0.13	4.07	3.58	0.75	20	18.2	6.16	0.02	0.04	127	2.7	3
1	302	High Efficiency Chiller Motors	Office	3%	3%	0.05	4.01	3.88	0.88	20	5.0	1.18	0.00	0.06	249	1.9	4
1	304	EMS - Chiller	Office	10%	10%	0.14	4.40	3.96	0.90	10	1.5	0.33	0.02	0.07	301	1.7	4
1	305	Chiller Tune Up/Diagnostics	Office	8%	12%	0.10	4.16	3.83	0.83	10	5.5	1.82	0.04	0.06	187	1.8	3
1	306	VSD for Chiller Pumps and Towers	Office	10%	10%	0.10	4.15	3.74	0.84	15	8.4	1.90	0.03	0.04	181	2.8	3
1	307	EMS Optimization	Office	5%	1%	0.03	4.10	3.89	0.91	5	3.4	0.19	0.01	0.05	835	2.4	2
1	308	Aerosole Duct Sealing	Office	10%	10%	0.05	4.14	3.73	0.84	15	8.8	1.99	0.03	0.02	85	6.0	1
1	309	Duct/Pipe Insulation	Office	2%	2%	0.77	4.03	3.95	0.89	10	1.6	0.36	0.01	1.98	8,782	0.1	109
1	311	Window Film (Standard)	Office	5%	6%	0.13	4.19	3.96	0.89	10	1.0	0.25	-0.02	0.12	491	1.0	7
1	313	Ceiling Insulation	Office	12%	37%	0.38	4.20	3.69	0.59	20	6.7	4.65	0.38	0.12	173	1.0	9
1	314	Roof Insulation	Office	5%	12%	0.15	4.07	3.88	0.81	20	2.4	1.44	0.04	0.13	219	0.9	9
1	315	Cool Roof - Chiller	Office	24%	53%	1.36	4.56	3.46	0.49	15	11.6	5.73	0.00	0.21	423	0.6	14
1	317	Thermal Energy Storage (TES)	Office	-7%	116%	1.39	3.94	4.20	-0.15	50	-2.3	9.05	0.02	-0.80	202	-0.1	-61
1	320	Base DX Packaged System, EER=10.3, 10 tons	Office	0%	0%	1.62	6.93	6.93	1.56	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	Office	6%	4%	0.32	6.96	6.58	1.51	15	11.5	1.90	0.00	0.14	846	0.8	9
1	322	Hybrid Dessicant-DX System (Trane CDQ)	Office	40%	29%	1.19	6.93	4.16	1.11	15	92.6	15.26	0.00	0.07	438	1.6	5
1	323	Geothermal Heat Pump, EER=13, 10 tons	Office	21%	15%	2.85	6.94	5.50	1.33	15	47.7	7.86	0.25	0.33	2,020	0.3	23
1	326	DX Tune Up/ Advanced Diagnostics	Office	5%	7%	0.13	7.17	6.81	1.50	10	5.9	1.98	0.00	0.07	217	1.6	4
1	327	DX Coil Cleaning	Office	5%	7%	0.02	7.10	6.75	1.49	5	8.6	2.88	0.00	0.02	67	5.2	1
1	328	Optimize Controls	Office	5%	1%	0.04	7.17	6.81	1.60	5	5.9	0.33	0.02	0.04	636	3.2	1
1	329	Aerosole Duct Sealing	Office	10%	10%	0.05	7.18	6.46	1.46	15	23.4	5.29	0.00	0.01	49	10.4	1
1	330	Duct/Pipe Insulation	Office	2%	2%	0.77	6.98	6.84	1.55	10	4.2	0.95	0.00	1.14	5,067	0.1	63
1	332	Window Film (Standard)	Office	5%	5%	0.14	7.25	6.87	1.55	10	2.6	0.60	-0.24	0.08	320	1.5	4
1	334	Ceiling Insulation	Office	12%	35%	0.38	7.28	6.40	1.07	20	17.7	11.62	3.71	0.07	106	1.7	5
1	335	Roof Insulation	Office	5%	12%	0.15	7.05	6.73	1.40	20	6.5	3.94	1.38	0.07	123	1.5	5
1	336	Cool Roof - DX	Office	24%	43%	1.36	7.91	6.00	1.02	15	30.9	12.45	0.00	0.12	299	1.0	8
1	340	Base Packaged HP System, EER=10.3, 10 tons	Office	0%	0%	1.62	6.93	6.93	1.56	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	Office	6%	8%	0.06	6.96	6.58	1.45	15	5.0	1.61	0.00	0.03	89	4.0	2
1	342	Geothermal Heat Pump, EER=13, 10 tons	Office	21%	37%	2.85	6.94	5.50	0.99	25	10.4	4.19	0.00	0.31	757	0.4	23
1	344	Aerosole Duct Sealing	Office	10%	10%	0.05	7.18	6.46	1.46	15	5.1	1.15	0.02	0.01	49	10.4	1
1	345	Duct/Pipe Insulation	Office	2%	2%	0.77	6.98	6.84	1.55	10	0.9	0.21	0.00	1.14	5,067	0.1	63
1	347	Window Film (Standard)	Office	5%	5%	0.13	7.25	6.87	1.55	10	0.6	0.13	0.00	0.07	305	1.6	4
1	349	Ceiling Insulation	Office	12%	35%	0.38	7.28	6.40	1.07	20	3.8	2.53	0.05	0.07	106	1.7	5
1	350	Roof Insulation	Office	5%	12%	0.15	7.05	6.73	1.40	20	1.4	0.86	0.02	0.07	123	1.5	5

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch	E 1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	351	Cool Roof - DX	Office	24%	43%	1.36	7.91	6.00	1.02	15	6.7	2.71	0.00	0.12	299	1.0	8
1	360	Base PTAC, EER=8.3, 1 ton	Office	0%	0%	0.00	7.99	7.99	1.81	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	Office	14%	10%	0.37	7.99	6.91	1.63	15	12.0	1.98	0.00	0.06	345	2.0	4
1	362	Occupancy Sensor (hotels)	Office	15%	4%	0.67	8.11	6.90	1.76	15	12.2	0.69	0.05	0.09	1,650	1.2	6
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	Office	0%	0%	0.03	1.62	1.62	0.22	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	Office	2%	2%	0.01	1.62	1.60	0.22	15	4.1	0.57	0.52	0.06	421	2.0	4
1	402	Variable Speed Drive Control	Office	30%	8%	0.18	1.98	1.39	0.25	15	27.5	0.95	0.88	0.05	1,460	2.3	3
1	403	Air Handler Optimization	Office	10%	3%	0.03	1.66	1.50	0.22	8	15.6	0.54	0.50	0.04	1,210	2.7	2
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	Office	14%	14%	0.07	1.62	1.39	0.19	15	39.1	5.27	0.00	0.05	369	2.3	3
1	405	Demand Control Ventilation (DCV)	Office	15%	60%	2.36	1.68	1.43	0.09	15	23.7	13.07	28.23	1.57	2,853	0.1	106
1	406	Energy Recovery Ventilation (ERV)	Office	7%	38%	0.31	1.65	1.53	0.14	20	10.8	8.13	9.22	0.43	580	0.3	31
1	407	Separate Makeup Air / Exhaust Hoods AC	Office	25%	25%	0.00	1.62	1.22	0.17	15	0.0	0.00	0.00	N/A	N/A	99999.0	N/A
1	500	Base Refrigeration System	Office	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	Office	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	Office	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	Office	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	Office	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	Office	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	Office	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	Office	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	508	Refrigeration Commissioning	Office	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	Office	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	Office	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	Office	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	Office	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	514	Multiplex Compressor System	Office	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	Office	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	Office	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	Office	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	Office	0%	0%	0.00	0.29	0.29	0.04	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	Office	2%	2%	0.00	0.29	0.28	0.04	15	0.6	0.09	0.07	0.08	533	1.4	6
1	603	Heat Pump Water Heater (air source)	Office	68%	68%	0.06	0.30	0.09	0.01	15	19.8	3.06	2.32	0.05	348	2.1	4
1	604	Solar Water Heater	Office	70%	70%	0.15	0.29	0.09	0.01	20	10.3	1.59	1.21	0.12	766	1.0	8
1	606	Demand controlled circulating systems	Office	5%	5%	0.03	0.29	0.28	0.04	15	0.7	0.11	0.09	0.38	2,458	0.3	26
1	608	Heat Recovery Unit	Office	65%	65%	0.08	0.34	0.12	0.02	10	12.9	1.99	1.51	0.08	493	1.5	4
1	609	Heat Trap	Office	9%	9%	0.00	0.29	0.27	0.04	10	1.5	0.24	0.18	0.00	9	83.3	0
1	610	Hot Water Pipe Insulation	Office	2%	2%	0.00	0.29	0.28	0.04	15	0.3	0.05	0.04	0.14	883	0.8	9
1	700	Base Desktop PC	Office	0%	0%	0.00	0.50	0.50	0.06	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	Office	68%	45%	0.01	0.60	0.19	0.04	4	38.3	3.23	6.24	0.01	149	9.2	0
1	702	PC Network Power Management Enabling	Office	68%	45%	0.01	0.60	0.19	0.04	4	38.3	3.23	6.24	0.01	74	18.4	0
1	710	Base Monitor, CRT	Office	0%	0%	0.00	0.49	0.49	0.06	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	Office	56%	56%	0.00	1.05	0.46	0.06	4	4.9	0.63	0.80	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	Office	53%	35%	0.01	0.72	0.33	0.06	4	19.2	1.61	3.12	0.01	151	9.1	0
1	720	Base Monitor, LCD	Office	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	Office	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	Office	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.01	0.40	4,785	0.3	12
1	730	Base Copier	Office	0%	0%	0.00	0.27	0.27	0.03	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	Office	21%	21%	0.00	0.33	0.26	0.03	6	1.1	0.14	0.18	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	Office	19%	13%	0.01	0.28	0.23	0.03	6	4.6	0.38	0.74	0.06	686	2.0	2
1	740	Base Laser Printer	Office	0%	0%	0.00	0.48	0.48	0.06	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	Office	49%	32%	0.03	0.66	0.33	0.06	5	18.6	1.57	3.03	0.03	381	3.6	1
1	800	Base Commercial Ovens	Office	0%	0%	0.00	0.02	0.02	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	Office	23%	23%	14.51	0.02	0.02	0.00	10	0.7	0.10	0.03	577.15	3,830,152	0.0	31,651
1	810	Base Commercial Fryers	Office	0%	0%	0.00	0.01	0.01	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	Office	15%	15%	3.71	0.01	0.01	0.00	10	0.1	0.02	0.01	724.37	4,807,160	0.0	39,725
1	900	Base Vending Machines	Office	0%	0%	0.00	0.33	0.33	0.04	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	Office	40%	26%	0.02	0.34	0.20	0.03	10	14.9	1.17	1.11	0.03	344	4.2	1
1	110	Base Fluorescent Fixture, T12, 34W, EB	Restaurant/Services	0%	0%	0.66	4.96	4.96	0.73	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	Restaurant/Services	31%	43%	0.79	5.04	3.45	0.42	16	9.9	1.97	0.87	0.08	401	1.4	6
1	112	Premium T8, EB, Reflector	Restaurant/Services	66%	89%	1.06	4.96	1.70	0.08	16	6.1	1.22	0.54	0.05	263	2.2	4
1	113	Occupancy Sensor	Restaurant/Services	20%	27%	0.71	5.04	4.03	0.54	9	0.9	0.17	0.08	0.15	757	0.8	8
1	114	Continuous Dimming	Restaurant/Services	50%	68%	4.55	4.96	2.48	0.23	11	11.7	2.32	1.02	0.34	1,720	0.3	20

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	115	Lighting Control Tuneup	Restaurant/Services	5%	7%	0.01	5.15	4.89	0.70	6	0.1	0.01	0.01	0.02	79	7.3	1
1	120	Base T8, EB	Restaurant/Services	0%	0%	0.00	2.85	2.85	0.42	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	Restaurant/Services	16%	21%	0.08	2.87	2.42	0.33	16	6.1	1.21	0.53	0.03	139	4.1	2
1	122	ROB Premium T8, EB, Reflector	Restaurant/Services	64%	87%	0.26	2.85	1.02	0.05	16	5.2	1.03	0.45	0.02	118	4.9	2
1	123	Occupancy Sensor	Restaurant/Services	20%	27%	0.49	2.90	2.32	0.31	9	0.7	0.15	0.07	0.18	909	0.6	9
1	124	Lighting Control Tuneup	Restaurant/Services	5%	7%	0.01	2.96	2.81	0.40	6	0.1	0.01	0.00	0.03	137	4.2	1
1	130	Base Incandescent Flood, 75W to Screw-in CFL	Restaurant/Services	0%	0%	0.22	16.43	16.43	2.41	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	Restaurant/Services	72%	98%	0.51	20.04	5.61	0.06	2	66.6	13.26	5.82	0.02	88	6.6	0
1	140	Base Incandescent Flood, 75W to Hardwired CFL	Restaurant/Services	0%	0%	0.22	16.43	16.43	2.41	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	Restaurant/Services	72%	98%	2.31	20.04	5.61	0.06	5	22.2	4.42	1.94	0.05	269	2.1	2
1	145	Base CFL	Restaurant/Services	0%	0%	0.00	4.35	4.35	0.64	2	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	Restaurant/Services	0%	0%	0.00	5.10	5.10	0.75	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	Restaurant/Services	37%	50%	0.06	5.19	3.29	0.38	10	0.0	0.01	0.00	0.01	32	18.1	0
1	152	PSMH, 250 W, electronic ballast	Restaurant/Services	43%	59%	0.31	5.12	2.92	0.31	10	0.0	0.01	0.00	0.03	142	4.1	2
1	153	High Bay T5	Restaurant/Services	49%	66%	0.14	5.22	2.69	0.26	10	0.0	0.01	0.00	0.01	55	10.5	1
1	160	Base Exit Sign	Restaurant/Services	0%	0%	0.00	0.25	0.25	0.04	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	Restaurant/Services	81%	81%	0.04	0.31	0.06	0.01	16	8.8	1.29	1.02	0.03	201	3.9	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	Restaurant/Services	0%	0%	0.00	1.41	1.41	0.12	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	Restaurant/Services	35%	35%	0.97	1.41	0.91	0.08	5	19.0	1.63	0.64	0.58	6,755	0.2	20
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	Restaurant/Services	22%	22%	0.18	1.75	1.36	0.12	5	1.5	0.13	0.05	0.13	1,550	0.9	5
1	210	Base Outdoor HID Lamp	Restaurant/Services	0%	0%	0.00	1.99	1.99	0.17	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	Restaurant/Services	22%	22%	0.78	2.48	1.93	0.16	5	2.1	0.18	0.00	0.42	4,860	0.3	15
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Restaurant/Services	0%	0%	0.81	10.86	10.86	2.16	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Restaurant/Services	12%	18%	0.20	11.06	9.73	1.80	20	0.9	0.25	0.00	0.02	82	4.7	2
1	302	High Efficiency Chiller Motors	Restaurant/Services	3%	3%	0.07	10.90	10.55	2.10	20	0.2	0.05	0.00	0.03	160	3.4	2
1	304	EMS - Chiller	Restaurant/Services	10%	10%	0.22	11.97	10.77	2.14	10	0.1	0.01	0.00	0.04	194	3.0	2
1	305	Chiller Tune Up/Diagnostics	Restaurant/Services	8%	12%	0.10	11.32	10.41	1.98	10	0.3	0.07	0.00	0.02	78	5.0	1
1	306	VSD for Chiller Pumps and Towers	Restaurant/Services	10%	10%	0.16	11.30	10.17	2.02	15	0.4	0.08	0.00	0.02	117	5.0	2
1	307	EMS Optimization	Restaurant/Services	5%	1%	0.03	11.14	10.59	2.19	5	0.2	0.01	0.00	0.02	349	6.6	1
1	308	Aerosole Duct Sealing	Restaurant/Services	10%	10%	0.07	11.26	10.13	2.01	15	0.4	0.08	0.00	0.01	55	10.6	1
1	309	Duct/Pipe Insulation	Restaurant/Services	2%	2%	0.77	10.95	10.73	2.13	10	0.1	0.01	0.00	0.73	3,671	0.2	40
1	311	Window Film (Standard)	Restaurant/Services	5%	6%	0.13	10.88	10.29	2.04	10	0.3	0.07	0.00	0.05	215	2.5	3
1	313	Ceiling Insulation	Restaurant/Services	12%	37%	0.38	11.42	10.03	1.42	20	0.3	0.19	0.01	0.04	72	2.6	3
1	314	Roof Insulation	Restaurant/Services	5%	12%	0.15	11.07	10.56	1.94	20	0.1	0.06	0.00	0.05	91	2.4	3
1	315	Cool Roof - Chiller	Restaurant/Services	24%	53%	1.36	12.34	9.36	1.16	15	0.6	0.24	0.00	0.08	178	1.5	5
1	317	Thermal Energy Storage (TES)	Restaurant/Services	-7%	116%	1.39	10.72	11.43	-0.35	50	-0.1	0.37	0.00	-0.30	84	-0.4	-22
1	320	Base DX Packaged System, EER=10.3, 10 tons	Restaurant/Services	0%	0%	2.49	18.83	18.83	3.74	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	Restaurant/Services	6%	4%	0.49	18.94	17.89	3.61	15	11.2	1.62	0.00	0.08	545	1.5	5
1	322	Hybrid Dessicant-DX System (Trane CDQ)	Restaurant/Services	40%	29%	1.83	18.83	11.30	2.65	15	89.6	12.99	0.00	0.04	282	2.8	3
1	323	Geothermal Heat Pump, EER=13, 10 tons	Restaurant/Services	21%	15%	4.39	18.87	14.95	3.18	15	46.2	6.69	0.15	0.19	1,301	0.6	13
1	326	DX Tune Up/ Advanced Diagnostics	Restaurant/Services	5%	7%	0.13	19.48	18.51	3.59	10	5.7	1.69	0.00	0.03	91	4.3	1
1	327	DX Coil Cleaning	Restaurant/Services	5%	7%	0.04	19.30	18.36	3.56	5	8.3	2.45	0.00	0.01	43	9.1	0
1	328	Optimize Controls	Restaurant/Services	5%	1%	0.04	19.48	18.51	3.83	5	5.7	0.29	0.01	0.01	266	8.7	0
1	329	Aerosole Duct Sealing	Restaurant/Services	10%	10%	0.07	19.51	17.56	3.49	15	22.6	4.50	0.00	0.01	32	18.3	0
1	330	Duct/Pipe Insulation	Restaurant/Services	2%	2%	0.77	18.98	18.60	3.70	10	4.1	0.81	0.00	0.42	2,118	0.3	23
1	332	Window Film (Standard)	Restaurant/Services	5%	5%	0.14	18.86	17.88	3.55	10	17.0	3.52	-1.00	0.03	140	4.0	2
1	334	Ceiling Insulation	Restaurant/Services	12%	35%	0.38	19.79	17.39	2.55	20	17.1	9.89	2.22	0.03	44	4.5	2
1	335	Roof Insulation	Restaurant/Services	5%	12%	0.15	19.18	18.30	3.34	20	6.3	3.35	0.82	0.03	51	4.2	2
1	336	Cool Roof - DX	Restaurant/Services	24%	43%	1.36	21.39	16.23	2.42	15	30.9	10.97	0.00	0.04	126	2.6	3
1	340	Base Packaged HP System, EER=10.3, 10 tons	Restaurant/Services	0%	0%	2.49	18.83	18.83	3.74	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	Restaurant/Services	6%	8%	0.10	18.94	17.89	3.47	15	1.5	0.44	0.00	0.02	57	7.1	1
1	342	Geothermal Heat Pump, EER=13, 10 tons	Restaurant/Services	21%	37%	4.39	18.87	14.95	2.36	25	3.2	1.13	0.00	0.17	488	0.6	13
1	344	Aerosole Duct Sealing	Restaurant/Services	10%	10%	0.07	19.51	17.56	3.49	15	1.6	0.31	0.00	0.01	32	18.3	0
1	345	Duct/Pipe Insulation	Restaurant/Services	2%	2%	0.77	18.98	18.60	3.70	10	0.3	0.06	0.00	0.42	2,118	0.3	23
1	347	Window Film (Standard)	Restaurant/Services	5%	5%	0.13	18.86	17.88	3.55	10	1.2	0.24	0.00	0.03	133	4.2	2
1	349	Ceiling Insulation	Restaurant/Services	12%	35%	0.38	19.79	17.39	2.55	20	1.2	0.68	0.01	0.03	44	4.5	2
1	350	Roof Insulation	Restaurant/Services	5%	12%	0.15	19.18	18.30	3.34	20	0.4	0.23	0.00	0.03	51	4.2	2
1	351	Cool Roof - DX	Restaurant/Services	24%	43%	1.36	21.39	16.23	2.42	15	2.1	0.76	0.00	0.04	126	2.6	3
1	360	Base PTAC, EER=8.3, 1 ton	Restaurant/Services	0%	0%	0.00	21.73	21.73	4.32	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	Restaurant/Services	14%	10%	0.56	21.73	18.79	3.89	15	12.2	1.77	0.00	0.03	223	3.6	2
1	362	Occupancy Sensor (hotels)	Restaurant/Services	15%	4%	1.04	22.06	18.75	4.22	15	12.3	0.61	0.03	0.05	1,063	2.2	4
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	Restaurant/Services	0%	0%	0.07	2.93	2.93	0.39	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch	E 1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	Restaurant/Services	2%	2%	0.02	2.93	2.89	0.38	15	2.0	0.27	0.15	0.07	525	1.7	5
1	402	Variable Speed Drive Control	Restaurant/Services	30%	8%	0.38	2.98	2.08	0.36	15	0.0	0.00	0.00	0.07	2,194	1.6	5
1	403	Air Handler Optimization	Restaurant/Services	10%	3%	0.03	3.01	2.71	0.39	8	7.7	0.25	0.15	0.02	703	5.0	1
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	Restaurant/Services	14%	14%	0.11	2.93	2.51	0.33	15	19.3	2.47	0.00	0.04	330	2.7	3
1	405	Demand Control Ventilation (DCV)	Restaurant/Services	15%	60%	2.36	3.05	2.59	0.16	15	11.7	6.13	8.39	0.87	1,657	0.1	59
1	406	Energy Recovery Ventilation (ERV)	Restaurant/Services	7%	38%	0.48	2.98	2.77	0.24	20	5.3	3.82	2.74	0.37	519	0.3	26
1	407	Separate Makeup Air / Exhaust Hoods AC	Restaurant/Services	25%	25%	0.00	2.93	2.20	0.29	15	33.3	4.40	0.64	0.00	9	100.4	0
1	500	Base Refrigeration System	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	508	Refrigeration Commissioning	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	514	Multiplex Compressor System	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	Restaurant/Services	0%	0%	0.00	2.44	2.44	0.39	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	Restaurant/Services	2%	2%	0.01	2.44	2.39	0.39	15	0.9	0.14	0.05	0.05	319	2.2	3
1	603	Heat Pump Water Heater (air source)	Restaurant/Services	68%	68%	0.34	2.53	0.80	0.13	15	30.9	5.00	1.79	0.03	208	3.4	2
1	604	Solar Water Heater	Restaurant/Services	70%	70%	0.80	2.46	0.74	0.12	20	16.1	2.60	0.93	0.07	459	1.6	5
1	606	Demand controlled circulating systems	Restaurant/Services	5%	5%	0.19	2.48	2.36	0.38	15	1.2	0.19	0.07	0.26	1,585	0.4	17
1	608	Heat Recovery Unit	Restaurant/Services	65%	65%	0.08	2.91	1.02	0.16	10	20.1	3.25	1.16	0.01	56	12.8	0
1	609	Heat Trap	Restaurant/Services	9%	9%	0.00	2.50	2.27	0.37	10	2.4	0.39	0.14	0.00	5	133.4	0
1	610	Hot Water Pipe Insulation	Restaurant/Services	2%	2%	0.02	2.45	2.40	0.39	15	0.5	0.08	0.03	0.09	529	1.3	6
1	700	Base Desktop PC	Restaurant/Services	0%	0%	0.00	0.06	0.06	0.01	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	Restaurant/Services	68%	45%	0.00	0.07	0.02	0.01	4	1.2	0.11	0.11	0.01	138	9.2	0
1	702	PC Network Power Management Enabling	Restaurant/Services	68%	45%	0.00	0.07	0.02	0.01	4	1.2	0.11	0.11	0.01	69	18.4	0
1	710	Base Monitor, CRT	Restaurant/Services	0%	0%	0.00	0.05	0.05	0.01	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	Restaurant/Services	56%	56%	0.00	0.12	0.05	0.01	4	0.2	0.02	0.01	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	Restaurant/Services	53%	35%	0.00	0.08	0.04	0.01	4	0.6	0.05	0.05	0.01	139	9.1	0
1	720	Base Monitor, LCD	Restaurant/Services	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	Restaurant/Services	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	Restaurant/Services	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	4,427	0.3	12
1	730	Base Copier	Restaurant/Services	0%	0%	0.00	0.06	0.06	0.01	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	Restaurant/Services	21%	21%	0.00	0.08	0.06	0.01	6	0.1	0.01	0.01	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	Restaurant/Services	19%	13%	0.00	0.07	0.05	0.01	6	0.3	0.03	0.03	0.06	635	2.0	2
1	740	Base Laser Printer	Restaurant/Services	0%	0%	0.00	0.08	0.08	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	Restaurant/Services	49%	32%	0.01	0.11	0.05	0.01	5	0.8	0.08	0.08	0.03	353	3.6	1
1	800	Base Commercial Ovens	Restaurant/Services	0%	0%	0.00	1.43	1.43	0.21	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	Restaurant/Services	23%	23%	133.51	1.44	1.11	0.17	10	8.0	1.19	0.17	83.54	560,008	0.0	4,581
1	810	Base Commercial Fryers	Restaurant/Services	0%	0%	0.00	3.90	3.90	0.58	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	Restaurant/Services	15%	15%	217.66	3.93	3.34	0.50	10	14.1	2.10	0.30	76.76	514,544	0.0	4,209
1	900	Base Vending Machines	Restaurant/Services	0%	0%	0.00	0.44	0.44	0.05	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	Restaurant/Services	40%	26%	0.02	0.44	0.26	0.04	10	5.6	0.43	0.52	0.03	358	4.2	2
1	110	Base Fluorescent Fixture, T12, 34W, EB	Retail	0%	0%	0.79	5.23	5.23	0.86	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	Retail	31%	43%	0.94	5.32	3.65	0.50	18	26.3	5.91	2.11	0.09	399	1.3	6
1	112	Premium T8, EB, Reflector	Retail	66%	89%	1.26	5.23	1.79	0.09	18	16.3	3.66	1.31	0.06	260	2.0	4
1	113	Occupancy Sensor	Retail	20%	27%	0.85	5.32	4.26	0.64	10	2.3	0.52	0.19	0.16	711	0.7	9
1	114	Continuous Dimming	Retail	50%	68%	5.42	5.23	2.62	0.28	13	7.4	1.67	0.60	0.37	1,647	0.3	24
1	115	Lighting Control Tuneup	Retail	5%	7%	0.01	5.43	5.16	0.84	6	0.6	0.14	0.05	0.01	66	7.7	1
1	120	Base T8, EB	Retail	0%	0%	0.00	3.01	3.01	0.50	18	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	Retail	16%	21%	0.09	3.03	2.55	0.39	18	10.8	2.42	0.86	0.03	136	3.8	2
1	122	ROB Premium T8, EB, Reflector	Retail	64%	87%	0.31	3.01	1.07	0.06	18	9.2	2.06	0.74	0.03	115	4.4	2
1	123	Occupancy Sensor	Retail	20%	27%	0.58	3.06	2.45	0.37	10	1.3	0.30	0.11	0.19	853	0.6	11

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch Segment	E 1 Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	124	Lighting Control Tuneup	Retail	5%	7%	0.01	3.13	2.97	0.48	6	0.4	0.08	0.03	0.03	116	4.4	1
1	130	Base Incandescent Flood, 75W to Screw-in CFL	Retail	0%	0%	0.26	17.34	17.34	2.86	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	Retail	72%	98%	0.61	21.15	5.92	0.07	2	58.5	13.14	4.70	0.02	78	6.6	0
1	140	Base Incandescent Flood, 75W to Hardwired CFL	Retail	0%	0%	0.26	17.34	17.34	2.86	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	Retail	72%	98%	2.76	21.15	5.92	0.07	5	19.5	4.38	1.57	0.05	238	2.2	2
1	145	Base CFL	Retail	0%	0%	0.00	4.59	4.59	0.76	2	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	Retail	0%	0%	0.00	5.38	5.38	0.89	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	Retail	37%	50%	0.07	5.48	3.47	0.45	12	12.1	2.73	0.98	0.01	30	16.9	0
1	152	PSMH, 250 W, electronic ballast	Retail	43%	59%	0.37	5.40	3.08	0.37	12	14.6	3.29	1.17	0.03	135	3.8	2
1	153	High Bay T5	Retail	49%	66%	0.16	5.51	2.84	0.31	12	16.2	3.63	1.30	0.01	52	9.9	1
1	160	Base Exit Sign	Retail	0%	0%	0.00	0.08	0.08	0.01	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	Retail	81%	81%	0.01	0.10	0.02	0.00	16	4.2	0.70	0.45	0.03	160	4.4	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	Retail	0%	0%	0.00	0.31	0.31	0.03	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	Retail	35%	35%	0.07	0.31	0.20	0.02	5	6.7	0.59	0.17	0.20	2,228	0.6	7
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	Retail	22%	22%	0.01	0.38	0.30	0.03	5	0.5	0.05	0.01	0.05	511	2.6	2
1	210	Base Outdoor HID Lamp	Retail	0%	0%	0.00	1.32	1.32	0.12	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	Retail	22%	22%	0.17	1.64	1.28	0.11	5	2.2	0.20	0.00	0.13	1,523	0.9	5
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Retail	0%	0%	0.35	4.11	4.11	0.99	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Retail	12%	18%	0.09	4.19	3.68	0.83	20	4.4	1.59	0.00	0.03	76	4.2	2
1	302	High Efficiency Chiller Motors	Retail	3%	3%	0.03	4.13	4.00	0.96	20	1.2	0.30	0.00	0.04	149	3.1	3
1	304	EMS - Chiller	Retail	10%	10%	0.09	4.53	4.08	0.98	10	0.4	0.08	0.00	0.04	181	2.7	2
1	305	Chiller Tune Up/Diagnostics	Retail	8%	12%	0.10	4.28	3.94	0.91	10	1.3	0.47	0.01	0.06	171	1.9	3
1	306	VSD for Chiller Pumps and Towers	Retail	10%	10%	0.07	4.28	3.85	0.93	15	2.0	0.49	0.01	0.03	109	4.4	2
1	307	EMS Optimization	Retail	5%	1%	0.03	4.22	4.01	1.00	5	0.8	0.05	0.00	0.05	762	2.5	2
1	308	Aerosole Duct Sealing	Retail	10%	10%	0.03	4.26	3.84	0.92	15	2.1	0.51	0.01	0.01	51	9.4	1
1	309	Duct/Pipe Insulation	Retail	2%	2%	0.77	4.15	4.06	0.98	10	0.4	0.09	0.00	1.93	8,020	0.1	106
1	311	Window Film (Standard)	Retail	5%	6%	0.13	4.13	3.90	0.93	10	1.1	0.28	-0.02	0.12	469	1.0	7
1	313	Ceiling Insulation	Retail	12%	37%	0.38	4.32	3.80	0.65	20	1.6	1.20	0.07	0.12	158	1.0	8
1	314	Roof Insulation	Retail	5%	12%	0.15	4.19	4.00	0.89	20	0.6	0.37	0.01	0.13	200	0.9	9
1	315	Cool Roof - Chiller	Retail	24%	53%	1.36	4.52	3.43	0.52	15	3.5	1.84	0.00	0.21	402	0.5	14
1	317	Thermal Energy Storage (TES)	Retail	-7%	116%	0.59	4.06	4.33	-0.16	50	-0.6	2.33	0.00	-0.33	78	-0.3	-25
1	320	Base DX Packaged System, EER=10.3, 10 tons	Retail	0%	0%	1.06	7.13	7.13	1.71	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	Retail	6%	4%	0.21	7.17	6.77	1.65	15	7.2	1.25	0.00	0.09	507	1.3	6
1	322	Hybrid Dessicant-DX System (Trane CDQ)	Retail	40%	29%	0.78	7.13	4.28	1.21	15	57.4	10.07	0.00	0.05	262	2.5	3
1	323	Geothermal Heat Pump, EER=13, 10 tons	Retail	21%	15%	1.87	7.14	5.66	1.46	15	29.6	5.19	0.12	0.21	1,211	0.5	14
1	326	DX Tune Up/ Advanced Diagnostics	Retail	5%	7%	0.13	7.38	7.01	1.64	10	3.7	1.31	0.00	0.07	198	1.6	4
1	327	DX Coil Cleaning	Retail	5%	7%	0.02	7.31	6.95	1.63	5	5.3	1.90	0.00	0.01	40	8.1	1
1	328	Optimize Controls	Retail	5%	1%	0.04	7.38	7.01	1.75	5	3.7	0.22	0.01	0.03	581	3.3	1
1	329	Aerosole Duct Sealing	Retail	10%	10%	0.03	7.39	6.65	1.60	15	14.5	3.49	0.00	0.01	29	16.3	0
1	330	Duct/Pipe Insulation	Retail	2%	2%	0.77	7.19	7.04	1.69	10	2.6	0.63	0.00	1.11	4,627	0.1	61
1	332	Window Film (Standard)	Retail	5%	5%	0.14	7.15	6.78	1.63	10	7.1	1.77	-0.53	0.08	305	1.5	4
1	334	Ceiling Insulation	Retail	12%	35%	0.38	7.49	6.58	1.17	20	11.0	7.66	1.83	0.07	97	1.7	5
1	335	Roof Insulation	Retail	5%	12%	0.15	7.26	6.93	1.53	20	4.0	2.60	0.68	0.07	112	1.6	5
1	336	Cool Roof - DX	Retail	24%	43%	1.36	7.83	5.94	1.07	15	23.8	10.22	0.00	0.12	283	0.9	8
1	340	Base Packaged HP System, EER=10.3, 10 tons	Retail	0%	0%	1.06	7.13	7.13	1.71	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	Retail	6%	8%	0.04	7.17	6.77	1.59	15	0.4	0.14	0.00	0.02	53	6.3	1
1	342	Geothermal Heat Pump, EER=13, 10 tons	Retail	21%	37%	1.87	7.14	5.66	1.08	25	0.8	0.36	0.00	0.19	454	0.6	14
1	344	Aerosole Duct Sealing	Retail	10%	10%	0.03	7.39	6.65	1.60	15	0.3	0.07	0.00	0.01	29	16.3	0
1	345	Duct/Pipe Insulation	Retail	2%	2%	0.77	7.19	7.04	1.69	10	0.0	0.01	0.00	1.11	4,627	0.1	61
1	347	Window Film (Standard)	Retail	5%	5%	0.13	7.15	6.78	1.63	10	0.2	0.05	0.00	0.07	291	1.6	4
1	349	Ceiling Insulation	Retail	12%	35%	0.38	7.49	6.58	1.17	20	0.3	0.22	0.00	0.07	97	1.7	5
1	350	Roof Insulation	Retail	5%	12%	0.15	7.26	6.93	1.53	20	0.1	0.07	0.00	0.07	112	1.6	5
1	351	Cool Roof - DX	Retail	24%	43%	1.36	7.83	5.94	1.07	15	0.7	0.29	0.00	0.12	283	0.9	8
1	360	Base PTAC, EER=8.3, 1 ton	Retail	0%	0%	0.00	8.23	8.23	1.98	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	Retail	14%	10%	0.24	8.23	7.11	1.78	15	7.5	1.32	0.00	0.04	207	3.2	2
1	362	Occupancy Sensor (hotels)	Retail	15%	4%	0.44	8.35	7.10	1.93	15	7.6	0.46	0.02	0.06	989	1.9	4
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	Retail	0%	0%	0.03	1.41	1.41	0.20	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	Retail	2%	2%	0.01	1.41	1.39	0.19	15	1.5	0.21	0.17	0.07	478	1.7	4
1	402	Variable Speed Drive Control	Retail	30%	8%	0.18	1.53	1.07	0.20	15	4.6	0.16	0.13	0.06	1,874	1.8	4
1	403	Air Handler Optimization	Retail	10%	3%	0.03	1.45	1.30	0.20	8	5.9	0.20	0.16	0.05	1,394	2.4	2
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	Retail	14%	14%	0.05	1.41	1.21	0.17	15	14.7	1.97	0.00	0.04	279	3.1	3
1	405	Demand Control Ventilation (DCV)	Retail	15%	60%	2.36	1.47	1.25	0.08	15	8.9	4.90	9.27	1.81	3,286	0.1	122

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	406	Energy Recovery Ventilation (ERV)	Retail	7%	38%	0.21	1.44	1.34	0.12	20	4.1	3.05	3.03	0.33	438	0.4	23
1	407	Separate Makeup Air / Exhaust Hoods AC	Retail	25%	25%	0.00	1.41	1.06	0.15	15	0.0	0.00	0.00	N/A	N/A	99999.0	N/A
1	500	Base Refrigeration System	Retail	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	Retail	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	Retail	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	Retail	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	Retail	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	Retail	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	Retail	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	Retail	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	508	Refrigeration Commissioning	Retail	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	Retail	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	Retail	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	Retail	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	Retail	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	514	Multiplex Compressor System	Retail	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	Retail	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	Retail	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	Retail	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	Retail	0%	0%	0.00	0.12	0.12	0.02	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	Retail	2%	2%	0.00	0.12	0.12	0.02	15	0.1	0.02	0.01	0.09	509	1.3	6
1	603	Heat Pump Water Heater (air source)	Retail	68%	68%	0.03	0.12	0.04	0.01	15	3.4	0.56	0.23	0.06	333	2.1	4
1	604	Solar Water Heater	Retail	70%	70%	0.06	0.12	0.04	0.01	20	1.7	0.29	0.12	0.12	732	0.9	9
1	606	Demand controlled circulating systems	Retail	5%	5%	0.01	0.12	0.11	0.02	15	0.1	0.02	0.01	0.22	1,313	0.5	15
1	608	Heat Recovery Unit	Retail	65%	65%	0.08	0.14	0.05	0.01	10	2.2	0.37	0.15	0.18	1,103	0.6	10
1	609	Heat Trap	Retail	9%	9%	0.00	0.12	0.11	0.02	10	0.3	0.04	0.02	0.00	9	80.5	0
1	610	Hot Water Pipe Insulation	Retail	2%	2%	0.00	0.12	0.12	0.02	15	0.1	0.01	0.00	0.14	844	0.8	10
1	700	Base Desktop PC	Retail	0%	0%	0.00	0.06	0.06	0.01	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	Retail	68%	45%	0.00	0.07	0.02	0.01	4	2.0	0.20	0.25	0.01	130	9.2	0
1	702	PC Network Power Management Enabling	Retail	68%	45%	0.00	0.07	0.02	0.01	4	2.0	0.20	0.25	0.01	65	18.4	0
1	710	Base Monitor, CRT	Retail	0%	0%	0.00	0.06	0.06	0.01	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	Retail	56%	56%	0.00	0.13	0.06	0.01	4	0.3	0.04	0.03	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	Retail	53%	35%	0.00	0.09	0.04	0.01	4	1.0	0.10	0.13	0.01	132	9.1	0
1	720	Base Monitor, LCD	Retail	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	Retail	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	Retail	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	4,181	0.3	12
1	730	Base Copier	Retail	0%	0%	0.00	0.06	0.06	0.01	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	Retail	21%	21%	0.00	0.07	0.06	0.01	6	0.1	0.01	0.01	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	Retail	19%	13%	0.00	0.06	0.05	0.01	6	0.4	0.04	0.05	0.06	600	2.0	2
1	740	Base Laser Printer	Retail	0%	0%	0.00	0.11	0.11	0.02	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	Retail	49%	32%	0.01	0.16	0.08	0.02	5	1.9	0.18	0.23	0.03	333	3.6	1
1	800	Base Commercial Ovens	Retail	0%	0%	0.00	0.02	0.02	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	Retail	23%	23%	6.77	0.02	0.01	0.00	10	0.2	0.03	0.01	327.09	2,371,172	0.0	17,938
1	810	Base Commercial Fryers	Retail	0%	0%	0.00	0.02	0.02	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	Retail	15%	15%	6.34	0.02	0.01	0.00	10	0.1	0.02	0.00	542.42	3,932,117	0.0	29,747
1	900	Base Vending Machines	Retail	0%	0%	0.00	0.05	0.05	0.01	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	Retail	40%	26%	0.00	0.05	0.03	0.00	10	0.9	0.07	0.09	0.03	338	4.4	1
1	110	Base Fluorescent Fixture, T12, 34W, EB	FoodStore	0%	0%	1.03	12.34	12.34	1.56	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	FoodStore	31%	43%	1.23	12.54	8.60	0.91	10	29.6	5.11	2.72	0.05	302	2.2	4
1	112	Premium T8, EB, Reflector	FoodStore	66%	89%	1.64	12.34	4.23	0.17	10	18.4	3.16	1.69	0.04	209	3.2	2
1	113	Occupancy Sensor	FoodStore	20%	27%	1.10	12.55	10.04	1.16	6	2.6	0.45	0.24	0.13	753	0.9	5
1	114	Continuous Dimming	FoodStore	50%	68%	7.07	12.34	6.17	0.50	7	18.2	3.13	1.67	0.28	1,652	0.4	13
1	115	Lighting Control Tuneup	FoodStore	5%	7%	0.01	12.82	12.18	1.52	6	0.5	0.08	0.04	0.01	37	18.2	0
1	120	Base T8, EB	FoodStore	0%	0%	0.00	7.10	7.10	0.90	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	FoodStore	16%	21%	0.12	7.15	6.02	0.71	10	4.0	0.70	0.37	0.02	126	5.3	1
1	122	ROB Premium T8, EB, Reflector	FoodStore	64%	87%	0.41	7.10	2.53	0.11	10	3.4	0.59	0.32	0.02	107	6.2	1
1	123	Occupancy Sensor	FoodStore	20%	27%	0.76	7.22	5.77	0.67	6	0.5	0.09	0.05	0.16	903	0.7	6
1	124	Lighting Control Tuneup	FoodStore	5%	7%	0.01	7.37	7.00	0.87	6	0.1	0.01	0.01	0.01	64	10.5	0
1	130	Base Incandescent Flood, 75W to Screw-in CFL	FoodStore	0%	0%	0.34	40.91	40.91	5.19	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	FoodStore	72%	98%	0.79	49.89	13.97	0.13	1	9.9	1.70	0.91	0.02	89	7.5	0
1	140	Base Incandescent Flood, 75W to Hardwired CFL	FoodStore	0%	0%	0.34	40.91	40.91	5.19	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	FoodStore	72%	98%	3.59	49.89	13.97	0.13	3	3.3	0.57	0.30	0.05	273	2.4	1

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year	2008										
Vintage	E																
Batch	1			Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	Base EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	145	Base CFL	FoodStore	0%	0%	0.00	10.82	10.82	1.37	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	FoodStore	0%	0%	0.00	12.69	12.69	1.61	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	FoodStore	37%	50%	0.09	12.93	8.18	0.82	6	6.8	1.17	0.63	0.01	30	22.2	0
1	152	PSMH, 250 W, electronic ballast	FoodStore	43%	59%	0.48	12.75	7.26	0.67	6	8.2	1.41	0.75	0.02	133	5.0	1
1	153	High Bay T5	FoodStore	49%	66%	0.21	13.01	6.69	0.56	6	9.1	1.56	0.83	0.01	51	13.0	0
1	160	Base Exit Sign	FoodStore	0%	0%	0.00	0.04	0.04	0.01	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	FoodStore	81%	81%	0.01	0.05	0.01	0.00	16	0.6	0.07	0.07	0.04	301	3.0	3
1	200	Base Outdoor Mercury Vapor 400W Lamp	FoodStore	0%	0%	0.00	0.67	0.67	0.06	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	FoodStore	35%	35%	0.12	0.67	0.44	0.04	5	3.7	0.35	0.16	0.15	1,602	0.8	5
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	FoodStore	22%	22%	0.02	0.84	0.65	0.06	5	0.3	0.03	0.01	0.03	368	3.4	1
1	210	Base Outdoor HID Lamp	FoodStore	0%	0%	0.00	1.27	1.27	0.12	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	FoodStore	22%	22%	0.21	1.59	1.24	0.11	5	0.6	0.05	0.00	0.17	1,875	0.7	6
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	FoodStore	0%	0%	0.77	9.14	9.14	1.62	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	FoodStore	12%	18%	0.19	9.31	8.19	1.35	20	1.1	0.29	0.00	0.03	104	4.2	2
1	302	High Efficiency Chiller Motors	FoodStore	3%	3%	0.07	9.17	8.88	1.57	20	0.3	0.06	0.00	0.04	203	3.1	3
1	304	EMS - Chiller	FoodStore	10%	10%	0.21	10.08	9.07	1.61	10	0.1	0.02	0.00	0.04	245	2.7	2
1	305	Chiller Tune Up/Diagnostics	FoodStore	8%	12%	0.10	9.53	8.76	1.49	10	0.3	0.09	0.00	0.03	104	4.2	1
1	306	VSD for Chiller Pumps and Towers	FoodStore	10%	10%	0.15	9.51	8.56	1.52	15	0.5	0.09	0.00	0.03	147	4.4	2
1	307	EMS Optimization	FoodStore	5%	1%	0.03	9.38	8.91	1.64	5	0.2	0.01	0.00	0.02	465	5.6	1
1	308	Aerosole Duct Sealing	FoodStore	10%	10%	0.07	9.48	8.53	1.51	15	0.5	0.10	0.00	0.01	69	9.4	1
1	309	Duct/Pipe Insulation	FoodStore	2%	2%	0.77	9.22	9.03	1.60	10	0.1	0.02	0.00	0.87	4,897	0.1	48
1	311	Window Film (Standard)	FoodStore	5%	6%	0.13	9.39	8.88	1.57	10	0.2	0.04	-0.01	0.05	280	2.2	3
1	313	Ceiling Insulation	FoodStore	12%	37%	0.38	9.61	8.45	1.07	20	0.4	0.22	0.02	0.05	96	2.2	4
1	314	Roof Insulation	FoodStore	5%	12%	0.15	9.32	8.89	1.45	20	0.1	0.07	0.00	0.06	122	2.0	4
1	315	Cool Roof - Chiller	FoodStore	24%	53%	1.36	10.51	7.98	0.88	15	0.7	0.26	0.00	0.09	235	1.3	6
1	317	Thermal Energy Storage (TES)	FoodStore	-7%	116%	1.32	9.03	9.62	-0.26	50	-0.1	0.43	0.00	-0.33	107	-0.3	-25
1	320	Base DX Packaged System, EER=10.3, 10 tons	FoodStore	0%	0%	2.36	15.85	15.85	2.81	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	FoodStore	6%	4%	0.46	15.94	15.06	2.71	15	5.6	0.73	0.00	0.09	689	1.3	6
1	322	Hybrid Dessicant-DX System (Trane CDQ)	FoodStore	40%	29%	1.73	15.85	9.51	1.99	15	45.2	5.84	0.00	0.05	356	2.5	3
1	323	Geothermal Heat Pump, EER=13, 10 tons	FoodStore	21%	15%	4.15	15.88	12.58	2.39	15	23.3	3.01	0.13	0.21	1,644	0.5	14
1	326	DX Tune Up/ Advanced Diagnostics	FoodStore	5%	7%	0.13	16.40	15.58	2.69	10	2.9	0.76	0.00	0.03	121	3.6	2
1	327	DX Coil Cleaning	FoodStore	5%	7%	0.03	16.24	15.46	2.67	5	4.2	1.10	0.00	0.01	54	8.1	1
1	328	Optimize Controls	FoodStore	5%	1%	0.04	16.40	15.58	2.87	5	2.9	0.13	0.01	0.02	355	7.3	1
1	329	Aerosole Duct Sealing	FoodStore	10%	10%	0.07	16.43	14.78	2.62	15	11.4	2.02	0.00	0.01	40	16.3	0
1	330	Duct/Pipe Insulation	FoodStore	2%	2%	0.77	15.98	15.66	2.77	10	2.1	0.36	0.00	0.50	2,825	0.2	27
1	332	Window Film (Standard)	FoodStore	5%	5%	0.14	16.26	15.42	2.72	10	4.6	0.85	-0.45	0.03	182	3.4	2
1	334	Ceiling Insulation	FoodStore	12%	35%	0.38	16.66	14.64	1.91	20	8.6	4.44	1.86	0.03	59	3.8	2
1	335	Roof Insulation	FoodStore	5%	12%	0.15	16.15	15.41	2.51	20	3.2	1.51	0.69	0.03	68	3.5	2
1	336	Cool Roof - DX	FoodStore	24%	43%	1.36	18.22	13.83	1.84	15	14.4	4.56	0.00	0.05	165	2.2	4
1	340	Base Packaged HP System, EER=10.3, 10 tons	FoodStore	0%	0%	2.36	15.85	15.85	2.81	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	FoodStore	6%	8%	0.09	15.94	15.06	2.60	15	0.4	0.10	0.00	0.02	72	6.3	1
1	342	Geothermal Heat Pump, EER=13, 10 tons	FoodStore	21%	37%	4.15	15.88	12.58	1.77	25	0.8	0.27	0.00	0.19	616	0.6	14
1	344	Aerosole Duct Sealing	FoodStore	10%	10%	0.07	16.43	14.78	2.62	15	0.4	0.07	0.00	0.01	40	16.3	0
1	345	Duct/Pipe Insulation	FoodStore	2%	2%	0.77	15.98	15.66	2.77	10	0.1	0.01	0.00	0.50	2,825	0.2	27
1	347	Window Film (Standard)	FoodStore	5%	5%	0.13	16.26	15.42	2.72	10	0.2	0.03	0.00	0.03	174	3.6	2
1	349	Ceiling Insulation	FoodStore	12%	35%	0.38	16.66	14.64	1.91	20	0.3	0.16	0.00	0.03	59	3.8	2
1	350	Roof Insulation	FoodStore	5%	12%	0.15	16.15	15.41	2.51	20	0.1	0.05	0.00	0.03	68	3.5	2
1	351	Cool Roof - DX	FoodStore	24%	43%	1.36	18.22	13.83	1.84	15	0.5	0.16	0.00	0.05	165	2.2	4
1	360	Base PTAC, EER=8.3, 1 ton	FoodStore	0%	0%	0.00	18.29	18.29	3.24	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	FoodStore	14%	10%	0.53	18.29	15.81	2.92	15	0.0	0.00	0.00	0.04	281	N/A	2
1	362	Occupancy Sensor (hotels)	FoodStore	15%	4%	0.98	18.57	15.78	3.16	15	0.0	0.00	0.00	0.06	1,342	N/A	4
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	FoodStore	0%	0%	0.04	3.13	3.13	0.35	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	FoodStore	2%	2%	0.01	3.13	3.09	0.34	15	0.8	0.09	0.09	0.04	320	3.3	2
1	402	Variable Speed Drive Control	FoodStore	30%	8%	0.21	3.39	2.37	0.35	15	0.0	0.00	0.00	0.03	1,254	3.3	2
1	403	Air Handler Optimization	FoodStore	10%	3%	0.03	3.22	2.89	0.35	8	3.2	0.09	0.09	0.02	787	5.3	1
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	FoodStore	14%	14%	0.10	3.13	2.68	0.30	15	8.0	0.85	0.00	0.04	350	3.1	3
1	405	Demand Control Ventilation (DCV)	FoodStore	15%	60%	2.36	3.26	2.77	0.15	15	4.8	2.11	4.90	0.81	1,855	0.1	55
1	406	Energy Recovery Ventilation (ERV)	FoodStore	7%	38%	0.46	3.19	2.97	0.22	20	2.2	1.32	1.60	0.33	550	0.4	23
1	407	Separate Makeup Air / Exhaust Hoods AC	FoodStore	25%	25%	0.00	3.13	2.35	0.26	15	1.4	0.15	0.04	0.00	5	197.4	0
1	500	Base Refrigeration System	FoodStore	0%	0%	0.00	29.89	29.89	3.71	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	FoodStore	12%	12%	1.16	30.07	26.47	3.28	16	60.0	7.44	6.11	0.05	431	2.2	4
1	502	Strip curtains for walk-ins	FoodStore	4%	4%	0.05	30.26	29.04	3.60	4	14.9	1.85	1.52	0.02	126	7.4	0

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY							Year 2008										
Vintage	E																
Batch	1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	503	Night covers for display cases	FoodStore	6%	0%	0.11	29.98	28.24	3.72	5	14.5	0.00	1.47	0.02	N/A	5.5	1
1	504	Evaporator fan controller for MT walk-ins	FoodStore	1%	1%	0.05	29.92	29.76	3.69	5	2.3	0.29	0.24	0.09	709	1.3	3
1	505	Efficient compressor motor	FoodStore	7%	7%	0.09	30.52	28.43	3.52	10	25.6	3.17	2.60	0.01	71	13.1	0
1	506	Compressor VSD retrofit	FoodStore	6%	3%	0.41	30.27	28.39	3.64	10	13.2	0.82	0.67	0.04	724	2.6	2
1	507	Floating head pressure controls	FoodStore	7%	7%	0.12	31.50	29.35	3.64	16	9.4	1.17	0.96	0.01	78	12.0	1
1	508	Refrigeration Commissioning	FoodStore	5%	5%	0.18	30.66	29.12	3.61	3	13.4	1.67	1.37	0.05	442	2.1	1
1	509	Demand Hot Gas Defrost	FoodStore	3%	3%	0.03	30.42	29.66	3.68	10	4.0	0.50	0.41	0.01	71	13.0	0
1	510	Demand Defrost Electric	FoodStore	8%	8%	0.03	30.01	27.68	3.43	10	38.8	4.81	3.95	0.00	23	39.8	0
1	511	Anti-sweat (humidistat) controls	FoodStore	5%	2%	0.16	30.27	28.76	3.66	12	19.9	1.23	2.02	0.02	319	5.8	1
1	513	High R-Value Glass Doors	FoodStore	2%	2%	0.13	29.91	29.43	3.65	10	8.1	1.01	0.83	0.06	447	2.1	3
1	514	Multiplex Compressor System	FoodStore	14%	14%	2.71	32.18	27.60	3.42	14	40.2	4.99	4.10	0.10	822	1.1	7
1	515	Oversized Air Cooled Condenser	FoodStore	8%	8%	0.54	31.15	28.63	3.55	16	22.1	2.74	2.25	0.04	288	3.2	2
1	516	Freezer-Cooler Replacement Gaskets	FoodStore	7%	7%	0.03	30.91	28.87	3.58	4	17.9	2.22	1.82	0.01	52	17.8	0
1	517	LED Display Lighting	FoodStore	1%	1%	0.13	29.90	29.65	3.68	10	4.1	0.51	0.42	0.11	875	1.1	6
1	600	Base Water Heating	FoodStore	0%	0%	0.00	0.48	0.48	0.07	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	FoodStore	2%	2%	0.00	0.49	0.48	0.07	15	0.1	0.01	0.01	0.09	631	1.3	6
1	603	Heat Pump Water Heater (air source)	FoodStore	68%	68%	0.11	0.50	0.16	0.02	15	3.2	0.44	0.22	0.06	412	2.0	4
1	604	Solar Water Heater	FoodStore	70%	70%	0.27	0.49	0.15	0.02	20	1.7	0.23	0.12	0.12	907	0.9	9
1	606	Demand controlled circulating systems	FoodStore	5%	5%	0.02	0.49	0.47	0.06	15	0.1	0.02	0.01	0.14	1,000	0.8	9
1	608	Heat Recovery Unit	FoodStore	65%	65%	0.08	0.58	0.20	0.03	10	2.1	0.29	0.14	0.05	330	2.5	2
1	609	Heat Trap	FoodStore	9%	9%	0.00	0.50	0.45	0.06	10	0.2	0.03	0.02	0.00	11	79.6	0
1	610	Hot Water Pipe Insulation	FoodStore	2%	2%	0.01	0.49	0.48	0.07	15	0.1	0.01	0.00	0.14	1,046	0.8	10
1	700	Base Desktop PC	FoodStore	0%	0%	0.00	0.04	0.04	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	FoodStore	68%	45%	0.00	0.04	0.01	0.00	4	0.3	0.02	0.04	0.01	150	9.2	0
1	702	PC Network Power Management Enabling	FoodStore	68%	45%	0.00	0.04	0.01	0.00	4	0.3	0.02	0.04	0.01	75	18.4	0
1	710	Base Monitor, CRT	FoodStore	0%	0%	0.00	0.04	0.04	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	FoodStore	56%	56%	0.00	0.08	0.03	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	FoodStore	53%	35%	0.00	0.05	0.02	0.00	4	0.1	0.01	0.02	0.01	151	9.1	0
1	720	Base Monitor, LCD	FoodStore	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	FoodStore	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	FoodStore	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	4,812	0.3	12
1	730	Base Copier	FoodStore	0%	0%	0.00	0.05	0.05	0.01	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	FoodStore	21%	21%	0.00	0.06	0.05	0.01	6	0.0	0.00	0.00	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	FoodStore	19%	13%	0.00	0.05	0.04	0.01	6	0.1	0.01	0.01	0.06	690	2.0	2
1	740	Base Laser Printer	FoodStore	0%	0%	0.00	0.06	0.06	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	FoodStore	49%	32%	0.00	0.08	0.04	0.01	5	0.2	0.02	0.03	0.03	383	3.6	1
1	800	Base Commercial Ovens	FoodStore	0%	0%	0.00	1.04	1.04	0.12	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	FoodStore	23%	23%	80.97	1.05	0.81	0.09	10	2.2	0.26	0.09	69.76	608,388	0.0	3,826
1	810	Base Commercial Fryers	FoodStore	0%	0%	0.00	0.57	0.57	0.07	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	FoodStore	15%	15%	66.22	0.58	0.49	0.06	10	0.8	0.09	0.03	159.59	1,391,682	0.0	8,752
1	900	Base Vending Machines	FoodStore	0%	0%	0.00	0.08	0.08	0.01	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	FoodStore	40%	26%	0.00	0.08	0.05	0.01	10	0.4	0.03	0.04	0.03	339	4.2	2
1	110	Base Fluorescent Fixture, T12, 34W, EB	School	0%	0%	0.72	3.38	3.38	0.33	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	School	31%	43%	0.85	3.43	2.35	0.19	25	23.9	3.14	4.71	0.12	915	0.9	9
1	112	Premium T8, EB, Reflector	School	66%	89%	1.14	3.38	1.16	0.03	25	13.0	1.70	2.56	0.08	596	1.4	6
1	113	Occupancy Sensor	School	20%	27%	0.77	3.44	2.75	0.24	15	9.2	1.21	1.81	0.19	1,480	0.6	13
1	114	Continuous Dimming	School	50%	68%	4.91	3.38	1.69	0.10	18	14.8	1.94	2.92	0.47	3,550	0.2	33
1	115	Lighting Control Tuneup	School	5%	7%	0.01	3.51	3.33	0.32	6	0.3	0.04	0.06	0.02	176	5.0	1
1	120	Base T8, EB	School	0%	0%	0.00	1.94	1.94	0.19	25	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	School	16%	21%	0.08	1.96	1.65	0.15	25	2.9	0.37	0.56	0.04	309	2.8	3
1	122	ROB Premium T8, EB, Reflector	School	64%	87%	0.28	1.94	0.69	0.02	25	2.4	0.32	0.48	0.03	262	3.2	3
1	123	Occupancy Sensor	School	20%	27%	0.53	1.98	1.58	0.14	15	1.8	0.23	0.35	0.23	1,776	0.5	16
1	124	Lighting Control Tuneup	School	5%	7%	0.01	2.02	1.92	0.18	6	0.1	0.01	0.01	0.04	306	2.9	2
1	130	Base Incandescent Flood, 75W to Screw-in CFL	School	0%	0%	0.24	11.20	11.20	1.08	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	School	72%	98%	0.55	13.66	3.82	0.03	3	10.7	1.40	2.10	0.02	150	5.8	1
1	140	Base Incandescent Flood, 75W to Hardwired CFL	School	0%	0%	0.24	11.20	11.20	1.08	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	School	72%	98%	2.50	13.66	3.82	0.03	7	3.6	0.47	0.70	0.06	457	1.9	3
1	145	Base CFL	School	0%	0%	0.00	2.96	2.96	0.29	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	School	0%	0%	0.00	3.47	3.47	0.34	9	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	School	37%	50%	0.07	3.54	2.24	0.17	16	2.1	0.28	0.41	0.01	62	14.2	1
1	152	PSMH, 250 W, electronic ballast	School	43%	59%	0.33	3.49	1.99	0.14	16	2.5	0.33	0.50	0.04	275	3.2	2
1	153	High Bay T5	School	49%	66%	0.15	3.56	1.83	0.12	16	2.8	0.37	0.55	0.01	106	8.3	1

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008										
Vintage Batch Segment	E 1 Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	160	Base Exit Sign	School	0%	0%	0.00	0.10	0.10	0.01	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	School	81%	81%	0.02	0.14	0.03	0.00	16	3.4	0.33	0.90	0.03	351	3.4	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	School	0%	0%	0.00	0.22	0.22	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	School	35%	35%	0.05	0.22	0.14	0.01	5	3.3	0.13	0.12	0.20	4,951	0.6	7
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	School	22%	22%	0.01	0.28	0.21	0.01	5	0.3	0.01	0.01	0.05	1,136	2.5	2
1	210	Base Outdoor HID Lamp	School	0%	0%	0.00	0.40	0.40	0.02	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	School	22%	22%	0.06	0.50	0.39	0.02	5	0.5	0.02	0.00	0.17	4,206	0.7	6
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	School	0%	0%	0.58	4.42	4.42	0.90	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	School	12%	18%	0.14	4.50	3.96	0.75	20	10.6	3.20	0.01	0.04	140	2.7	3
1	302	High Efficiency Chiller Motors	School	3%	3%	0.05	4.43	4.29	0.87	20	2.9	0.61	0.00	0.06	274	2.0	4
1	304	EMS - Chiller	School	10%	10%	0.16	4.87	4.38	0.89	10	0.8	0.17	0.01	0.07	332	1.7	4
1	305	Chiller Tune Up/Diagnostics	School	8%	12%	0.10	4.60	4.23	0.82	10	3.2	0.95	0.02	0.06	188	2.0	3
1	306	VSD for Chiller Pumps and Towers	School	10%	10%	0.11	4.59	4.13	0.84	15	4.9	0.99	0.01	0.04	200	2.8	3
1	307	EMS Optimization	School	5%	1%	0.03	4.53	4.30	0.91	5	1.9	0.10	0.00	0.04	840	2.7	2
1	308	Aerosole Duct Sealing	School	10%	10%	0.05	4.58	4.12	0.84	15	5.1	1.04	0.01	0.02	94	6.1	1
1	309	Duct/Pipe Insulation	School	2%	2%	0.77	4.45	4.36	0.89	10	0.9	0.19	0.00	1.79	8,842	0.1	98
1	311	Window Film (Standard)	School	5%	6%	0.13	4.46	4.22	0.85	10	3.5	0.75	-0.05	0.11	514	1.0	6
1	313	Ceiling Insulation	School	12%	37%	0.38	4.64	4.08	0.59	20	3.9	2.42	0.14	0.11	174	1.1	8
1	314	Roof Insulation	School	5%	12%	0.15	4.50	4.29	0.80	20	1.4	0.75	0.01	0.12	220	1.0	8
1	315	Cool Roof - Chiller	School	24%	53%	1.36	4.64	3.53	0.45	15	10.2	4.52	0.00	0.20	463	0.6	14
1	317	Thermal Energy Storage (TES)	School	-7%	116%	0.99	4.36	4.65	-0.14	50	-1.3	4.71	0.01	-0.52	144	-0.2	-39
1	320	Base DX Packaged System, EER=10.3, 10 tons	School	0%	0%	1.77	7.66	7.66	1.55	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	School	6%	4%	0.35	7.70	7.28	1.50	15	2.0	0.30	0.00	0.14	932	0.8	9
1	322	Hybrid Dessicant-DX System (Trane CDQ)	School	40%	29%	1.30	7.66	4.59	1.10	15	16.0	2.37	0.00	0.07	482	1.6	5
1	323	Geothermal Heat Pump, EER=13, 10 tons	School	21%	15%	3.11	7.67	6.08	1.32	15	8.3	1.22	0.03	0.33	2,225	0.3	22
1	326	DX Tune Up/ Advanced Diagnostics	School	5%	7%	0.13	7.92	7.53	1.49	10	1.0	0.31	0.00	0.07	219	1.8	4
1	327	DX Coil Cleaning	School	5%	7%	0.03	7.85	7.47	1.48	5	1.5	0.45	0.00	0.02	73	5.2	1
1	328	Optimize Controls	School	5%	1%	0.04	7.92	7.53	1.59	5	1.0	0.05	0.00	0.03	641	3.5	1
1	329	Aerosole Duct Sealing	School	10%	10%	0.05	7.94	7.14	1.45	15	4.1	0.82	0.00	0.01	54	10.5	1
1	330	Duct/Pipe Insulation	School	2%	2%	0.77	7.72	7.56	1.54	10	0.7	0.15	0.00	1.04	5,101	0.1	57
1	332	Window Film (Standard)	School	5%	5%	0.14	7.73	7.32	1.48	10	2.6	0.55	-0.16	0.07	335	1.6	4
1	334	Ceiling Insulation	School	12%	35%	0.38	8.05	7.07	1.06	20	3.1	1.81	0.42	0.06	107	1.8	4
1	335	Roof Insulation	School	5%	12%	0.15	7.80	7.44	1.39	20	1.1	0.61	0.15	0.07	123	1.7	5
1	336	Cool Roof - DX	School	24%	43%	1.36	8.05	6.11	0.93	15	8.1	2.93	0.00	0.12	327	1.0	8
1	340	Base Packaged HP System, EER=10.3, 10 tons	School	0%	0%	1.77	7.66	7.66	1.55	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	School	6%	8%	0.07	7.70	7.28	1.44	15	1.0	0.28	0.00	0.03	98	4.1	2
1	342	Geothermal Heat Pump, EER=13, 10 tons	School	21%	37%	3.11	7.67	6.08	0.98	25	2.0	0.73	0.00	0.30	834	0.4	22
1	344	Aerosole Duct Sealing	School	10%	10%	0.05	7.94	7.14	1.45	15	1.0	0.20	0.00	0.01	54	10.5	1
1	345	Duct/Pipe Insulation	School	2%	2%	0.77	7.72	7.56	1.54	10	0.2	0.04	0.00	1.04	5,101	0.1	57
1	347	Window Film (Standard)	School	5%	5%	0.13	7.73	7.32	1.48	10	0.6	0.14	0.00	0.07	319	1.7	4
1	349	Ceiling Insulation	School	12%	35%	0.38	8.05	7.07	1.06	20	0.7	0.44	0.01	0.06	107	1.8	4
1	350	Roof Insulation	School	5%	12%	0.15	7.80	7.44	1.39	20	0.3	0.15	0.00	0.07	123	1.7	5
1	351	Cool Roof - DX	School	24%	43%	1.36	8.05	6.11	0.93	15	2.0	0.71	0.00	0.12	327	1.0	8
1	360	Base PTAC, EER=8.3, 1 ton	School	0%	0%	0.00	8.84	8.84	1.79	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	School	14%	10%	0.40	8.84	7.64	1.62	15	6.0	0.89	0.00	0.06	381	2.0	4
1	362	Occupancy Sensor (hotels)	School	15%	4%	0.74	8.97	7.62	1.75	15	6.1	0.31	0.01	0.09	1,817	1.2	6
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	School	0%	0%	0.04	1.61	1.61	0.19	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	School	2%	2%	0.01	1.61	1.59	0.18	15	1.1	0.12	0.17	0.06	540	1.9	4
1	402	Variable Speed Drive Control	School	30%	8%	0.19	1.90	1.33	0.20	15	8.4	0.24	0.32	0.06	1,946	2.1	4
1	403	Air Handler Optimization	School	10%	3%	0.03	1.66	1.49	0.19	8	4.1	0.12	0.16	0.04	1,466	2.7	2
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	School	14%	14%	0.08	1.61	1.38	0.16	15	10.3	1.15	0.00	0.05	489	2.1	4
1	405	Demand Control Ventilation (DCV)	School	15%	60%	2.36	1.68	1.43	0.08	15	6.3	2.87	8.96	1.58	3,456	0.1	107
1	406	Energy Recovery Ventilation (ERV)	School	7%	38%	0.34	1.64	1.53	0.12	20	2.9	1.78	2.92	0.48	768	0.2	34
1	407	Separate Makeup Air / Exhaust Hoods AC	School	25%	25%	0.00	1.61	1.21	0.14	15	0.0	0.00	0.00	N/A	N/A	99999.0	N/A
1	500	Base Refrigeration System	School	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	School	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	School	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	School	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	School	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	School	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	School	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	School	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch	E 1			Energy	Peak	Total	Base		Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	508	Refrigeration Commissioning	School	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	School	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	School	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	School	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	School	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	514	Multiplex Compressor System	School	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	School	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	School	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	School	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	School	0%	0%	0.00	0.85	0.85	0.09	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	School	2%	2%	0.00	0.85	0.83	0.09	15	0.3	0.03	0.04	0.03	286	3.7	2
1	603	Heat Pump Water Heater (air source)	School	68%	68%	0.07	0.88	0.28	0.03	15	10.8	1.17	1.37	0.02	187	5.7	1
1	604	Solar Water Heater	School	70%	70%	0.17	0.86	0.26	0.03	20	5.6	0.61	0.71	0.04	411	2.6	3
1	606	Demand controlled circulating systems	School	5%	5%	0.01	0.86	0.82	0.09	15	0.4	0.04	0.05	0.04	379	2.8	3
1	608	Heat Recovery Unit	School	65%	65%	0.08	1.01	0.36	0.04	10	7.0	0.76	0.89	0.03	239	4.5	1
1	609	Heat Trap	School	9%	9%	0.00	0.87	0.79	0.09	10	0.8	0.09	0.11	0.00	5	223.0	0
1	610	Hot Water Pipe Insulation	School	2%	2%	0.01	0.85	0.84	0.09	15	0.2	0.02	0.02	0.05	474	2.3	3
1	700	Base Desktop PC	School	0%	0%	0.00	0.31	0.31	0.03	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	School	68%	45%	0.01	0.38	0.12	0.02	4	6.4	0.37	1.13	0.01	217	9.2	0
1	702	PC Network Power Management Enabling	School	68%	45%	0.00	0.38	0.12	0.02	4	6.4	0.37	1.13	0.01	109	18.4	0
1	710	Base Monitor, CRT	School	0%	0%	0.00	0.31	0.31	0.03	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	School	56%	56%	0.00	0.65	0.29	0.03	4	0.8	0.07	0.14	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	School	53%	35%	0.01	0.45	0.21	0.03	4	3.2	0.18	0.57	0.01	220	9.1	0
1	720	Base Monitor, LCD	School	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	School	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	School	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	6,986	0.3	12
1	730	Base Copier	School	0%	0%	0.00	0.08	0.08	0.01	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	School	21%	21%	0.00	0.09	0.07	0.01	6	0.1	0.01	0.02	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	School	19%	13%	0.00	0.08	0.07	0.01	6	0.3	0.02	0.06	0.06	1,002	2.0	2
1	740	Base Laser Printer	School	0%	0%	0.00	0.23	0.23	0.02	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	School	49%	32%	0.02	0.32	0.16	0.02	5	2.4	0.14	0.42	0.03	557	3.6	1
1	800	Base Commercial Ovens	School	0%	0%	0.00	0.11	0.11	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	School	23%	23%	31.41	0.12	0.09	0.00	10	0.6	0.02	0.04	246.89	5,938,417	0.0	13,539
1	810	Base Commercial Fryers	School	0%	0%	0.00	0.04	0.04	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	School	15%	15%	14.35	0.04	0.03	0.00	10	0.1	0.01	0.01	483.15	11,621,251	0.0	26,496
1	900	Base Vending Machines	School	0%	0%	0.00	0.22	0.22	0.02	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	School	40%	26%	0.01	0.25	0.15	0.02	10	2.3	0.14	0.27	0.02	420	4.6	1
1	110	Base Fluorescent Fixture, T12, 34W, EB	College	0%	0%	0.88	3.42	3.42	0.56	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	College	31%	43%	1.05	3.48	2.39	0.33	31	32.1	7.15	3.30	0.15	657	0.7	11
1	112	Premium T8, EB, Reflector	College	66%	89%	1.41	3.42	1.17	0.06	31	17.4	3.87	1.79	0.10	428	1.1	7
1	113	Occupancy Sensor	College	20%	27%	0.95	3.48	2.78	0.42	18	12.3	2.75	1.27	0.22	1,005	0.5	16
1	114	Continuous Dimming	College	50%	68%	6.06	3.42	1.71	0.18	22	19.9	4.42	2.04	0.55	2,485	0.2	40
1	115	Lighting Control Tuneup	College	5%	7%	0.01	3.56	3.38	0.54	6	0.7	0.15	0.07	0.02	102	5.0	1
1	120	Base T8, EB	College	0%	0%	0.00	1.97	1.97	0.32	31	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	College	16%	21%	0.10	1.98	1.67	0.26	31	3.8	0.85	0.39	0.05	222	2.2	4
1	122	ROB Premium T8, EB, Reflector	College	64%	87%	0.35	1.97	0.70	0.04	31	3.3	0.73	0.34	0.04	188	2.6	3
1	123	Occupancy Sensor	College	20%	27%	0.65	2.00	1.60	0.24	18	2.4	0.53	0.24	0.27	1,205	0.4	19
1	124	Lighting Control Tuneup	College	5%	7%	0.01	2.04	1.94	0.31	6	0.1	0.03	0.01	0.04	178	2.9	2
1	130	Base Incandescent Flood, 75W to Screw-in CFL	College	0%	0%	0.29	11.34	11.34	1.86	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	College	72%	98%	0.68	13.83	3.87	0.05	4	11.0	2.44	1.13	0.02	99	5.2	1
1	140	Base Incandescent Flood, 75W to Hardwired CFL	College	0%	0%	0.29	11.34	11.34	1.86	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	College	72%	98%	3.08	13.83	3.87	0.05	9	3.7	0.81	0.38	0.07	300	1.7	4
1	145	Base CFL	College	0%	0%	0.00	3.00	3.00	0.49	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	College	0%	0%	0.00	3.52	3.52	0.58	11	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	College	37%	50%	0.08	3.59	2.27	0.29	20	10.1	2.25	1.04	0.01	44	11.7	1
1	152	PSMH, 250 W, electronic ballast	College	43%	59%	0.41	3.53	2.01	0.24	20	12.2	2.71	1.25	0.04	195	2.6	3
1	153	High Bay T5	College	49%	66%	0.18	3.61	1.86	0.20	20	13.5	3.00	1.38	0.02	75	6.9	1
1	160	Base Exit Sign	College	0%	0%	0.00	0.06	0.06	0.01	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	College	81%	81%	0.01	0.09	0.02	0.00	16	2.9	0.47	0.39	0.02	150	4.7	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	College	0%	0%	0.00	0.49	0.49	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	College	35%	35%	0.07	0.49	0.32	0.00	5	9.9	0.11	0.35	0.12	11,067	1.0	4
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	College	22%	22%	0.01	0.62	0.48	0.01	5	0.8	0.01	0.03	0.03	2,539	4.2	1

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch Segment	E 1 Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	210	Base Outdoor HID Lamp	College	0%	0%	0.00	0.84	0.84	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	College	22%	22%	0.04	1.04	0.81	0.01	5	1.3	0.01	0.00	0.05	4,572	2.4	2
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	College	0%	0%	0.43	3.23	3.23	0.64	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	College	12%	18%	0.11	3.29	2.89	0.53	20	8.9	2.63	0.01	0.04	147	2.7	3
1	302	High Efficiency Chiller Motors	College	3%	3%	0.04	3.24	3.13	0.62	20	2.4	0.51	0.00	0.06	287	1.9	4
1	304	EMS - Chiller	College	10%	10%	0.12	3.55	3.20	0.63	10	0.7	0.14	0.02	0.07	348	1.7	4
1	305	Chiller Tune Up/Diagnostics	College	8%	12%	0.10	3.36	3.09	0.59	10	2.7	0.78	0.03	0.08	265	1.5	4
1	306	VSD for Chiller Pumps and Towers	College	10%	10%	0.08	3.35	3.02	0.60	15	4.1	0.81	0.02	0.04	209	2.8	3
1	307	EMS Optimization	College	5%	1%	0.03	3.31	3.14	0.65	5	1.6	0.08	0.01	0.06	1,182	2.0	2
1	308	Aerosole Duct Sealing	College	10%	10%	0.04	3.34	3.01	0.59	15	4.3	0.85	0.02	0.02	98	5.9	1
1	309	Duct/Pipe Insulation	College	2%	2%	0.77	3.25	3.19	0.63	10	0.8	0.15	0.00	2.46	12,439	0.0	135
1	311	Window Film (Standard)	College	5%	6%	0.13	3.24	3.06	0.60	10	3.2	0.68	-0.11	0.15	727	0.7	8
1	313	Ceiling Insulation	College	12%	37%	0.38	3.39	2.98	0.42	20	3.3	1.99	0.28	0.15	245	0.8	11
1	314	Roof Insulation	College	5%	12%	0.15	3.29	3.14	0.57	20	1.2	0.62	0.03	0.16	310	0.7	11
1	315	Cool Roof - Chiller	College	24%	53%	1.36	3.27	2.48	0.31	15	9.8	4.23	0.00	0.29	675	0.4	20
1	317	Thermal Energy Storage (TES)	College	-7%	116%	0.74	3.18	3.39	-0.10	50	-1.1	3.87	0.01	-0.53	151	-0.2	-40
1	320	Base DX Packaged System, EER=10.3, 10 tons	College	0%	0%	1.32	5.59	5.59	1.10	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	College	6%	4%	0.26	5.62	5.31	1.07	15	2.2	0.32	0.00	0.14	977	0.8	10
1	322	Hybrid Dessicant-DX System (Trane CDQ)	College	40%	29%	0.97	5.59	3.35	0.78	15	17.6	2.53	0.00	0.07	505	1.6	5
1	323	Geothermal Heat Pump, EER=13, 10 tons	College	21%	15%	2.32	5.60	4.44	0.94	15	9.1	1.31	0.07	0.34	2,331	0.3	23
1	326	DX Tune Up/ Advanced Diagnostics	College	5%	7%	0.13	5.79	5.50	1.06	10	1.1	0.33	0.00	0.09	308	1.3	5
1	327	DX Coil Cleaning	College	5%	7%	0.02	5.73	5.45	1.05	5	1.6	0.48	0.00	0.02	77	5.1	1
1	328	Optimize Controls	College	5%	1%	0.04	5.79	5.50	1.13	5	1.1	0.06	0.01	0.04	901	2.6	2
1	329	Aerosole Duct Sealing	College	10%	10%	0.04	5.79	5.21	1.03	15	4.4	0.88	0.00	0.01	57	10.3	1
1	330	Duct/Pipe Insulation	College	2%	2%	0.77	5.64	5.52	1.09	10	0.8	0.16	0.00	1.42	7,176	0.1	78
1	332	Window Film (Standard)	College	5%	5%	0.14	5.62	5.32	1.05	10	3.2	0.65	-0.45	0.10	473	1.2	5
1	334	Ceiling Insulation	College	12%	35%	0.38	5.88	5.16	0.75	20	3.4	1.93	1.06	0.09	150	1.3	6
1	335	Roof Insulation	College	5%	12%	0.15	5.70	5.43	0.99	20	1.2	0.65	0.39	0.09	174	1.3	7
1	336	Cool Roof - DX	College	24%	43%	1.36	5.67	4.30	0.64	15	10.1	3.56	0.00	0.17	476	0.7	11
1	340	Base Packaged HP System, EER=10.3, 10 tons	College	0%	0%	1.32	5.59	5.59	1.10	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	College	6%	8%	0.05	5.62	5.31	1.02	15	0.3	0.08	0.00	0.03	102	4.0	2
1	342	Geothermal Heat Pump, EER=13, 10 tons	College	21%	37%	2.32	5.60	4.44	0.70	25	0.6	0.20	0.00	0.31	874	0.4	23
1	344	Aerosole Duct Sealing	College	10%	10%	0.04	5.79	5.21	1.03	15	0.3	0.05	0.00	0.01	57	10.3	1
1	345	Duct/Pipe Insulation	College	2%	2%	0.77	5.64	5.52	1.09	10	0.0	0.01	0.00	1.42	7,176	0.1	78
1	347	Window Film (Standard)	College	5%	5%	0.13	5.62	5.32	1.05	10	0.2	0.04	0.00	0.09	451	1.2	5
1	349	Ceiling Insulation	College	12%	35%	0.38	5.88	5.16	0.75	20	0.2	0.12	0.00	0.09	150	1.3	6
1	350	Roof Insulation	College	5%	12%	0.15	5.70	5.43	0.99	20	0.1	0.04	0.00	0.09	174	1.3	7
1	351	Cool Roof - DX	College	24%	43%	1.36	5.67	4.30	0.64	15	0.6	0.22	0.00	0.17	476	0.7	11
1	360	Base PTAC, EER=8.3, 1 ton	College	0%	0%	0.00	6.45	6.45	1.27	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	College	14%	10%	0.30	6.45	5.58	1.15	15	5.6	0.81	0.00	0.06	399	2.0	4
1	362	Occupancy Sensor (hotels)	College	15%	4%	0.55	6.55	5.57	1.25	15	5.7	0.28	0.03	0.09	1,904	1.2	6
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	College	0%	0%	0.04	1.82	1.82	0.22	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	College	2%	2%	0.01	1.82	1.79	0.21	15	1.7	0.21	0.18	0.07	583	1.7	5
1	402	Variable Speed Drive Control	College	30%	8%	0.24	2.14	1.50	0.23	15	17.9	0.53	0.46	0.06	2,103	1.9	4
1	403	Air Handler Optimization	College	10%	3%	0.03	1.87	1.68	0.22	8	6.7	0.20	0.17	0.04	1,266	3.1	2
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	College	14%	14%	0.06	1.82	1.56	0.18	15	16.7	1.91	0.00	0.04	315	3.2	2
1	405	Demand Control Ventilation (DCV)	College	15%	60%	2.36	1.89	1.61	0.09	15	10.1	4.75	9.70	1.40	2,984	0.1	95
1	406	Energy Recovery Ventilation (ERV)	College	7%	38%	0.26	1.85	1.72	0.14	20	4.6	2.96	3.17	0.32	494	0.4	23
1	407	Separate Makeup Air / Exhaust Hoods AC	College	25%	25%	0.00	1.82	1.37	0.16	15	0.0	0.00	0.00	N/A	N/A	99999.0	N/A
1	500	Base Refrigeration System	College	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	College	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	College	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	College	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	College	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	College	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	College	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	College	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	508	Refrigeration Commissioning	College	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	College	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	College	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	College	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	College	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	514	Multiplex Compressor System	College	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	College	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	College	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	College	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	College	0%	0%	0.00	0.43	0.43	0.05	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	College	2%	2%	0.00	0.43	0.42	0.05	15	0.4	0.04	0.05	0.04	324	2.9	3
1	603	Heat Pump Water Heater (air source)	College	68%	68%	0.05	0.44	0.14	0.02	15	13.0	1.57	1.75	0.03	211	4.5	2
1	604	Solar Water Heater	College	70%	70%	0.11	0.43	0.13	0.02	20	6.8	0.82	0.91	0.06	465	2.1	4
1	606	Demand controlled circulating systems	College	5%	5%	0.00	0.44	0.41	0.05	15	0.5	0.06	0.07	0.02	171	5.6	1
1	608	Heat Recovery Unit	College	65%	65%	0.08	0.51	0.18	0.02	10	8.5	1.02	1.14	0.05	423	2.3	3
1	609	Heat Trap	College	9%	9%	0.00	0.44	0.40	0.05	10	1.0	0.12	0.13	0.00	5	176.1	0
1	610	Hot Water Pipe Insulation	College	2%	2%	0.00	0.43	0.42	0.05	15	0.2	0.03	0.03	0.06	536	1.8	4
1	700	Base Desktop PC	College	0%	0%	0.00	0.74	0.74	0.10	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	College	68%	45%	0.02	0.89	0.28	0.07	4	21.6	1.95	2.53	0.01	139	9.2	0
1	702	PC Network Power Management Enabling	College	68%	45%	0.01	0.89	0.28	0.07	4	21.6	1.95	2.53	0.01	69	18.4	0
1	710	Base Monitor, CRT	College	0%	0%	0.00	0.72	0.72	0.10	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	College	56%	56%	0.00	1.55	0.68	0.09	4	2.8	0.38	0.32	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	College	53%	35%	0.02	1.06	0.50	0.09	4	10.8	0.98	1.27	0.01	140	9.1	0
1	720	Base Monitor, LCD	College	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	College	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	College	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	4,461	0.3	12
1	730	Base Copier	College	0%	0%	0.00	0.12	0.12	0.02	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	College	21%	21%	0.00	0.15	0.12	0.02	6	0.2	0.03	0.02	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	College	19%	13%	0.01	0.13	0.10	0.02	6	0.8	0.07	0.09	0.06	640	2.0	2
1	740	Base Laser Printer	College	0%	0%	0.00	0.56	0.56	0.08	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	College	49%	32%	0.04	0.76	0.39	0.07	5	8.2	0.74	0.96	0.03	355	3.6	1
1	800	Base Commercial Ovens	College	0%	0%	0.00	0.04	0.04	0.01	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	College	23%	23%	11.28	0.04	0.03	0.01	10	0.5	0.09	0.02	238.30	1,357,968	0.0	13,069
1	810	Base Commercial Fryers	College	0%	0%	0.00	0.01	0.01	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	College	15%	15%	3.63	0.01	0.01	0.00	10	0.1	0.02	0.00	362.14	2,063,691	0.0	19,860
1	900	Base Vending Machines	College	0%	0%	0.00	0.12	0.12	0.01	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	College	40%	26%	0.01	0.13	0.08	0.01	10	1.7	0.13	0.18	0.02	325	4.6	1
1	110	Base Fluorescent Fixture, T12, 34W, EB	Hospital	0%	0%	0.63	6.09	6.09	0.76	8	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	Hospital	31%	43%	0.75	6.19	4.24	0.44	12	9.7	1.65	0.97	0.06	360	1.9	4
1	112	Premium T8, EB, Reflector	Hospital	66%	89%	1.00	6.09	2.09	0.08	12	5.3	0.89	0.53	0.04	242	2.8	3
1	113	Occupancy Sensor	Hospital	20%	27%	0.67	6.19	4.95	0.56	7	3.7	0.63	0.37	0.14	806	0.8	6
1	114	Continuous Dimming	Hospital	50%	68%	4.30	6.09	3.04	0.24	9	2.0	0.34	0.20	0.31	1,851	0.4	16
1	115	Lighting Control Tuneup	Hospital	5%	7%	0.01	6.33	6.01	0.74	6	0.2	0.04	0.02	0.01	76	9.0	1
1	120	Base T8, EB	Hospital	0%	0%	0.00	3.50	3.50	0.44	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	Hospital	16%	21%	0.07	3.53	2.97	0.35	12	1.2	0.20	0.12	0.02	137	5.0	1
1	122	ROB Premium T8, EB, Reflector	Hospital	64%	87%	0.25	3.50	1.25	0.06	12	1.0	0.17	0.10	0.02	116	5.8	1
1	123	Occupancy Sensor	Hospital	20%	27%	0.46	3.56	2.85	0.32	7	0.7	0.12	0.07	0.16	967	0.7	7
1	124	Lighting Control Tuneup	Hospital	5%	7%	0.01	3.64	3.46	0.42	6	0.0	0.01	0.00	0.02	131	5.2	1
1	130	Base Incandescent Flood, 75W to Screw-in CFL	Hospital	0%	0%	0.21	20.18	20.18	2.52	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	Hospital	72%	98%	0.48	24.61	6.89	0.06	1	3.8	0.65	0.38	0.02	91	7.5	0
1	140	Base Incandescent Flood, 75W to Hardwired CFL	Hospital	0%	0%	0.21	20.18	20.18	2.52	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	Hospital	72%	98%	2.18	24.61	6.89	0.06	4	1.3	0.22	0.13	0.05	296	2.3	2
1	145	Base CFL	Hospital	0%	0%	0.00	5.34	5.34	0.67	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	Hospital	0%	0%	0.00	6.26	6.26	0.78	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	Hospital	37%	50%	0.06	6.38	4.04	0.40	8	0.3	0.05	0.03	0.01	34	20.2	0
1	152	PSMH, 250 W, electronic ballast	Hospital	43%	59%	0.29	6.29	3.58	0.33	8	0.4	0.06	0.04	0.03	149	4.5	1
1	153	High Bay T5	Hospital	49%	66%	0.13	6.42	3.30	0.27	8	0.4	0.07	0.04	0.01	58	11.8	0
1	160	Base Exit Sign	Hospital	0%	0%	0.00	0.02	0.02	0.00	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	Hospital	81%	81%	0.00	0.02	0.00	0.00	16	0.1	0.02	0.02	0.04	286	3.2	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	Hospital	0%	0%	0.00	0.05	0.05	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	Hospital	35%	35%	0.01	0.05	0.03	0.00	5	0.2	0.01	0.01	0.14	2,492	0.8	5
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	Hospital	22%	22%	0.00	0.06	0.05	0.00	5	0.0	0.00	0.00	0.03	572	3.7	1
1	210	Base Outdoor HID Lamp	Hospital	0%	0%	0.00	0.35	0.35	0.02	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	Hospital	22%	22%	0.03	0.43	0.33	0.02	5	0.1	0.00	0.00	0.09	1,702	1.2	3
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Hospital	0%	0%	0.91	14.46	14.46	2.40	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Hospital	12%	18%	0.23	14.73	12.95	2.00	20	11.2	2.76	0.01	0.02	83	5.6	1
1	302	High Efficiency Chiller Motors	Hospital	3%	3%	0.08	14.51	14.05	2.33	20	3.0	0.53	0.00	0.03	162	4.1	2

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch Segment	E 1 Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	304	EMS - Chiller	Hospital	10%	10%	0.25	15.94	14.34	2.38	10	0.9	0.15	0.02	0.03	196	3.5	2
1	305	Chiller Tune Up/Diagnostics	Hospital	8%	12%	0.10	15.07	13.86	2.20	10	3.3	0.82	0.03	0.02	70	6.7	1
1	306	VSD for Chiller Pumps and Towers	Hospital	10%	10%	0.17	15.04	13.54	2.24	15	5.1	0.85	0.02	0.02	118	5.9	1
1	307	EMS Optimization	Hospital	5%	1%	0.03	14.84	14.09	2.43	5	2.1	0.09	0.01	0.01	314	8.8	0
1	308	Aerosole Duct Sealing	Hospital	10%	10%	0.08	14.99	13.49	2.24	15	5.4	0.89	0.03	0.01	55	12.6	1
1	309	Duct/Pipe Insulation	Hospital	2%	2%	0.77	14.58	14.29	2.37	10	1.0	0.16	0.00	0.55	3,306	0.2	30
1	311	Window Film (Standard)	Hospital	5%	6%	0.13	15.00	14.18	2.34	10	1.6	0.28	-0.05	0.03	187	3.5	2
1	313	Ceiling Insulation	Hospital	12%	37%	0.38	15.20	13.36	1.58	20	4.1	2.09	0.29	0.03	65	3.5	2
1	314	Roof Insulation	Hospital	5%	12%	0.15	14.73	14.06	2.15	20	1.5	0.65	0.03	0.04	82	3.2	3
1	315	Cool Roof - Chiller	Hospital	24%	53%	1.36	15.83	12.01	1.25	15	9.0	3.27	0.00	0.06	166	1.9	4
1	317	Thermal Energy Storage (TES)	Hospital	-7%	116%	1.56	14.28	15.22	-0.39	50	-1.4	4.06	0.01	-0.25	85	-0.4	-19
1	320	Base DX Packaged System, EER=10.3, 10 tons	Hospital	0%	0%	2.79	25.07	25.07	4.16	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	Hospital	6%	4%	0.55	25.21	23.82	4.01	15	0.3	0.04	0.00	0.07	551	1.7	5
1	322	Hybrid Dessicant-DX System (Trane CDQ)	Hospital	40%	29%	2.05	25.07	15.04	2.94	15	2.6	0.32	0.00	0.03	285	3.3	2
1	323	Geothermal Heat Pump, EER=13, 10 tons	Hospital	21%	15%	4.92	25.12	19.91	3.53	15	1.3	0.16	0.01	0.16	1,315	0.7	11
1	326	DX Tune Up/ Advanced Diagnostics	Hospital	5%	7%	0.13	25.94	24.64	3.98	10	0.2	0.04	0.00	0.02	82	5.7	1
1	327	DX Coil Cleaning	Hospital	5%	7%	0.04	25.69	24.45	3.95	5	0.2	0.06	0.00	0.01	43	10.8	0
1	328	Optimize Controls	Hospital	5%	1%	0.04	25.94	24.64	4.25	5	0.2	0.01	0.00	0.01	240	11.6	0
1	329	Aerosole Duct Sealing	Hospital	10%	10%	0.08	25.98	23.38	3.88	15	0.7	0.11	0.00	0.01	32	21.8	0
1	330	Duct/Pipe Insulation	Hospital	2%	2%	0.77	25.27	24.77	4.11	10	0.1	0.02	0.00	0.32	1,907	0.4	17
1	332	Window Film (Standard)	Hospital	5%	5%	0.14	25.95	24.60	4.07	10	0.2	0.03	-0.02	0.02	122	5.5	1
1	334	Ceiling Insulation	Hospital	12%	35%	0.38	26.35	23.16	2.83	20	0.5	0.24	0.13	0.02	40	6.0	1
1	335	Roof Insulation	Hospital	5%	12%	0.15	25.54	24.37	3.71	20	0.2	0.08	0.05	0.02	46	5.6	1
1	336	Cool Roof - DX	Hospital	24%	43%	1.36	27.44	20.82	2.59	15	1.1	0.33	0.00	0.03	117	3.3	2
1	340	Base Packaged HP System, EER=10.3, 10 tons	Hospital	0%	0%	2.79	25.07	25.07	4.16	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	Hospital	6%	8%	0.11	25.21	23.82	3.85	15	0.0	0.01	0.00	0.01	58	8.5	1
1	342	Geothermal Heat Pump, EER=13, 10 tons	Hospital	21%	37%	4.92	25.12	19.91	2.62	25	0.1	0.03	0.00	0.15	493	0.8	11
1	344	Aerosole Duct Sealing	Hospital	10%	10%	0.08	25.98	23.38	3.88	15	0.0	0.01	0.00	0.01	32	21.8	0
1	345	Duct/Pipe Insulation	Hospital	2%	2%	0.77	25.27	24.77	4.11	10	0.0	0.00	0.00	0.32	1,907	0.4	17
1	347	Window Film (Standard)	Hospital	5%	5%	0.13	25.95	24.60	4.07	10	0.0	0.00	0.00	0.02	116	5.7	1
1	349	Ceiling Insulation	Hospital	12%	35%	0.38	26.35	23.16	2.83	20	0.0	0.02	0.00	0.02	40	6.0	1
1	350	Roof Insulation	Hospital	5%	12%	0.15	25.54	24.37	3.71	20	0.0	0.01	0.00	0.02	46	5.6	1
1	351	Cool Roof - DX	Hospital	24%	43%	1.36	27.44	20.82	2.59	15	0.1	0.02	0.00	0.03	117	3.3	2
1	360	Base PTAC, EER=8.3, 1 ton	Hospital	0%	0%	0.00	28.93	28.93	4.80	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	Hospital	14%	10%	0.63	28.93	25.01	4.32	15	0.7	0.08	0.00	0.03	225	4.2	2
1	362	Occupancy Sensor (hotels)	Hospital	15%	4%	1.16	29.37	24.96	4.69	15	0.7	0.03	0.00	0.04	1,074	2.6	3
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	Hospital	0%	0%	0.06	7.94	7.94	0.92	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	Hospital	2%	2%	0.01	7.94	7.82	0.90	15	1.2	0.13	0.13	0.02	181	5.5	1
1	402	Variable Speed Drive Control	Hospital	30%	8%	0.31	8.58	6.01	0.92	15	15.9	0.46	0.46	0.02	709	5.6	1
1	403	Air Handler Optimization	Hospital	10%	3%	0.03	8.14	7.33	0.92	8	4.4	0.13	0.13	0.01	297	13.4	0
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	Hospital	14%	14%	0.12	7.94	6.79	0.79	15	11.1	1.24	0.00	0.02	156	6.6	1
1	405	Demand Control Ventilation (DCV)	Hospital	15%	60%	2.36	8.25	7.01	0.38	15	6.7	3.08	7.30	0.32	699	0.4	22
1	406	Energy Recovery Ventilation (ERV)	Hospital	7%	38%	0.54	8.08	7.51	0.58	20	3.1	1.92	2.38	0.15	246	0.7	11
1	407	Separate Makeup Air / Exhaust Hoods AC	Hospital	25%	25%	0.00	7.94	5.95	0.69	15	0.0	0.00	0.00	N/A	N/A	99999.0	N/A
1	500	Base Refrigeration System	Hospital	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	Hospital	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	Hospital	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	Hospital	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	Hospital	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	Hospital	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	Hospital	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	Hospital	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	508	Refrigeration Commissioning	Hospital	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	Hospital	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	Hospital	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	Hospital	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	Hospital	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	514	Multiplex Compressor System	Hospital	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	Hospital	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	Hospital	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	Hospital	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	Hospital	0%	0%	0.00	2.17	2.17	0.30	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch	E 1			Energy	Peak	Total	Base		Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	601	High Efficiency Water Heater (electric)	Hospital	2%	2%	0.00	2.18	2.13	0.30	15	0.0	0.00	0.00	0.01	61	13.6	1
1	603	Heat Pump Water Heater (air source)	Hospital	68%	68%	0.05	2.25	0.71	0.10	15	1.1	0.16	0.14	0.01	40	20.8	0
1	604	Solar Water Heater	Hospital	70%	70%	0.12	2.19	0.66	0.09	20	0.6	0.08	0.07	0.01	88	9.4	1
1	606	Demand controlled circulating systems	Hospital	5%	5%	0.00	2.21	2.10	0.29	15	0.0	0.01	0.01	0.00	31	26.7	0
1	608	Heat Recovery Unit	Hospital	65%	65%	0.08	2.59	0.91	0.13	10	0.7	0.10	0.09	0.01	73	11.4	1
1	609	Heat Trap	Hospital	9%	9%	0.00	2.22	2.02	0.28	10	0.1	0.01	0.01	0.00	1	810.4	0
1	610	Hot Water Pipe Insulation	Hospital	2%	2%	0.00	2.18	2.14	0.30	15	0.0	0.00	0.00	0.01	102	8.2	1
1	700	Base Desktop PC	Hospital	0%	0%	0.00	0.25	0.25	0.03	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	Hospital	68%	45%	0.01	0.30	0.10	0.02	4	1.1	0.08	0.17	0.01	171	9.2	0
1	702	PC Network Power Management Enabling	Hospital	68%	45%	0.00	0.30	0.10	0.02	4	1.1	0.08	0.17	0.01	86	18.4	0
1	710	Base Monitor, CRT	Hospital	0%	0%	0.00	0.25	0.25	0.03	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	Hospital	56%	56%	0.00	0.53	0.23	0.03	4	0.1	0.02	0.02	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	Hospital	53%	35%	0.01	0.36	0.17	0.03	4	0.6	0.04	0.09	0.01	173	9.1	0
1	720	Base Monitor, LCD	Hospital	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	Hospital	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	Hospital	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	5,511	0.3	12
1	730	Base Copier	Hospital	0%	0%	0.00	0.07	0.07	0.01	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	Hospital	21%	21%	0.00	0.09	0.07	0.01	6	0.0	0.00	0.00	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	Hospital	19%	13%	0.00	0.08	0.06	0.01	6	0.1	0.01	0.01	0.06	790	2.0	2
1	740	Base Laser Printer	Hospital	0%	0%	0.00	0.30	0.30	0.03	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	Hospital	49%	32%	0.02	0.40	0.20	0.03	5	0.7	0.05	0.10	0.03	439	3.6	1
1	800	Base Commercial Ovens	Hospital	0%	0%	0.00	0.24	0.24	0.04	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	Hospital	23%	23%	18.79	0.24	0.18	0.03	10	0.3	0.05	0.01	71.15	402,995	0.0	3,902
1	810	Base Commercial Fryers	Hospital	0%	0%	0.00	0.06	0.06	0.01	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	Hospital	15%	15%	7.82	0.06	0.05	0.01	10	0.0	0.01	0.00	180.04	1,019,740	0.0	9,874
1	900	Base Vending Machines	Hospital	0%	0%	0.00	0.10	0.10	0.01	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	Hospital	40%	26%	0.01	0.10	0.06	0.01	10	0.3	0.02	0.03	0.03	370	4.2	2
1	110	Base Fluorescent Fixture, T12, 34W, EB	Other Healthcare	0%	0%	1.79	11.54	11.54	1.85	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	Other Healthcare	31%	43%	2.13	11.73	8.04	1.08	19	12.0	2.61	1.54	0.09	433	1.2	7
1	112	Premium T8, EB, Reflector	Other Healthcare	66%	89%	2.86	11.54	3.96	0.20	19	6.5	1.42	0.83	0.06	282	1.9	4
1	113	Occupancy Sensor	Other Healthcare	20%	27%	1.92	11.74	9.39	1.37	11	4.6	1.00	0.59	0.16	755	0.7	10
1	114	Continuous Dimming	Other Healthcare	50%	68%	12.27	11.54	5.77	0.59	13	2.5	0.54	0.32	0.37	1,698	0.3	24
1	115	Lighting Control Tuneup	Other Healthcare	5%	7%	0.01	11.99	11.39	1.79	6	0.3	0.06	0.03	0.01	31	17.0	0
1	120	Base T8, EB	Other Healthcare	0%	0%	0.00	6.63	6.63	1.06	19	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	Other Healthcare	16%	21%	0.21	6.69	5.63	0.84	19	6.4	1.40	0.83	0.03	147	3.6	2
1	122	ROB Premium T8, EB, Reflector	Other Healthcare	64%	87%	0.71	6.63	2.37	0.13	19	5.5	1.19	0.70	0.03	125	4.2	2
1	123	Occupancy Sensor	Other Healthcare	20%	27%	1.32	6.75	5.40	0.79	11	4.0	0.87	0.51	0.20	906	0.6	12
1	124	Lighting Control Tuneup	Other Healthcare	5%	7%	0.01	6.89	6.55	1.03	6	0.2	0.05	0.03	0.01	54	9.8	0
1	130	Base Incandescent Flood, 75W to Screw-in CFL	Other Healthcare	0%	0%	0.59	38.25	38.25	6.13	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	Other Healthcare	72%	98%	1.38	46.64	13.06	0.16	2	39.3	8.56	5.04	0.02	81	6.6	0
1	140	Base Incandescent Flood, 75W to Hardwired CFL	Other Healthcare	0%	0%	0.59	38.25	38.25	6.13	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	Other Healthcare	72%	98%	6.24	46.64	13.06	0.16	5	13.1	2.85	1.68	0.05	246	2.1	2
1	145	Base CFL	Other Healthcare	0%	0%	0.00	10.12	10.12	1.62	2	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	Other Healthcare	0%	0%	0.00	11.87	11.87	1.90	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	Other Healthcare	37%	50%	0.11	12.09	7.65	0.97	12	0.1	0.01	0.01	0.00	21	25.5	0
1	152	PSMH, 250 W, electronic ballast	Other Healthcare	43%	59%	0.55	11.92	6.79	0.79	12	0.1	0.01	0.01	0.02	92	5.7	1
1	153	High Bay T5	Other Healthcare	49%	66%	0.25	12.16	6.25	0.66	12	0.1	0.01	0.01	0.01	35	14.9	0
1	160	Base Exit Sign	Other Healthcare	0%	0%	0.00	0.09	0.09	0.01	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	Other Healthcare	81%	81%	0.02	0.11	0.02	0.00	16	1.0	0.16	0.17	0.03	201	3.6	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	Other Healthcare	0%	0%	0.00	0.24	0.24	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	Other Healthcare	35%	35%	0.06	0.24	0.15	0.01	5	1.2	0.05	0.03	0.20	4,745	0.6	7
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	Other Healthcare	22%	22%	0.01	0.29	0.23	0.01	5	0.1	0.00	0.00	0.05	1,089	2.5	2
1	210	Base Outdoor HID Lamp	Other Healthcare	0%	0%	0.00	0.26	0.26	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	Other Healthcare	22%	22%	0.03	0.32	0.25	0.01	5	0.1	0.00	0.00	0.11	2,580	1.1	4
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Other Healthcare	0%	0%	0.86	6.33	6.33	1.51	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Other Healthcare	12%	18%	0.21	6.45	5.67	1.26	20	1.0	0.37	0.00	0.04	123	2.6	3
1	302	High Efficiency Chiller Motors	Other Healthcare	3%	3%	0.08	6.35	6.15	1.47	20	0.3	0.07	0.00	0.06	242	1.9	4
1	304	EMS - Chiller	Other Healthcare	10%	10%	0.23	6.98	6.28	1.50	10	0.1	0.02	0.00	0.07	292	1.6	4
1	305	Chiller Tune Up/Diagnostics	Other Healthcare	8%	12%	0.10	6.60	6.07	1.39	10	0.3	0.11	0.00	0.04	112	2.9	2
1	306	VSD for Chiller Pumps and Towers	Other Healthcare	10%	10%	0.16	6.58	5.93	1.41	15	0.5	0.11	0.00	0.04	176	2.7	3
1	307	EMS Optimization	Other Healthcare	5%	1%	0.03	6.49	6.17	1.53	5	0.2	0.01	0.00	0.03	499	3.9	1
1	308	Aerosole Duct Sealing	Other Healthcare	10%	10%	0.08	6.56	5.91	1.41	15	0.5	0.12	0.00	0.02	82	5.9	1

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008										
Vintage	E															
Batch	1															
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	309	Duct/Pipe Insulation	Other Healthcare	2%	2%	0.77	6.38	6.26	1.49	10	0.1	0.02	0.00	1.25	5,246	0.1	69
1	311	Window Film (Standard)	Other Healthcare	5%	6%	0.13	6.56	6.21	1.48	10	0.1	0.04	-0.01	0.08	297	1.5	4
1	313	Ceiling Insulation	Other Healthcare	12%	37%	0.38	6.65	5.85	0.99	20	0.4	0.28	0.04	0.08	103	1.5	5
1	314	Roof Insulation	Other Healthcare	5%	12%	0.15	6.45	6.15	1.36	20	0.1	0.09	0.00	0.08	131	1.4	6
1	315	Cool Roof - Chiller	Other Healthcare	24%	53%	1.36	6.93	5.26	0.78	15	0.8	0.44	0.00	0.14	264	0.8	9
1	317	Thermal Energy Storage (TES)	Other Healthcare	-7%	116%	1.47	6.25	6.66	-0.24	50	-0.1	0.54	0.00	-0.53	127	-0.2	-41
1	320	Base DX Packaged System, EER=10.3, 10 tons	Other Healthcare	0%	0%	2.62	10.98	10.98	2.62	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	Other Healthcare	6%	4%	0.52	11.04	10.43	2.53	15	2.3	0.40	0.00	0.14	821	0.8	10
1	322	Hybrid Dessicant-DX System (Trane CDQ)	Other Healthcare	40%	29%	1.93	10.98	6.59	1.86	15	18.4	3.20	0.00	0.07	425	1.6	5
1	323	Geothermal Heat Pump, EER=13, 10 tons	Other Healthcare	21%	15%	4.62	11.00	8.71	2.23	15	9.5	1.65	0.09	0.34	1,960	0.3	23
1	326	DX Tune Up/ Advanced Diagnostics	Other Healthcare	5%	7%	0.13	11.36	10.79	2.51	10	1.2	0.41	0.00	0.05	130	2.5	3
1	327	DX Coil Cleaning	Other Healthcare	5%	7%	0.04	11.25	10.70	2.49	5	1.7	0.60	0.00	0.02	65	5.0	1
1	328	Optimize Controls	Other Healthcare	5%	1%	0.04	11.36	10.79	2.68	5	1.2	0.07	0.01	0.02	380	5.1	1
1	329	Aerosole Duct Sealing	Other Healthcare	10%	10%	0.08	11.37	10.24	2.44	15	4.6	1.11	0.00	0.01	48	10.1	1
1	330	Duct/Pipe Insulation	Other Healthcare	2%	2%	0.77	11.06	10.84	2.59	10	0.8	0.20	0.00	0.72	3,026	0.2	40
1	332	Window Film (Standard)	Other Healthcare	5%	5%	0.14	11.36	10.77	2.56	10	1.3	0.32	-0.22	0.05	194	2.4	3
1	334	Ceiling Insulation	Other Healthcare	12%	35%	0.38	11.53	10.14	1.78	20	3.5	2.43	1.33	0.04	63	2.6	3
1	335	Roof Insulation	Other Healthcare	5%	12%	0.15	11.18	10.67	2.34	20	1.3	0.82	0.49	0.05	73	2.5	3
1	336	Cool Roof - DX	Other Healthcare	24%	43%	1.36	12.01	9.12	1.63	15	7.8	3.31	0.00	0.08	186	1.5	5
1	340	Base Packaged HP System, EER=10.3, 10 tons	Other Healthcare	0%	0%	2.62	10.98	10.98	2.62	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	Other Healthcare	6%	8%	0.11	11.04	10.43	2.43	15	0.2	0.06	0.00	0.03	86	3.9	2
1	342	Geothermal Heat Pump, EER=13, 10 tons	Other Healthcare	21%	37%	4.62	11.00	8.71	1.65	25	0.4	0.15	0.00	0.31	735	0.4	23
1	344	Aerosole Duct Sealing	Other Healthcare	10%	10%	0.08	11.37	10.24	2.44	15	0.2	0.04	0.00	0.01	48	10.1	1
1	345	Duct/Pipe Insulation	Other Healthcare	2%	2%	0.77	11.06	10.84	2.59	10	0.0	0.01	0.00	0.72	3,026	0.2	40
1	347	Window Film (Standard)	Other Healthcare	5%	5%	0.13	11.36	10.77	2.56	10	0.0	0.01	0.00	0.05	184	2.5	3
1	349	Ceiling Insulation	Other Healthcare	12%	35%	0.38	11.53	10.14	1.78	20	0.1	0.09	0.00	0.04	63	2.6	3
1	350	Roof Insulation	Other Healthcare	5%	12%	0.15	11.18	10.67	2.34	20	0.0	0.03	0.00	0.05	73	2.5	3
1	351	Cool Roof - DX	Other Healthcare	24%	43%	1.36	12.01	9.12	1.63	15	0.3	0.12	0.00	0.08	186	1.5	5
1	360	Base PTAC, EER=8.3, 1 ton	Other Healthcare	0%	0%	0.00	12.66	12.66	3.02	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	Other Healthcare	14%	10%	0.59	12.66	10.95	2.72	15	4.7	0.82	0.00	0.06	335	2.0	4
1	362	Occupancy Sensor (hotels)	Other Healthcare	15%	4%	1.09	12.86	10.93	2.95	15	4.8	0.28	0.03	0.10	1,601	1.2	6
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	Other Healthcare	0%	0%	0.06	2.04	2.04	0.92	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	Other Healthcare	2%	2%	0.02	2.04	2.01	0.90	15	0.5	0.20	0.21	0.08	188	1.4	6
1	402	Variable Speed Drive Control	Other Healthcare	30%	8%	0.33	2.20	1.54	0.92	15	6.2	0.70	0.71	0.08	737	1.4	6
1	403	Air Handler Optimization	Other Healthcare	10%	3%	0.03	2.09	1.88	0.92	8	1.7	0.19	0.20	0.03	297	3.4	2
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	Other Healthcare	14%	14%	0.11	2.04	1.74	0.79	15	4.3	1.89	0.00	0.06	147	1.8	4
1	405	Demand Control Ventilation (DCV)	Other Healthcare	15%	60%	2.36	2.12	1.80	0.38	15	2.6	4.70	11.13	1.24	699	0.1	84
1	406	Energy Recovery Ventilation (ERV)	Other Healthcare	7%	38%	0.51	2.08	1.93	0.58	20	1.2	2.92	3.63	0.56	231	0.2	40
1	407	Separate Makeup Air / Exhaust Hoods AC	Other Healthcare	25%	25%	0.00	2.04	1.53	0.69	15	0.0	0.00	0.00	N/A	N/A	99999.0	N/A
1	500	Base Refrigeration System	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	508	Refrigeration Commissioning	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	514	Multiplex Compressor System	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	Other Healthcare	0%	0%	0.00	3.73	3.73	0.07	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	Other Healthcare	2%	2%	0.02	3.74	3.66	0.07	15	0.4	0.01	0.01	0.04	2,066	2.8	3
1	603	Heat Pump Water Heater (air source)	Other Healthcare	68%	68%	0.41	3.86	1.23	0.02	15	12.4	0.24	0.21	0.03	1,350	4.4	2
1	604	Solar Water Heater	Other Healthcare	70%	70%	0.96	3.76	1.13	0.02	20	6.4	0.13	0.11	0.06	2,972	2.0	4
1	606	Demand controlled circulating systems	Other Healthcare	5%	5%	0.02	3.80	3.61	0.07	15	0.5	0.01	0.01	0.02	1,050	5.6	1
1	608	Heat Recovery Unit	Other Healthcare	65%	65%	0.08	4.46	1.56	0.03	10	8.0	0.16	0.14	0.01	300	19.6	0

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	609	Heat Trap	Other Healthcare	9%	9%	0.00	3.82	3.47	0.07	10	1.0	0.02	0.02	0.00	35	170.1	0
1	610	Hot Water Pipe Insulation	Other Healthcare	2%	2%	0.03	3.75	3.68	0.07	15	0.2	0.00	0.00	0.07	3,426	1.7	5
1	700	Base Desktop PC	Other Healthcare	0%	0%	0.00	0.05	0.05	0.03	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	Other Healthcare	68%	45%	0.00	0.06	0.02	0.02	4	0.4	0.12	0.26	0.01	37	9.2	0
1	702	PC Network Power Management Enabling	Other Healthcare	68%	45%	0.00	0.06	0.02	0.02	4	0.4	0.12	0.26	0.01	18	18.4	0
1	710	Base Monitor, CRT	Other Healthcare	0%	0%	0.00	0.05	0.05	0.03	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	Other Healthcare	56%	56%	0.00	0.11	0.05	0.03	4	0.0	0.02	0.03	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	Other Healthcare	53%	35%	0.00	0.08	0.04	0.03	4	0.2	0.06	0.13	0.01	37	9.1	0
1	720	Base Monitor, LCD	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	Other Healthcare	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	Other Healthcare	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	1,185	0.3	12
1	730	Base Copier	Other Healthcare	0%	0%	0.00	0.05	0.05	0.03	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	Other Healthcare	21%	21%	0.00	0.06	0.05	0.02	6	0.0	0.01	0.01	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	Other Healthcare	19%	13%	0.00	0.05	0.04	0.02	6	0.1	0.02	0.05	0.06	170	2.0	2
1	740	Base Laser Printer	Other Healthcare	0%	0%	0.00	0.09	0.09	0.05	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	Other Healthcare	49%	32%	0.01	0.12	0.06	0.04	5	0.3	0.10	0.22	0.03	94	3.6	1
1	800	Base Commercial Ovens	Other Healthcare	0%	0%	0.00	0.06	0.06	0.01	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	Other Healthcare	23%	23%	14.07	0.06	0.05	0.01	10	0.1	0.01	0.00	200.04	1,907,859	0.0	10,970
1	810	Base Commercial Fryers	Other Healthcare	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	Other Healthcare	15%	15%	0.60	0.00	0.00	0.00	10	0.0	0.00	0.00	180.36	1,720,163	0.0	9,891
1	900	Base Vending Machines	Other Healthcare	0%	0%	0.00	0.10	0.10	0.01	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	Other Healthcare	40%	26%	0.01	0.10	0.06	0.01	10	0.4	0.02	0.04	0.03	485	4.2	2
1	110	Base Fluorescent Fixture, T12, 34W, EB	Warehouse	0%	0%	0.21	1.28	1.28	0.18	13	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	Warehouse	31%	43%	0.26	1.30	0.89	0.10	20	15.1	2.81	1.34	0.10	534	1.2	7
1	112	Premium T8, EB, Reflector	Warehouse	66%	89%	0.34	1.28	0.44	0.02	20	8.2	1.52	0.73	0.06	348	1.8	5
1	113	Occupancy Sensor	Warehouse	20%	27%	0.23	1.30	1.04	0.13	12	5.8	1.08	0.52	0.17	917	0.7	11
1	114	Continuous Dimming	Warehouse	50%	68%	1.47	1.28	0.64	0.06	14	3.1	0.58	0.28	0.39	2,077	0.3	26
1	115	Lighting Control Tuneup	Warehouse	5%	7%	0.01	1.33	1.26	0.17	6	0.3	0.06	0.03	0.06	328	1.9	2
1	120	Base T8, EB	Warehouse	0%	0%	0.00	0.74	0.74	0.10	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	Warehouse	16%	21%	0.02	0.74	0.62	0.08	20	1.8	0.34	0.16	0.03	180	3.4	2
1	122	ROB Premium T8, EB, Reflector	Warehouse	64%	87%	0.08	0.74	0.26	0.01	20	1.5	0.29	0.14	0.03	153	4.1	2
1	123	Occupancy Sensor	Warehouse	20%	27%	0.16	0.75	0.60	0.07	12	1.1	0.21	0.10	0.20	1,100	0.6	13
1	124	Lighting Control Tuneup	Warehouse	5%	7%	0.01	0.76	0.73	0.10	6	0.1	0.01	0.01	0.11	570	1.1	4
1	130	Base Incandescent Flood, 75W to Screw-in CFL	Warehouse	0%	0%	0.07	4.24	4.24	0.58	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	Warehouse	72%	98%	0.17	5.17	1.45	0.01	2	26.5	4.92	2.36	0.02	94	6.6	0
1	140	Base Incandescent Flood, 75W to Hardwired CFL	Warehouse	0%	0%	0.07	4.24	4.24	0.58	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	Warehouse	72%	98%	0.75	5.17	1.45	0.01	6	8.8	1.64	0.79	0.06	304	2.0	2
1	145	Base CFL	Warehouse	0%	0%	0.00	1.12	1.12	0.15	2	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	Warehouse	0%	0%	0.00	1.32	1.32	0.18	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	Warehouse	37%	50%	0.03	1.34	0.85	0.09	13	8.5	1.57	0.75	0.01	52	11.8	1
1	152	PSMH, 250 W, electronic ballast	Warehouse	43%	59%	0.14	1.32	0.75	0.08	13	10.2	1.89	0.91	0.04	233	2.7	3
1	153	High Bay T5	Warehouse	49%	66%	0.06	1.35	0.69	0.06	13	11.3	2.09	1.00	0.02	90	6.9	1
1	160	Base Exit Sign	Warehouse	0%	0%	0.00	0.02	0.02	0.00	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	Warehouse	81%	81%	0.00	0.02	0.00	0.00	16	1.3	0.18	0.15	0.04	265	3.2	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	Warehouse	0%	0%	0.00	0.14	0.14	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	Warehouse	35%	35%	0.03	0.14	0.09	0.01	5	4.8	0.31	0.17	0.16	2,495	0.7	6
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	Warehouse	22%	22%	0.00	0.17	0.13	0.01	5	0.4	0.02	0.01	0.04	572	3.1	1
1	210	Base Outdoor HID Lamp	Warehouse	0%	0%	0.00	0.20	0.20	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	Warehouse	22%	22%	0.02	0.25	0.20	0.01	5	0.6	0.04	0.00	0.08	1,263	1.4	3
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Warehouse	0%	0%	0.08	0.62	0.62	0.13	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Warehouse	12%	18%	0.02	0.63	0.55	0.11	20	0.0	0.01	0.00	0.04	135	2.7	3
1	302	High Efficiency Chiller Motors	Warehouse	3%	3%	0.01	0.62	0.60	0.13	20	0.0	0.00	0.00	0.06	263	2.0	4
1	304	EMS - Chiller	Warehouse	10%	10%	0.02	0.68	0.61	0.13	10	0.0	0.00	0.00	0.07	319	1.7	4
1	305	Chiller Tune Up/Diagnostics	Warehouse	8%	12%	0.10	0.64	0.59	0.12	10	0.0	0.00	0.00	0.40	1,307	0.3	22
1	306	VSD for Chiller Pumps and Towers	Warehouse	10%	10%	0.02	0.64	0.58	0.12	15	0.0	0.00	0.00	0.04	192	2.9	3
1	307	EMS Optimization	Warehouse	5%	1%	0.03	0.63	0.60	0.13	5	0.0	0.00	0.00	0.31	5,839	0.4	11
1	308	Aerosole Duct Sealing	Warehouse	10%	10%	0.01	0.64	0.57	0.12	15	0.0	0.00	0.00	0.02	90	6.1	1
1	309	Duct/Pipe Insulation	Warehouse	2%	2%	0.77	0.62	0.61	0.13	10	0.0	0.00	0.00	12.87	61,438	0.0	706
1	311	Window Film (Standard)	Warehouse	5%	6%	0.13	0.64	0.60	0.13	10	0.0	0.00	0.00	0.78	3,477	0.1	43
1	313	Ceiling Insulation	Warehouse	12%	37%	0.38	0.65	0.57	0.08	20	0.0	0.01	0.01	0.78	1,211	0.1	56
1	314	Roof Insulation	Warehouse	5%	12%	0.15	0.63	0.60	0.12	20	0.0	0.00	0.00	0.84	1,529	0.1	60
1	315	Cool Roof - Chiller	Warehouse	24%	53%	1.36	0.67	0.51	0.07	15	0.0	0.02	0.00	1.41	3,091	0.1	95

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008										
Vintage	E															
Batch	1															
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	317	Thermal Energy Storage (TES)	Warehouse	-7%	116%	0.14	0.61	0.65	-0.02	50	0.0	0.02	0.00	-0.51	139	-0.2	-39
1	320	Base DX Packaged System, EER=10.3, 10 tons	Warehouse	0%	0%	0.24	1.07	1.07	0.22	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	Warehouse	6%	4%	0.05	1.07	1.02	0.22	15	0.4	0.06	0.00	0.14	895	0.8	9
1	322	Hybrid Dessicant-DX System (Trane CDQ)	Warehouse	40%	29%	0.18	1.07	0.64	0.16	15	3.4	0.52	0.00	0.07	463	1.6	5
1	323	Geothermal Heat Pump, EER=13, 10 tons	Warehouse	21%	15%	0.43	1.07	0.85	0.19	15	1.7	0.27	0.06	0.33	2,137	0.4	22
1	326	DX Tune Up/ Advanced Diagnostics	Warehouse	5%	7%	0.13	1.11	1.05	0.21	10	0.2	0.07	0.00	0.47	1,519	0.2	26
1	327	DX Coil Cleaning	Warehouse	5%	7%	0.00	1.09	1.04	0.21	5	0.3	0.10	0.00	0.02	70	5.3	1
1	328	Optimize Controls	Warehouse	5%	1%	0.04	1.11	1.05	0.23	5	0.2	0.01	0.01	0.23	4,452	0.5	8
1	329	Aerosole Duct Sealing	Warehouse	10%	10%	0.01	1.11	1.00	0.21	15	0.9	0.18	0.00	0.01	52	10.6	1
1	330	Duct/Pipe Insulation	Warehouse	2%	2%	0.77	1.08	1.06	0.22	10	0.2	0.03	0.00	7.42	35,445	0.0	407
1	332	Window Film (Standard)	Warehouse	5%	5%	0.14	1.11	1.05	0.22	10	0.2	0.03	-0.09	0.49	2,268	0.2	27
1	334	Ceiling Insulation	Warehouse	12%	35%	0.38	1.12	0.99	0.15	20	0.6	0.39	0.84	0.45	742	0.3	32
1	335	Roof Insulation	Warehouse	5%	12%	0.15	1.09	1.04	0.20	20	0.2	0.13	0.31	0.48	857	0.2	34
1	336	Cool Roof - DX	Warehouse	24%	43%	1.36	1.17	0.89	0.14	15	1.4	0.53	0.00	0.81	2,180	0.1	55
1	340	Base Packaged HP System, EER=10.3, 10 tons	Warehouse	0%	0%	0.24	1.07	1.07	0.22	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	Warehouse	6%	8%	0.01	1.07	1.02	0.21	15	0.0	0.01	0.00	0.03	94	4.1	2
1	342	Geothermal Heat Pump, EER=13, 10 tons	Warehouse	21%	37%	0.43	1.07	0.85	0.14	25	0.1	0.02	0.00	0.30	801	0.4	22
1	344	Aerosole Duct Sealing	Warehouse	10%	10%	0.01	1.11	1.00	0.21	15	0.0	0.01	0.00	0.01	52	10.6	1
1	345	Duct/Pipe Insulation	Warehouse	2%	2%	0.77	1.08	1.06	0.22	10	0.0	0.00	0.00	7.42	35,445	0.0	407
1	347	Window Film (Standard)	Warehouse	5%	5%	0.13	1.11	1.05	0.22	10	0.0	0.00	0.00	0.47	2,160	0.2	26
1	349	Ceiling Insulation	Warehouse	12%	35%	0.38	1.12	0.99	0.15	20	0.0	0.01	0.00	0.45	742	0.3	32
1	350	Roof Insulation	Warehouse	5%	12%	0.15	1.09	1.04	0.20	20	0.0	0.00	0.00	0.48	857	0.2	34
1	351	Cool Roof - DX	Warehouse	24%	43%	1.36	1.17	0.89	0.14	15	0.0	0.02	0.00	0.81	2,180	0.1	55
1	360	Base PTAC, EER=8.3, 1 ton	Warehouse	0%	0%	0.00	1.23	1.23	0.26	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	Warehouse	14%	10%	0.06	1.23	1.07	0.23	15	0.0	0.00	0.00	0.06	365	N/A	4
1	362	Occupancy Sensor (hotels)	Warehouse	15%	4%	0.10	1.25	1.06	0.25	15	0.0	0.00	0.00	0.09	1,745	N/A	6
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	Warehouse	0%	0%	0.01	0.24	0.24	0.03	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	Warehouse	2%	2%	0.00	0.24	0.23	0.03	15	0.4	0.04	0.30	0.07	693	1.5	5
1	402	Variable Speed Drive Control	Warehouse	30%	8%	0.03	0.26	0.18	0.03	15	5.3	0.14	1.02	0.07	2,718	1.6	5
1	403	Air Handler Optimization	Warehouse	10%	3%	0.03	0.24	0.22	0.03	8	1.5	0.04	0.28	0.29	10,593	0.4	14
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	Warehouse	14%	14%	0.01	0.24	0.20	0.02	15	3.7	0.39	0.00	0.05	489	2.2	3
1	405	Demand Control Ventilation (DCV)	Warehouse	15%	60%	2.36	0.25	0.21	0.01	15	2.2	0.96	16.02	10.66	24,966	0.0	721
1	406	Energy Recovery Ventilation (ERV)	Warehouse	7%	38%	0.05	0.24	0.22	0.02	20	1.0	0.60	5.23	0.45	767	0.3	32
1	407	Separate Makeup Air / Exhaust Hoods AC	Warehouse	25%	25%	0.00	0.24	0.18	0.02	15	0.0	0.00	0.00	N/A	N/A	99999.0	N/A
1	500	Base Refrigeration System	Warehouse	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	Warehouse	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	Warehouse	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	Warehouse	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	Warehouse	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	Warehouse	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	Warehouse	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	Warehouse	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	508	Refrigeration Commissioning	Warehouse	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	Warehouse	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	Warehouse	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	Warehouse	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	Warehouse	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	514	Multiplex Compressor System	Warehouse	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	Warehouse	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	Warehouse	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	Warehouse	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	Warehouse	0%	0%	0.00	0.01	0.01	0.00	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	Warehouse	2%	2%	0.00	0.01	0.01	0.00	15	0.0	0.00	0.00	0.32	1,931	0.4	22
1	603	Heat Pump Water Heater (air source)	Warehouse	68%	68%	0.01	0.01	0.00	0.00	15	0.5	0.08	0.05	0.21	1,262	0.5	14
1	604	Solar Water Heater	Warehouse	70%	70%	0.03	0.01	0.00	0.00	20	0.3	0.04	0.03	0.46	2,778	0.2	33
1	606	Demand controlled circulating systems	Warehouse	5%	5%	0.00	0.01	0.01	0.00	15	0.0	0.00	0.00	0.58	3,511	0.2	39
1	608	Heat Recovery Unit	Warehouse	65%	65%	0.08	0.02	0.01	0.00	10	0.3	0.05	0.04	1.60	9,623	0.1	88
1	609	Heat Trap	Warehouse	9%	9%	0.00	0.01	0.01	0.00	10	0.0	0.01	0.00	0.01	32	21.4	0
1	610	Hot Water Pipe Insulation	Warehouse	2%	2%	0.00	0.01	0.01	0.00	15	0.0	0.00	0.00	0.53	3,202	0.2	36
1	700	Base Desktop PC	Warehouse	0%	0%	0.00	0.07	0.07	0.01	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	Warehouse	68%	45%	0.00	0.08	0.03	0.01	4	3.4	0.30	0.43	0.01	143	9.2	0
1	702	PC Network Power Management Enabling	Warehouse	68%	45%	0.00	0.08	0.03	0.01	4	3.4	0.30	0.43	0.01	71	18.4	0

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch	E 1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	710	Base Monitor, CRT	Warehouse	0%	0%	0.00	0.07	0.07	0.01	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	Warehouse	56%	56%	0.00	0.14	0.06	0.01	4	0.4	0.06	0.05	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	Warehouse	53%	35%	0.00	0.10	0.05	0.01	4	1.7	0.15	0.21	0.01	144	9.1	0
1	720	Base Monitor, LCD	Warehouse	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	Warehouse	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	Warehouse	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	4,592	0.3	12
1	730	Base Copier	Warehouse	0%	0%	0.00	0.05	0.05	0.01	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	Warehouse	21%	21%	0.00	0.06	0.05	0.01	6	0.1	0.02	0.02	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	Warehouse	19%	13%	0.00	0.05	0.04	0.01	6	0.5	0.05	0.07	0.06	659	2.0	2
1	740	Base Laser Printer	Warehouse	0%	0%	0.00	0.10	0.10	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	Warehouse	49%	32%	0.01	0.13	0.07	0.01	5	2.4	0.21	0.30	0.03	366	3.6	1
1	800	Base Commercial Ovens	Warehouse	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	Warehouse	23%	23%	0.87	0.00	0.00	0.00	10	0.0	0.00	0.00	2359.83	19,022,462	0.0	129,415
1	810	Base Commercial Fryers	Warehouse	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	Warehouse	15%	15%	2.00	0.00	0.00	0.00	10	0.0	0.00	0.00	4762.13	38,387,222	0.0	261,159
1	900	Base Vending Machines	Warehouse	0%	0%	0.00	0.17	0.17	0.02	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	Warehouse	40%	26%	0.01	0.17	0.10	0.02	10	5.2	0.45	0.55	0.03	325	4.1	2
1	110	Base Fluorescent Fixture, T12, 34W, EB	Hotel/Motel	0%	0%	0.27	1.67	1.67	0.20	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	Hotel/Motel	31%	43%	0.32	1.70	1.17	0.12	19	3.4	0.55	0.40	0.09	588	1.2	7
1	112	Premium T8, EB, Reflector	Hotel/Motel	66%	89%	0.43	1.67	0.57	0.02	19	1.8	0.30	0.21	0.06	383	1.9	4
1	113	Occupancy Sensor	Hotel/Motel	20%	27%	0.29	1.70	1.36	0.15	11	0.5	0.08	0.06	0.16	1,025	0.7	10
1	114	Continuous Dimming	Hotel/Motel	50%	68%	1.84	1.67	0.84	0.06	14	2.1	0.34	0.24	0.39	2,408	0.3	26
1	115	Lighting Control Tuneup	Hotel/Motel	5%	7%	0.01	1.74	1.65	0.19	6	0.1	0.01	0.01	0.05	291	2.5	2
1	120	Base T8, EB	Hotel/Motel	0%	0%	0.00	0.96	0.96	0.11	19	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	Hotel/Motel	16%	21%	0.03	0.97	0.82	0.09	19	1.8	0.29	0.21	0.03	199	3.6	2
1	122	ROB Premium T8, EB, Reflector	Hotel/Motel	64%	87%	0.11	0.96	0.34	0.01	19	1.6	0.25	0.18	0.03	169	4.2	2
1	123	Occupancy Sensor	Hotel/Motel	20%	27%	0.20	0.98	0.78	0.08	11	0.5	0.07	0.05	0.20	1,230	0.6	12
1	124	Lighting Control Tuneup	Hotel/Motel	5%	7%	0.01	1.00	0.95	0.11	6	0.1	0.01	0.01	0.08	505	1.4	3
1	130	Base Incandescent Flood, 75W to Screw-in CFL	Hotel/Motel	0%	0%	0.09	5.55	5.55	0.65	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	Hotel/Motel	72%	98%	0.21	6.77	1.90	0.02	2	77.9	12.50	9.04	0.02	109	6.6	0
1	140	Base Incandescent Flood, 75W to Hardwired CFL	Hotel/Motel	0%	0%	0.09	5.55	5.55	0.65	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	Hotel/Motel	72%	98%	0.93	6.77	1.90	0.02	5	26.0	4.17	3.01	0.05	334	2.1	2
1	145	Base CFL	Hotel/Motel	0%	0%	0.00	1.47	1.47	0.17	2	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	Hotel/Motel	0%	0%	0.00	1.72	1.72	0.20	7	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	Hotel/Motel	37%	50%	0.02	1.75	1.11	0.10	12	0.1	0.02	0.01	0.01	42	16.9	0
1	152	PSMH, 250 W, electronic ballast	Hotel/Motel	43%	59%	0.12	1.73	0.99	0.08	12	0.1	0.02	0.02	0.03	188	3.8	2
1	153	High Bay T5	Hotel/Motel	49%	66%	0.06	1.76	0.91	0.07	12	0.1	0.02	0.02	0.01	73	9.9	1
1	160	Base Exit Sign	Hotel/Motel	0%	0%	0.00	0.04	0.04	0.01	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	Hotel/Motel	81%	81%	0.01	0.06	0.01	0.00	16	2.5	0.29	0.38	0.03	260	3.8	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	Hotel/Motel	0%	0%	0.00	0.51	0.51	0.04	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	Hotel/Motel	35%	35%	0.22	0.51	0.33	0.03	5	13.2	1.16	0.18	0.35	4,045	0.3	13
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	Hotel/Motel	22%	22%	0.04	0.64	0.50	0.04	5	1.0	0.09	0.01	0.08	928	1.4	3
1	210	Base Outdoor HID Lamp	Hotel/Motel	0%	0%	0.00	0.24	0.24	0.02	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	Hotel/Motel	22%	22%	0.11	0.30	0.24	0.02	5	0.5	0.04	0.00	0.46	5,241	0.3	16
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Hotel/Motel	0%	0%	0.38	5.96	5.96	0.97	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Hotel/Motel	12%	18%	0.09	6.07	5.34	0.81	20	11.4	2.78	0.01	0.02	84	5.6	1
1	302	High Efficiency Chiller Motors	Hotel/Motel	3%	3%	0.03	5.98	5.79	0.94	20	3.1	0.53	0.00	0.03	165	4.1	2
1	304	EMS - Chiller	Hotel/Motel	10%	10%	0.10	6.57	5.91	0.96	10	0.9	0.15	0.01	0.03	200	3.5	2
1	305	Chiller Tune Up/Diagnostics	Hotel/Motel	8%	12%	0.10	6.21	5.71	0.89	10	3.4	0.82	0.03	0.04	174	2.8	2
1	306	VSD for Chiller Pumps and Towers	Hotel/Motel	10%	10%	0.07	6.20	5.58	0.91	15	5.3	0.86	0.02	0.02	120	5.9	1
1	307	EMS Optimization	Hotel/Motel	5%	1%	0.03	6.12	5.81	0.98	5	2.1	0.09	0.01	0.03	775	3.6	1
1	308	Aerosole Duct Sealing	Hotel/Motel	10%	10%	0.03	6.18	5.56	0.91	15	5.5	0.90	0.02	0.01	56	12.6	1
1	309	Duct/Pipe Insulation	Hotel/Motel	2%	2%	0.77	6.01	5.89	0.96	10	1.0	0.16	0.00	1.33	8,159	0.1	73
1	311	Window Film (Standard)	Hotel/Motel	5%	6%	0.13	6.07	5.74	0.93	10	3.0	0.53	-0.07	0.08	470	1.4	5
1	313	Ceiling Insulation	Hotel/Motel	12%	37%	0.38	6.27	5.51	0.64	20	4.2	2.10	0.25	0.08	161	1.4	6
1	314	Roof Insulation	Hotel/Motel	5%	12%	0.15	6.07	5.80	0.87	20	1.5	0.65	0.02	0.09	203	1.3	6
1	315	Cool Roof - Chiller	Hotel/Motel	24%	53%	1.36	5.96	4.53	0.46	15	13.2	4.68	0.00	0.16	449	0.7	11
1	317	Thermal Energy Storage (TES)	Hotel/Motel	-7%	116%	0.64	5.89	6.27	-0.16	50	-1.4	4.09	0.01	-0.25	87	-0.4	-19
1	320	Base DX Packaged System, EER=10.3, 10 tons	Hotel/Motel	0%	0%	1.15	10.34	10.34	1.68	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	Hotel/Motel	6%	4%	0.23	10.39	9.82	1.63	15	8.1	0.96	0.00	0.07	560	1.7	5
1	322	Hybrid Dessicant-DX System (Trane CDQ)	Hotel/Motel	40%	29%	0.84	10.34	6.20	1.19	15	64.7	7.69	0.00	0.03	290	3.3	2
1	323	Geothermal Heat Pump, EER=13, 10 tons	Hotel/Motel	21%	15%	2.03	10.36	8.21	1.43	15	33.3	3.96	0.18	0.16	1,338	0.7	11

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008										
Vintage Batch	E 1															
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	326	DX Tune Up/ Advanced Diagnostics	Hotel/Motel	5%	7%	0.13	10.69	10.16	1.61	10	4.1	1.00	0.00	0.05	202	2.4	3
1	327	DX Coil Cleaning	Hotel/Motel	5%	7%	0.02	10.59	10.08	1.60	5	6.0	1.45	0.00	0.01	44	10.8	0
1	328	Optimize Controls	Hotel/Motel	5%	1%	0.04	10.69	10.16	1.72	5	4.1	0.17	0.02	0.02	591	4.8	1
1	329	Aerosole Duct Sealing	Hotel/Motel	10%	10%	0.03	10.71	9.64	1.57	15	16.3	2.66	0.00	0.01	32	21.8	0
1	330	Duct/Pipe Insulation	Hotel/Motel	2%	2%	0.77	10.42	10.21	1.66	10	2.9	0.48	0.00	0.77	4,707	0.2	42
1	332	Window Film (Standard)	Hotel/Motel	5%	5%	0.14	10.52	9.97	1.62	10	8.6	1.45	-0.83	0.05	306	2.2	3
1	334	Ceiling Insulation	Hotel/Motel	12%	35%	0.38	10.86	9.55	1.15	20	12.3	5.85	2.65	0.05	98	2.5	3
1	335	Roof Insulation	Hotel/Motel	5%	12%	0.15	10.53	10.05	1.50	20	4.5	1.98	0.98	0.05	114	2.3	4
1	336	Cool Roof - DX	Hotel/Motel	24%	43%	1.36	10.34	7.85	0.96	15	39.0	11.32	0.00	0.09	317	1.3	6
1	340	Base Packaged HP System, EER=10.3, 10 tons	Hotel/Motel	0%	0%	1.15	10.34	10.34	1.68	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	Hotel/Motel	6%	8%	0.05	10.39	9.82	1.56	15	0.1	0.02	0.00	0.01	59	8.5	1
1	342	Geothermal Heat Pump, EER=13, 10 tons	Hotel/Motel	21%	37%	2.03	10.36	8.21	1.06	25	0.2	0.06	0.00	0.15	501	0.8	11
1	344	Aerosole Duct Sealing	Hotel/Motel	10%	10%	0.03	10.71	9.64	1.57	15	0.1	0.02	0.00	0.01	32	21.8	0
1	345	Duct/Pipe Insulation	Hotel/Motel	2%	2%	0.77	10.42	10.21	1.66	10	0.0	0.00	0.00	0.77	4,707	0.2	42
1	347	Window Film (Standard)	Hotel/Motel	5%	5%	0.13	10.52	9.97	1.62	10	0.1	0.01	0.00	0.05	292	2.3	3
1	349	Ceiling Insulation	Hotel/Motel	12%	35%	0.38	10.86	9.55	1.15	20	0.1	0.03	0.00	0.05	98	2.5	3
1	350	Roof Insulation	Hotel/Motel	5%	12%	0.15	10.53	10.05	1.50	20	0.0	0.01	0.00	0.05	114	2.3	4
1	351	Cool Roof - DX	Hotel/Motel	24%	43%	1.36	10.34	7.85	0.96	15	0.2	0.07	0.00	0.09	317	1.3	6
1	360	Base PTAC, EER=8.3, 1 ton	Hotel/Motel	0%	0%	0.00	11.93	11.93	1.94	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	Hotel/Motel	14%	10%	0.26	11.93	10.31	1.75	15	6.9	0.82	0.00	0.03	229	4.2	2
1	362	Occupancy Sensor (hotels)	Hotel/Motel	15%	4%	0.48	12.11	10.29	1.90	15	7.0	0.29	0.03	0.04	1,092	2.6	3
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	Hotel/Motel	0%	0%	0.03	1.36	1.36	0.14	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	Hotel/Motel	2%	2%	0.01	1.36	1.34	0.13	15	1.5	0.15	0.24	0.07	734	1.6	5
1	402	Variable Speed Drive Control	Hotel/Motel	30%	8%	0.19	1.47	1.03	0.14	15	1.6	0.04	0.06	0.07	2,879	1.6	5
1	403	Air Handler Optimization	Hotel/Motel	10%	3%	0.03	1.39	1.25	0.14	8	5.9	0.15	0.23	0.05	2,016	2.3	2
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	Hotel/Motel	14%	14%	0.05	1.36	1.16	0.12	15	14.8	1.43	0.00	0.04	438	2.7	3
1	405	Demand Control Ventilation (DCV)	Hotel/Motel	15%	60%	2.36	1.41	1.20	0.06	15	9.0	3.55	13.09	1.88	4,753	0.1	127
1	406	Energy Recovery Ventilation (ERV)	Hotel/Motel	7%	38%	0.22	1.38	1.28	0.09	20	4.1	2.21	4.27	0.37	688	0.3	26
1	407	Separate Makeup Air / Exhaust Hoods AC	Hotel/Motel	25%	25%	0.00	1.36	1.02	0.10	15	0.0	0.00	0.00	N/A	N/A	99999.0	N/A
1	500	Base Refrigeration System	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	508	Refrigeration Commissioning	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	514	Multiplex Compressor System	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	Hotel/Motel	0%	0%	0.00	1.50	1.50	0.21	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	Hotel/Motel	2%	2%	0.01	1.50	1.47	0.21	15	0.8	0.11	0.08	0.05	329	2.5	3
1	603	Heat Pump Water Heater (air source)	Hotel/Motel	68%	68%	0.19	1.56	0.49	0.07	15	28.2	3.94	2.93	0.03	215	3.8	2
1	604	Solar Water Heater	Hotel/Motel	70%	70%	0.44	1.51	0.45	0.06	20	14.6	2.05	1.52	0.07	473	1.7	5
1	606	Demand controlled circulating systems	Hotel/Motel	5%	5%	0.02	1.53	1.45	0.20	15	1.1	0.15	0.11	0.04	293	2.8	3
1	608	Heat Recovery Unit	Hotel/Motel	65%	65%	0.08	1.79	0.63	0.09	10	18.3	2.56	1.90	0.01	104	7.9	1
1	609	Heat Trap	Hotel/Motel	9%	9%	0.00	1.54	1.40	0.20	10	2.2	0.30	0.23	0.00	6	149.5	0
1	610	Hot Water Pipe Insulation	Hotel/Motel	2%	2%	0.01	1.51	1.48	0.21	15	0.5	0.07	0.05	0.08	545	1.5	5
1	700	Base Desktop PC	Hotel/Motel	0%	0%	0.00	0.03	0.03	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	Hotel/Motel	68%	45%	0.00	0.04	0.01	0.00	4	1.2	0.10	0.17	0.01	150	9.2	0
1	702	PC Network Power Management Enabling	Hotel/Motel	68%	45%	0.00	0.04	0.01	0.00	4	1.2	0.10	0.17	0.01	75	18.4	0
1	710	Base Monitor, CRT	Hotel/Motel	0%	0%	0.00	0.03	0.03	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	Hotel/Motel	56%	56%	0.00	0.07	0.03	0.00	4	0.1	0.02	0.02	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	Hotel/Motel	53%	35%	0.00	0.05	0.02	0.00	4	0.6	0.05	0.08	0.01	152	9.1	0
1	720	Base Monitor, LCD	Hotel/Motel	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	Hotel/Motel	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch	E 1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	722	Monitor Power Management Enabling	Hotel/Motel	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	4,834	0.3	12
1	730	Base Copier	Hotel/Motel	0%	0%	0.00	0.03	0.03	0.00	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	Hotel/Motel	21%	21%	0.00	0.03	0.03	0.00	6	0.1	0.01	0.01	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	Hotel/Motel	19%	13%	0.00	0.03	0.02	0.00	6	0.2	0.02	0.03	0.06	693	2.0	2
1	740	Base Laser Printer	Hotel/Motel	0%	0%	0.00	0.06	0.06	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	741	Printer Power Management Enabling	Hotel/Motel	49%	32%	0.00	0.08	0.04	0.01	5	1.0	0.09	0.15	0.03	385	3.6	1
1	800	Base Commercial Ovens	Hotel/Motel	0%	0%	0.00	0.12	0.12	0.02	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	Hotel/Motel	23%	23%	139.98	0.12	0.10	0.01	10	1.5	0.20	0.06	1018.67	7,525,115	0.0	55,864
1	810	Base Commercial Fryers	Hotel/Motel	0%	0%	0.00	0.01	0.01	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	Hotel/Motel	15%	15%	5.36	0.01	0.01	0.00	10	0.1	0.01	0.00	706.76	5,220,977	0.0	38,759
1	900	Base Vending Machines	Hotel/Motel	0%	0%	0.00	0.18	0.18	0.02	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	Hotel/Motel	40%	26%	0.01	0.22	0.13	0.02	10	2.4	0.19	0.45	0.02	290	5.2	1
1	110	Base Fluorescent Fixture, T12, 34W, EB	Other	0%	0%	0.46	2.88	2.88	0.39	17	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	111	Premium T8, Elecctronic Ballast	Other	31%	43%	0.55	2.93	2.01	0.22	26	1.4	0.25	0.11	0.09	504	1.2	7
1	112	Premium T8, EB, Reflector	Other	66%	89%	0.74	2.88	0.99	0.04	26	0.8	0.14	0.06	0.06	328	1.9	4
1	113	Occupancy Sensor	Other	20%	27%	0.49	2.93	2.35	0.29	15	0.2	0.04	0.02	0.14	787	0.8	10
1	114	Continuous Dimming	Other	50%	68%	3.16	2.88	1.44	0.12	19	0.9	0.16	0.07	0.36	1,979	0.3	26
1	115	Lighting Control Tuneup	Other	5%	7%	0.01	3.00	2.85	0.37	6	0.0	0.00	0.00	0.03	149	4.3	1
1	120	Base T8, EB	Other	0%	0%	0.00	1.66	1.66	0.22	26	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	121	ROB Premium T8, 1EB	Other	16%	21%	0.05	1.67	1.41	0.18	26	0.7	0.14	0.06	0.03	170	3.6	2
1	122	ROB Premium T8, EB, Reflector	Other	64%	87%	0.18	1.66	0.59	0.03	26	0.6	0.12	0.05	0.03	144	4.2	2
1	123	Occupancy Sensor	Other	20%	27%	0.34	1.69	1.35	0.16	15	0.2	0.03	0.01	0.17	945	0.7	12
1	124	Lighting Control Tuneup	Other	5%	7%	0.01	1.72	1.64	0.21	6	0.0	0.00	0.00	0.05	259	2.4	2
1	130	Base Incandescent Flood, 75W to Screw-in CFL	Other	0%	0%	0.15	9.56	9.56	1.28	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	131	CFL Screw-in 18W	Other	72%	98%	0.35	11.65	3.26	0.03	3	2.8	0.50	0.21	0.01	80	7.9	0
1	140	Base Incandescent Flood, 75W to Hardwired CFL	Other	0%	0%	0.15	9.56	9.56	1.28	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	141	CFL Hardwired, Modular 18W	Other	72%	98%	1.61	11.65	3.26	0.03	7	0.9	0.17	0.07	0.04	243	2.6	2
1	145	Base CFL	Other	0%	0%	0.00	2.53	2.53	0.34	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	150	Base High Bay Mercury Vapor, 400W	Other	0%	0%	0.00	2.96	2.96	0.40	9	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	151	PSMH, 250W, magnetic ballast	Other	37%	50%	0.04	3.02	1.91	0.20	17	3.8	0.68	0.29	0.01	35	18.3	0
1	152	PSMH, 250 W, electronic ballast	Other	43%	59%	0.22	2.98	1.70	0.17	17	4.5	0.82	0.35	0.03	153	4.1	2
1	153	High Bay T5	Other	49%	66%	0.10	3.04	1.56	0.14	17	5.0	0.91	0.38	0.01	59	10.7	1
1	160	Base Exit Sign	Other	0%	0%	0.00	0.04	0.04	0.01	1	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	161	LED Exit Sign	Other	81%	81%	0.01	0.05	0.01	0.00	16	0.3	0.04	0.03	0.03	211	4.1	2
1	200	Base Outdoor Mercury Vapor 400W Lamp	Other	0%	0%	0.00	1.18	1.18	0.09	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	High Pressure Sodium 250W Lamp	Other	35%	35%	0.59	1.18	0.77	0.06	5	3.9	0.31	0.16	0.42	5,262	0.3	15
1	202	Outdoor Lighting Controls (Photocell/Timeclock)	Other	22%	22%	0.11	1.47	1.15	0.09	5	0.3	0.02	0.01	0.10	1,207	1.2	3
1	210	Base Outdoor HID Lamp	Other	0%	0%	0.00	0.64	0.64	0.05	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	211	Outdoor Lighting Controls (Photocell/Timeclock)	Other	22%	22%	0.16	0.80	0.62	0.05	5	0.2	0.01	0.00	0.27	3,359	0.4	10
1	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Other	0%	0%	0.31	2.46	2.46	0.46	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Other	12%	18%	0.08	2.51	2.21	0.38	20	0.3	0.10	0.00	0.04	146	2.8	3
1	302	High Efficiency Chiller Motors	Other	3%	3%	0.03	2.47	2.39	0.44	20	0.1	0.02	0.00	0.06	285	2.1	4
1	304	EMS - Chiller	Other	10%	10%	0.08	2.71	2.44	0.45	10	0.0	0.01	0.00	0.06	345	1.8	4
1	305	Chiller Tune Up/Diagnostics	Other	8%	12%	0.10	2.57	2.36	0.42	10	0.1	0.03	0.00	0.10	368	1.1	6
1	306	VSD for Chiller Pumps and Towers	Other	10%	10%	0.06	2.56	2.31	0.43	15	0.2	0.03	0.00	0.04	207	3.0	3
1	307	EMS Optimization	Other	5%	1%	0.03	2.53	2.40	0.46	5	0.1	0.00	0.00	0.08	1,644	1.5	3
1	308	Aerosole Duct Sealing	Other	10%	10%	0.03	2.55	2.30	0.43	15	0.2	0.03	0.00	0.02	97	6.4	1
1	309	Duct/Pipe Insulation	Other	2%	2%	0.77	2.48	2.43	0.45	10	0.0	0.01	0.00	3.22	17,298	0.0	177
1	311	Window Film (Standard)	Other	5%	6%	0.13	2.49	2.35	0.44	10	0.1	0.02	-0.01	0.20	1,005	0.6	11
1	313	Ceiling Insulation	Other	12%	37%	0.38	2.59	2.28	0.30	20	0.1	0.07	0.04	0.20	341	0.6	14
1	314	Roof Insulation	Other	5%	12%	0.15	2.51	2.39	0.41	20	0.0	0.02	0.00	0.21	431	0.6	15
1	315	Cool Roof - Chiller	Other	24%	53%	1.36	2.51	1.90	0.22	15	0.4	0.15	0.00	0.38	935	0.3	26
1	317	Thermal Energy Storage (TES)	Other	-7%	116%	0.52	2.43	2.59	-0.07	50	0.0	0.14	0.00	-0.49	150	-0.2	-37
1	320	Base DX Packaged System, EER=10.3, 10 tons	Other	0%	0%	0.94	4.27	4.27	0.79	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	321	DX Packaged System, EER=10.9, 10 tons	Other	6%	4%	0.18	4.29	4.06	0.77	15	0.2	0.02	0.00	0.13	968	0.9	9
1	322	Hybrid Dessicant-DX System (Trane CDQ)	Other	40%	29%	0.69	4.27	2.56	0.56	15	1.2	0.16	0.00	0.07	500	1.7	5
1	323	Geothermal Heat Pump, EER=13, 10 tons	Other	21%	15%	1.65	4.28	3.39	0.68	15	0.6	0.08	0.02	0.31	2,310	0.4	21
1	326	DX Tune Up/ Advanced Diagnostics	Other	5%	7%	0.13	4.42	4.20	0.76	10	0.1	0.02	0.00	0.12	428	1.0	6
1	327	DX Coil Cleaning	Other	5%	7%	0.01	4.38	4.16	0.76	5	0.1	0.03	0.00	0.02	76	5.5	1
1	328	Optimize Controls	Other	5%	1%	0.04	4.42	4.20	0.81	5	0.1	0.00	0.00	0.06	1,254	2.0	2
1	329	Aerosole Duct Sealing	Other	10%	10%	0.03	4.42	3.98	0.74	15	0.3	0.06	0.00	0.01	56	11.0	1
1	330	Duct/Pipe Insulation	Other	2%	2%	0.77	4.30	4.22	0.78	10	0.1	0.01	0.00	1.86	9,980	0.1	102

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	332	Window Film (Standard)	Other	5%	5%	0.14	4.31	4.08	0.76	10	0.2	0.04	-0.10	0.13	655	0.9	7
1	334	Ceiling Insulation	Other	12%	35%	0.38	4.49	3.94	0.54	20	0.2	0.12	0.27	0.11	209	1.0	8
1	335	Roof Insulation	Other	5%	12%	0.15	4.35	4.15	0.71	20	0.1	0.04	0.10	0.12	241	1.0	9
1	336	Cool Roof - DX	Other	24%	43%	1.36	4.35	3.30	0.46	15	0.7	0.23	0.00	0.22	659	0.5	15
1	340	Base Packaged HP System, EER=10.3, 10 tons	Other	0%	0%	0.94	4.27	4.27	0.79	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	341	Packaged HP System, EER=10.9, 10 tons	Other	6%	8%	0.04	4.29	4.06	0.74	15	0.0	0.00	0.00	0.03	101	4.3	2
1	342	Geothermal Heat Pump, EER=13, 10 tons	Other	21%	37%	1.65	4.28	3.39	0.50	25	0.0	0.01	0.00	0.29	866	0.4	21
1	344	Aerosole Duct Sealing	Other	10%	10%	0.03	4.42	3.98	0.74	15	0.0	0.00	0.00	0.01	56	11.0	1
1	345	Duct/Pipe Insulation	Other	2%	2%	0.77	4.30	4.22	0.78	10	0.0	0.00	0.00	1.86	9,980	0.1	102
1	347	Window Film (Standard)	Other	5%	5%	0.13	4.31	4.08	0.76	10	0.0	0.00	0.00	0.12	624	1.0	7
1	349	Ceiling Insulation	Other	12%	35%	0.38	4.49	3.94	0.54	20	0.0	0.00	0.00	0.11	209	1.0	8
1	350	Roof Insulation	Other	5%	12%	0.15	4.35	4.15	0.71	20	0.0	0.00	0.00	0.12	241	1.0	9
1	351	Cool Roof - DX	Other	24%	43%	1.36	4.35	3.30	0.46	15	0.0	0.01	0.00	0.22	659	0.5	15
1	360	Base PTAC, EER=8.3, 1 ton	Other	0%	0%	0.00	4.93	4.93	0.92	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	361	HE PTAC, EER=9.6, 1 ton	Other	14%	10%	0.21	4.93	4.26	0.83	15	0.0	0.00	0.00	0.05	395	N/A	4
1	362	Occupancy Sensor (hotels)	Other	15%	4%	0.39	5.00	4.25	0.90	15	0.0	0.00	0.00	0.09	1,887	N/A	6
1	400	Base Fan Motor, 15hp, 1800rpm, 91.0%	Other	0%	0%	0.02	1.11	1.11	0.13	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	Other	2%	2%	0.00	1.11	1.09	0.13	15	0.2	0.02	0.07	0.05	417	2.4	3
1	402	Variable Speed Drive Control	Other	30%	8%	0.10	1.20	0.84	0.13	15	0.9	0.03	0.10	0.05	1,636	2.4	3
1	403	Air Handler Optimization	Other	10%	3%	0.03	1.14	1.02	0.13	8	0.6	0.02	0.07	0.06	2,101	1.9	3
1	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	Other	14%	14%	0.04	1.11	0.95	0.11	15	1.5	0.18	0.00	0.04	372	2.7	3
1	405	Demand Control Ventilation (DCV)	Other	15%	60%	2.36	1.15	0.98	0.05	15	0.9	0.44	3.98	2.30	4,953	0.1	155
1	406	Energy Recovery Ventilation (ERV)	Other	7%	38%	0.18	1.13	1.05	0.08	20	0.4	0.27	1.30	0.37	584	0.3	26
1	407	Separate Makeup Air / Exhaust Hoods AC	Other	25%	25%	0.00	1.11	0.83	0.10	15	0.0	0.00	0.00	N/A	N/A	99999.0	N/A
1	500	Base Refrigeration System	Other	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	High-efficiency fan motors	Other	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Strip curtains for walk-ins	Other	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Night covers for display cases	Other	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Evaporator fan controller for MT walk-ins	Other	0%	0%	0.00	0.00	0.00	0.00	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient compressor motor	Other	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	506	Compressor VSD retrofit	Other	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	507	Floating head pressure controls	Other	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	508	Refrigeration Commissioning	Other	0%	0%	0.00	0.00	0.00	0.00	3	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Demand Hot Gas Defrost	Other	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	510	Demand Defrost Electric	Other	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	511	Anti-sweat (humidistat) controls	Other	0%	0%	0.00	0.00	0.00	0.00	12	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	513	High R-Value Glass Doors	Other	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	514	Multiplex Compressor System	Other	0%	0%	0.00	0.00	0.00	0.00	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	515	Oversized Air Cooled Condenser	Other	0%	0%	0.00	0.00	0.00	0.00	16	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	516	Freezer-Cooler Replacement Gaskets	Other	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	517	LED Display Lighting	Other	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Water Heating	Other	0%	0%	0.00	0.37	0.37	0.06	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	High Efficiency Water Heater (electric)	Other	2%	2%	0.00	0.37	0.36	0.06	15	0.0	0.01	0.00	0.06	407	1.8	4
1	603	Heat Pump Water Heater (air source)	Other	68%	68%	0.06	0.38	0.12	0.02	15	1.3	0.19	0.01	0.04	266	2.8	3
1	604	Solar Water Heater	Other	70%	70%	0.15	0.37	0.11	0.02	20	0.7	0.10	0.01	0.09	586	1.3	6
1	606	Demand controlled circulating systems	Other	5%	5%	0.03	0.37	0.35	0.05	15	0.0	0.01	0.00	0.27	1,742	0.4	18
1	608	Heat Recovery Unit	Other	65%	65%	0.08	0.44	0.15	0.02	10	0.8	0.13	0.01	0.06	390	1.9	3
1	609	Heat Trap	Other	9%	9%	0.00	0.37	0.34	0.05	10	0.1	0.01	0.00	0.00	7	109.7	0
1	610	Hot Water Pipe Insulation	Other	2%	2%	0.00	0.37	0.36	0.06	15	0.0	0.00	0.00	0.10	676	1.1	7
1	700	Base Desktop PC	Other	0%	0%	0.00	0.09	0.09	0.01	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	PC Manual Power Management Enabling	Other	68%	45%	0.00	0.11	0.04	0.01	4	0.4	0.03	0.36	0.01	178	9.2	0
1	702	PC Network Power Management Enabling	Other	68%	45%	0.00	0.11	0.04	0.01	4	0.4	0.03	0.36	0.01	89	18.4	0
1	710	Base Monitor, CRT	Other	0%	0%	0.00	0.09	0.09	0.01	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	711	Energy Star or Better Monitor	Other	56%	56%	0.00	0.20	0.09	0.01	4	0.1	0.01	0.05	0.00	0	99999.0	0
1	712	Monitor Power Management Enabling	Other	53%	35%	0.00	0.13	0.06	0.01	4	0.2	0.01	0.18	0.01	180	9.1	0
1	720	Base Monitor, LCD	Other	0%	0%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	Energy Star or Better Monitor	Other	2%	2%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.00	0	99999.0	0
1	722	Monitor Power Management Enabling	Other	28%	18%	0.00	0.00	0.00	0.00	4	0.0	0.00	0.00	0.40	5,724	0.3	12
1	730	Base Copier	Other	0%	0%	0.00	0.07	0.07	0.01	6	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	731	Energy Star or Better Copier	Other	21%	21%	0.00	0.08	0.06	0.01	6	0.0	0.00	0.01	0.00	0	99999.0	0
1	732	Copier Power Management Enabling	Other	19%	13%	0.00	0.07	0.06	0.01	6	0.1	0.00	0.06	0.06	821	2.0	2
1	740	Base Laser Printer	Other	0%	0%	0.00	0.12	0.12	0.01	5	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.2 Non-Additive Energy Efficiency Measure Results - Commercial

DSM ASSYST SUMMARY				Year 2008												
Vintage E																
Batch 1																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	741	Printer Power Management Enabling	Other	49%	32%	0.01	0.16	0.08	0.01	5	0.3	0.02	0.23	0.03	456	3.6	1
1	800	Base Commercial Ovens	Other	0%	0%	0.00	0.03	0.03	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Convection Oven	Other	23%	23%	19.40	0.03	0.03	0.00	10	0.0	0.01	0.00	524.06	3,481,623	0.0	28,740
1	810	Base Commercial Fryers	Other	0%	0%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	811	Efficient Fryer	Other	15%	15%	0.00	0.00	0.00	0.00	10	0.0	0.00	0.00	N/A	N/A	0.0	N/A
1	900	Base Vending Machines	Other	0%	0%	0.00	0.07	0.07	0.01	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Vending Misers (cooled machines only)	Other	40%	26%	0.00	0.07	0.04	0.01	10	0.2	0.02	0.02	0.03	315	4.2	2

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	Base EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	100	Base Compressed Air	SIC20-Food	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC20-Food	17%	17%	0.01	1.11	0.92	0.13	10	4.9	0.67	0.60	0.01	69	8.3	1
1	102	Compressed Air - Controls	SIC20-Food	12%	12%	0.02	1.17	1.03	0.14	10	1.2	0.17	0.15	0.02	156	3.7	2
1	103	Compressed Air - System Optimization	SIC20-Food	20%	20%	0.02	1.18	0.95	0.13	10	4.1	0.56	0.50	0.01	86	6.7	1
1	104	Compressed Air- Sizing	SIC20-Food	9%	9%	0.00	1.13	1.02	0.14	10	1.4	0.19	0.17	0.01	57	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC20-Food	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.01	0.01	0.22	1,623	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC20-Food	6%	1%	0.08	1.08	1.01	0.15	14	0.1	0.00	0.01	0.15	11,949	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC20-Food	5%	5%	0.02	1.06	1.01	0.14	14	0.1	0.01	0.01	0.05	402	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC20-Food	4%	4%	0.03	1.08	1.04	0.14	10	0.3	0.04	0.04	0.14	1,003	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC20-Food	6%	1%	0.00	1.07	1.00	0.14	10	0.8	0.01	0.10	0.01	533	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC20-Food	2%	2%	0.01	1.06	1.04	0.14	10	0.3	0.04	0.04	0.04	263	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC20-Food	3%	3%	0.01	1.09	1.05	0.14	6	0.3	0.04	0.03	0.07	500	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC20-Food	6%	1%	0.01	1.07	1.00	0.14	6	1.3	0.02	0.16	0.02	1,753	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC20-Food	2%	2%	0.00	1.06	1.05	0.14	6	0.3	0.05	0.04	0.03	253	2.5	2
1	200	Base Fans	SIC20-Food	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC20-Food	2%	2%	0.00	1.08	1.05	0.14	10	0.4	0.06	0.05	0.01	60	9.5	1
1	202	Fans - Controls	SIC20-Food	30%	30%	0.10	1.37	0.96	0.13	10	3.9	0.54	0.48	0.04	286	2.0	3
1	203	Fans - System Optimization	SIC20-Food	21%	10%	0.06	1.30	1.02	0.16	10	1.6	0.10	0.19	0.04	591	2.1	3
1	204	Fans- Improve components	SIC20-Food	5%	5%	0.01	1.11	1.05	0.14	10	0.4	0.06	0.05	0.02	115	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC20-Food	3%	3%	0.06	1.07	1.04	0.14	14	0.1	0.01	0.01	0.22	1,623	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC20-Food	6%	1%	0.08	1.08	1.01	0.15	14	0.1	0.00	0.01	0.15	11,918	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC20-Food	5%	5%	0.02	1.06	1.01	0.14	14	0.1	0.01	0.01	0.05	402	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC20-Food	4%	4%	0.03	1.08	1.04	0.14	10	0.3	0.04	0.04	0.14	1,003	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC20-Food	6%	1%	0.00	1.07	1.00	0.15	10	0.8	0.01	0.10	0.01	531	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC20-Food	2%	2%	0.01	1.06	1.04	0.14	10	0.3	0.05	0.04	0.04	263	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC20-Food	3%	3%	0.01	1.09	1.05	0.14	6	0.3	0.04	0.04	0.07	500	1.3	4
1	212	Fans - ASD (100+ hp)	SIC20-Food	6%	1%	0.01	1.07	1.00	0.14	6	1.4	0.02	0.17	0.02	1,752	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC20-Food	2%	2%	0.00	1.06	1.05	0.14	6	0.4	0.05	0.04	0.03	253	2.5	2
1	300	Base Pumps	SIC20-Food	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC20-Food	10%	10%	0.01	1.13	1.02	0.14	10	3.1	0.42	0.37	0.01	56	10.2	1
1	302	Pumps - Controls	SIC20-Food	30%	30%	0.03	1.32	0.93	0.13	10	9.4	1.27	1.14	0.01	87	6.6	1
1	303	Pumps - System Optimization	SIC20-Food	33%	33%	0.07	1.38	0.93	0.13	10	9.2	1.26	1.12	0.03	185	3.1	2
1	304	Pumps - Sizing	SIC20-Food	20%	20%	0.02	1.27	1.01	0.14	10	3.4	0.46	0.42	0.01	101	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC20-Food	3%	3%	0.06	1.07	1.04	0.14	14	0.1	0.01	0.01	0.22	1,623	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC20-Food	6%	1%	0.08	1.08	1.01	0.15	14	0.2	0.00	0.02	0.15	11,929	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC20-Food	5%	5%	0.02	1.06	1.01	0.14	14	0.2	0.02	0.02	0.05	402	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC20-Food	4%	4%	0.03	1.08	1.04	0.14	10	0.6	0.08	0.07	0.14	1,003	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC20-Food	6%	1%	0.00	1.07	1.00	0.14	10	1.5	0.02	0.18	0.01	532	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC20-Food	2%	2%	0.01	1.06	1.04	0.14	10	0.6	0.08	0.07	0.04	263	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC20-Food	3%	3%	0.01	1.09	1.05	0.14	6	0.5	0.07	0.06	0.07	500	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC20-Food	6%	1%	0.01	1.07	1.00	0.14	6	2.6	0.03	0.31	0.02	1,754	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC20-Food	2%	2%	0.00	1.06	1.05	0.14	6	0.6	0.09	0.08	0.03	253	2.5	2
1	400	Base Drives	SIC20-Food	0%	0%	0.00	1.06	1.06	0.14	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	401	Bakery - Process (Mixing) - O&M	SIC20-Food	10%	10%	0.01	1.10	0.99	0.13	10	5.0	0.68	0.61	0.01	58	9.9	1
1	500	Base Heating	SIC20-Food	0%	0%	0.00	1.06	1.06	0.14	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	501	Bakery - Process	SIC20-Food	37%	37%	0.05	1.44	0.90	0.12	15	2.0	0.27	0.24	0.01	88	5.9	1
1	550	Base Refrigeration	SIC20-Food	0%	0%	0.00	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	551	Efficient Refrigeration - Operations	SIC20-Food	12%	12%	0.01	1.17	1.03	0.18	10	3.2	0.55	0.30	0.01	52	8.8	1
1	552	Optimization Refrigeration	SIC20-Food	26%	26%	0.12	1.36	1.01	0.17	15	5.8	0.98	0.53	0.04	230	1.8	4
1	600	Base Other Process	SIC20-Food	0%	0%	0.00	1.06	1.06	0.14	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC20-Food	0%	0%	0.10	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC20-Food	12%	2%	0.02	1.06	0.94	0.18	20	1.0	0.03	0.01	0.01	376	5.1	2
1	702	High Efficiency Chiller Motors	SIC20-Food	3%	3%	0.01	1.07	1.03	0.18	20	0.2	0.04	0.00	0.03	160	2.4	3
1	703	EMS - Chiller	SIC20-Food	10%	2%	0.03	1.17	1.06	0.20	10	0.0	0.00	0.00	0.04	1,098	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC20-Food	8%	8%	0.02	1.11	1.02	0.17	10	0.2	0.04	0.00	0.04	257	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC20-Food	10%	2%	0.02	1.11	1.00	0.18	15	0.4	0.01	0.00	0.02	596	3.5	2
1	706	EMS Optimization - Chiller	SIC20-Food	5%	5%	0.01	1.09	1.04	0.18	5	0.2	0.03	0.00	0.04	219	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC20-Food	10%	10%	0.01	1.10	0.99	0.17	10	0.4	0.07	0.00	0.01	76	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC20-Food	10%	10%	0.74	1.11	1.00	0.17	10	0.4	0.06	0.00	1.08	6,330	0.1	89

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
	Measure		Building	Savings	Reduction	Costs/	Base		Watts/	Service	Potential	Potential	Potential	Energy	Peak Capacity	Participant	Payback
Segment	Number	Measure	Type	Fraction	Fraction	Sq Ft	EUI	EUI	Sq Ft	Life (yrs)	GWH	MW	MW	$/kWH	$/kW	Test	(Years)
1	709	Window Film (Standard) - Chiller	SIC20-Food	5%	5%	0.03	1.09	1.03	0.18	10	0.2	0.03	0.00	0.09	502	0.9	7
1	710	Roof Insulation - Chiller	SIC20-Food	5%	5%	0.04	1.09	1.04	0.18	20	0.1	0.02	0.00	0.07	432	0.9	9
1	711	Cool Roof - Chiller	SIC20-Food	24%	24%	0.32	1.15	0.88	0.15	15	0.7	0.12	0.01	0.14	801	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC20-Food	0%	0%	0.18	1.06	1.06	0.18	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC20-Food	6%	3%	0.03	1.06	1.01	0.18	15	0.8	0.07	0.00	0.07	816	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC20-Food	40%	40%	0.13	1.06	0.64	0.11	15	2.8	0.48	0.00	0.04	210	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC20-Food	21%	21%	0.31	1.07	0.85	0.14	15	0.7	0.12	0.00	0.16	969	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC20-Food	5%	5%	0.02	1.10	1.05	0.18	10	0.2	0.03	0.00	0.05	299	1.5	4
1	725	DX Coil Cleaning	SIC20-Food	5%	5%	0.00	1.09	1.04	0.18	5	0.3	0.04	0.00	0.01	81	6.4	1
1	726	Optimize Controls	SIC20-Food	5%	5%	0.01	1.10	1.05	0.18	5	0.2	0.03	0.00	0.03	167	3.1	1
1	727	Aerosole Duct Sealing	SIC20-Food	10%	10%	0.01	1.10	0.99	0.17	10	0.7	0.12	0.00	0.01	44	10.4	1
1	728	Duct/Pipe Insulation	SIC20-Food	10%	10%	0.43	1.11	1.00	0.17	10	0.7	0.11	0.00	0.62	3,652	0.1	51
1	729	Window Film (Standard)	SIC20-Food	5%	5%	0.02	1.09	1.03	0.18	10	0.3	0.05	0.00	0.05	318	1.4	4
1	730	Roof Insulation	SIC20-Food	5%	5%	0.02	1.09	1.04	0.18	20	0.2	0.03	0.00	0.04	249	1.5	5
1	731	Cool Roof - DX	SIC20-Food	24%	24%	0.19	1.15	0.88	0.15	15	1.2	0.21	0.00	0.08	462	0.9	9
1	800	Base Lighting	SIC20-Food	0%	0%	0.00	1.06	1.06	0.14	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC20-Food	31%	31%	0.03	1.23	0.84	0.11	15	4.8	0.66	0.59	0.01	62	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC20-Food	72%	72%	0.14	1.55	0.44	0.06	5	1.6	0.21	0.19	0.03	253	2.6	2
1	803	CFL Screw-in 18W	SIC20-Food	72%	72%	0.02	1.55	0.44	0.06	2	1.6	0.21	0.19	0.01	80	8.7	0
1	804	High Bay T5	SIC20-Food	49%	49%	0.04	1.09	0.56	0.08	10	0.9	0.12	0.11	0.01	90	6.4	1
1	805	Occupancy Sensor	SIC20-Food	20%	4%	0.04	1.08	0.87	0.14	9	1.1	0.03	0.14	0.03	1,129	2.6	2
1	900	Base Other	SIC20-Food	0%	0%	0.00	1.06	1.06	0.14	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC20-Food	0%	0%	0.00	1.06	1.06	0.14	5	0.0	0.00	0.00	0.04	322	2.0	2
1	100	Base Compressed Air	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.27	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC22_23-Textiles	17%	17%	0.01	1.11	0.92	0.24	10	0.1	0.03	0.04	0.01	37	8.3	1
1	102	Compressed Air - Controls	SIC22_23-Textiles	12%	12%	0.02	1.17	1.03	0.26	10	0.0	0.01	0.01	0.02	83	3.7	2
1	103	Compressed Air - System Optimization	SIC22_23-Textiles	20%	20%	0.02	1.18	0.95	0.24	10	0.1	0.03	0.03	0.01	46	6.7	1
1	104	Compressed Air- Sizing	SIC22_23-Textiles	9%	9%	0.00	1.13	1.02	0.26	10	0.0	0.01	0.01	0.01	30	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC22_23-Textiles	3%	3%	0.06	1.07	1.04	0.26	14	0.0	0.00	0.00	0.22	866	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC22_23-Textiles	6%	1%	0.08	1.08	1.01	0.27	14	0.0	0.00	0.00	0.15	6,377	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC22_23-Textiles	5%	5%	0.02	1.06	1.01	0.26	14	0.0	0.00	0.00	0.05	215	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC22_23-Textiles	3%	4%	0.03	1.08	1.04	0.27	10	0.0	0.00	0.00	0.14	535	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC22_23-Textiles	6%	1%	0.00	1.07	1.00	0.27	10	0.0	0.00	0.01	0.01	284	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC22_23-Textiles	2%	2%	0.01	1.06	1.04	0.27	10	0.0	0.00	0.00	0.04	141	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC22_23-Textiles	3%	3%	0.01	1.09	1.05	0.27	6	0.0	0.00	0.00	0.07	267	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC22_23-Textiles	6%	1%	0.01	1.07	1.00	0.27	6	0.0	0.00	0.01	0.02	936	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC22_23-Textiles	1%	2%	0.00	1.06	1.05	0.27	6	0.0	0.00	0.00	0.03	135	2.5	2
1	200	Base Fans	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.27	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC22_23-Textiles	2%	2%	0.00	1.08	1.05	0.27	10	0.0	0.00	0.01	0.01	32	9.5	1
1	202	Fans - Controls	SIC22_23-Textiles	30%	30%	0.10	1.37	0.96	0.25	10	0.2	0.05	0.05	0.04	153	2.0	3
1	203	Fans - System Optimization	SIC22_23-Textiles	21%	10%	0.06	1.30	1.02	0.30	10	0.1	0.01	0.02	0.04	315	2.1	3
1	204	Fans- Improve components	SIC22_23-Textiles	5%	5%	0.01	1.11	1.05	0.27	10	0.0	0.00	0.01	0.02	61	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC22_23-Textiles	3%	3%	0.06	1.07	1.04	0.26	14	0.0	0.00	0.00	0.22	866	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC22_23-Textiles	6%	1%	0.08	1.08	1.01	0.27	14	0.0	0.00	0.00	0.15	6,360	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC22_23-Textiles	5%	5%	0.02	1.06	1.01	0.26	14	0.0	0.00	0.00	0.05	215	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC22_23-Textiles	3%	4%	0.03	1.08	1.04	0.27	10	0.0	0.00	0.00	0.14	535	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC22_23-Textiles	6%	1%	0.00	1.07	1.00	0.27	10	0.0	0.00	0.01	0.01	284	11.9	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC22_23-Textiles	2%	2%	0.01	1.06	1.04	0.27	10	0.0	0.00	0.00	0.04	141	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC22_23-Textiles	3%	3%	0.01	1.09	1.05	0.27	6	0.0	0.00	0.00	0.07	267	1.3	4
1	212	Fans - ASD (100+ hp)	SIC22_23-Textiles	6%	1%	0.01	1.07	1.00	0.27	6	0.1	0.00	0.02	0.02	935	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC22_23-Textiles	1%	2%	0.00	1.06	1.05	0.27	6	0.0	0.00	0.00	0.03	135	2.5	2
1	300	Base Pumps	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.27	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC22_23-Textiles	10%	10%	0.01	1.13	1.02	0.26	10	0.1	0.03	0.03	0.01	30	10.2	1
1	302	Pumps - Controls	SIC22_23-Textiles	30%	30%	0.03	1.32	0.93	0.24	10	0.3	0.08	0.10	0.01	46	6.6	1
1	303	Pumps - System Optimization	SIC22_23-Textiles	33%	33%	0.07	1.38	0.93	0.24	10	0.3	0.08	0.10	0.03	99	3.1	2
1	304	Pumps - Sizing	SIC22_23-Textiles	20%	20%	0.02	1.27	1.01	0.26	10	0.1	0.03	0.04	0.01	54	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC22_23-Textiles	3%	3%	0.06	1.07	1.04	0.26	14	0.0	0.00	0.00	0.22	866	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC22_23-Textiles	6%	1%	0.08	1.08	1.01	0.27	14	0.0	0.00	0.00	0.15	6,366	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC22_23-Textiles	5%	5%	0.02	1.06	1.01	0.26	14	0.0	0.00	0.00	0.05	215	1.3	6

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2																	
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	308	Pumps - Replace 6-100 HP motor	SIC22_23-Textiles	3%	4%	0.03	1.08	1.04	0.27	10	0.0	0.00	0.01	0.14	535	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC22_23-Textiles	6%	1%	0.00	1.07	1.00	0.27	10	0.1	0.00	0.02	0.01	284	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC22_23-Textiles	2%	2%	0.01	1.06	1.04	0.27	10	0.0	0.01	0.01	0.04	141	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC22_23-Textiles	3%	3%	0.01	1.09	1.05	0.27	6	0.0	0.00	0.01	0.07	267	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC22_23-Textiles	6%	1%	0.01	1.07	1.00	0.27	6	0.1	0.00	0.03	0.02	936	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC22_23-Textiles	1%	2%	0.00	1.06	1.05	0.27	6	0.0	0.01	0.01	0.03	135	2.5	2
1	400	Base Drives	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.27	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	402	O&M/drives spinning machines	SIC22_23-Textiles	16%	16%	0.03	1.18	0.99	0.25	10	0.4	0.09	0.11	0.03	116	2.6	2
1	500	Base Heating	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.27	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	502	Drying (UV/IR)	SIC22_23-Textiles	26%	15%	0.08	1.35	0.99	0.29	8	0.1	0.02	0.04	0.04	296	1.9	3
1	550	Base Refrigeration	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.34	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.27	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC22_23-Textiles	0%	0%	0.10	1.06	1.06	0.34	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC22_23-Textiles	12%	2%	0.02	1.06	0.94	0.33	20	0.2	0.01	0.00	0.01	201	5.1	2
1	702	High Efficiency Chiller Motors	SIC22_23-Textiles	3%	3%	0.01	1.07	1.03	0.33	20	0.0	0.01	0.00	0.03	85	2.4	3
1	703	EMS - Chiller	SIC22_23-Textiles	10%	2%	0.03	1.17	1.06	0.37	10	0.0	0.00	0.00	0.04	586	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC22_23-Textiles	8%	8%	0.02	1.11	1.02	0.33	10	0.0	0.01	0.00	0.04	137	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC22_23-Textiles	10%	2%	0.02	1.11	1.00	0.35	15	0.1	0.00	0.00	0.02	318	3.5	2
1	706	EMS Optimization - Chiller	SIC22_23-Textiles	5%	5%	0.01	1.09	1.04	0.33	5	0.0	0.01	0.00	0.04	117	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC22_23-Textiles	10%	10%	0.01	1.10	0.99	0.32	10	0.1	0.02	0.00	0.01	41	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC22_23-Textiles	10%	10%	0.74	1.11	1.00	0.32	10	0.1	0.02	0.00	1.08	3,378	0.1	89
1	709	Window Film (Standard) - Chiller	SIC22_23-Textiles	5%	5%	0.03	1.09	1.03	0.33	10	0.0	0.01	0.00	0.09	268	0.9	7
1	710	Roof Insulation - Chiller	SIC22_23-Textiles	5%	5%	0.04	1.09	1.04	0.33	20	0.0	0.01	0.00	0.07	230	0.9	9
1	711	Cool Roof - Chiller	SIC22_23-Textiles	24%	24%	0.32	1.15	0.88	0.28	15	0.1	0.04	0.00	0.14	427	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC22_23-Textiles	0%	0%	0.18	1.06	1.06	0.34	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC22_23-Textiles	6%	3%	0.03	1.06	1.01	0.33	15	0.1	0.01	0.00	0.07	436	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC22_23-Textiles	40%	40%	0.13	1.06	0.64	0.20	15	0.3	0.10	0.00	0.04	112	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC22_23-Textiles	21%	21%	0.31	1.07	0.85	0.27	15	0.1	0.03	0.00	0.16	517	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC22_23-Textiles	5%	5%	0.02	1.10	1.05	0.33	10	0.0	0.01	0.00	0.05	159	1.5	4
1	725	DX Coil Cleaning	SIC22_23-Textiles	5%	5%	0.00	1.09	1.04	0.33	5	0.0	0.01	0.00	0.01	43	6.4	1
1	726	Optimize Controls	SIC22_23-Textiles	5%	5%	0.01	1.10	1.05	0.33	5	0.0	0.01	0.00	0.03	89	3.1	1
1	727	Aerosole Duct Sealing	SIC22_23-Textiles	10%	10%	0.01	1.10	0.99	0.32	10	0.1	0.02	0.00	0.01	24	10.4	1
1	728	Duct/Pipe Insulation	SIC22_23-Textiles	10%	10%	0.43	1.11	1.00	0.32	10	0.1	0.02	0.00	0.62	1,949	0.1	51
1	729	Window Film (Standard)	SIC22_23-Textiles	5%	5%	0.02	1.09	1.03	0.33	10	0.0	0.01	0.00	0.05	170	1.4	4
1	730	Roof Insulation	SIC22_23-Textiles	5%	5%	0.02	1.09	1.04	0.33	20	0.0	0.01	0.00	0.04	133	1.5	5
1	731	Cool Roof - DX	SIC22_23-Textiles	24%	24%	0.19	1.15	0.88	0.28	15	0.1	0.04	0.00	0.08	247	0.9	9
1	800	Base Lighting	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.27	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC22_23-Textiles	31%	31%	0.03	1.23	0.84	0.21	15	0.4	0.11	0.13	0.01	33	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC22_23-Textiles	72%	72%	0.14	1.55	0.44	0.11	5	0.1	0.01	0.02	0.03	135	2.6	2
1	803	CFL Screw-in 18W	SIC22_23-Textiles	72%	72%	0.02	1.55	0.44	0.11	2	0.1	0.01	0.02	0.01	43	8.7	0
1	804	High Bay T5	SIC22_23-Textiles	49%	49%	0.04	1.09	0.56	0.14	10	0.1	0.02	0.02	0.01	48	6.4	1
1	805	Occupancy Sensor	SIC22_23-Textiles	20%	4%	0.04	1.08	0.87	0.27	9	0.1	0.00	0.03	0.03	641	2.4	3
1	900	Base Other	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.27	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC22_23-Textiles	0%	0%	0.00	1.06	1.06	0.27	5	0.0	0.00	0.00	0.04	172	2.0	2
1	902	Membranes for wastewater	SIC22_23-Textiles	10%	10%	0.04	1.16	1.05	0.27	15	0.0	0.00	0.00	0.04	150	1.8	4
1	100	Base Compressed Air	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.18	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC24_25-Lumber	17%	17%	0.01	1.11	0.92	0.16	10	0.7	0.12	0.12	0.01	54	8.3	1
1	102	Compressed Air - Controls	SIC24_25-Lumber	12%	12%	0.02	1.17	1.03	0.18	10	0.2	0.03	0.03	0.02	123	3.7	2
1	103	Compressed Air - System Optimization	SIC24_25-Lumber	20%	20%	0.02	1.18	0.95	0.16	10	0.6	0.11	0.10	0.01	68	6.7	1
1	104	Compressed Air- Sizing	SIC24_25-Lumber	9%	9%	0.00	1.13	1.02	0.18	10	0.2	0.04	0.03	0.01	45	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC24_25-Lumber	3%	3%	0.06	1.07	1.04	0.18	14	0.0	0.00	0.00	0.22	1,277	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC24_25-Lumber	6%	1%	0.08	1.08	1.01	0.19	14	0.0	0.00	0.00	0.15	9,402	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC24_25-Lumber	5%	5%	0.02	1.06	1.01	0.18	14	0.0	0.00	0.00	0.05	317	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC24_25-Lumber	3%	4%	0.03	1.08	1.04	0.18	10	0.0	0.01	0.01	0.14	790	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC24_25-Lumber	6%	1%	0.00	1.07	1.00	0.18	10	0.1	0.00	0.02	0.01	419	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC24_25-Lumber	2%	2%	0.01	1.06	1.04	0.18	10	0.0	0.01	0.01	0.04	207	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC24_25-Lumber	3%	3%	0.01	1.09	1.05	0.18	6	0.0	0.01	0.01	0.07	394	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC24_25-Lumber	6%	1%	0.01	1.07	1.00	0.18	6	0.2	0.00	0.03	0.02	1,380	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC24_25-Lumber	1%	2%	0.00	1.06	1.05	0.18	6	0.0	0.01	0.01	0.03	199	2.5	2

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	Base EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	200	Base Fans	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.18	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC24_25-Lumber	2%	2%	0.00	1.08	1.05	0.18	10	0.1	0.02	0.02	0.01	48	9.5	1
1	202	Fans - Controls	SIC24_25-Lumber	30%	30%	0.10	1.37	0.96	0.17	10	1.0	0.17	0.16	0.04	225	2.0	3
1	203	Fans - System Optimization	SIC24_25-Lumber	21%	10%	0.06	1.30	1.02	0.20	10	0.4	0.03	0.07	0.04	465	2.1	3
1	204	Fans- Improve components	SIC24_25-Lumber	5%	5%	0.01	1.11	1.05	0.18	10	0.1	0.02	0.02	0.02	90	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC24_25-Lumber	3%	3%	0.06	1.07	1.04	0.18	14	0.0	0.00	0.00	0.22	1,277	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC24_25-Lumber	6%	1%	0.08	1.08	1.01	0.19	14	0.0	0.00	0.00	0.15	9,378	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC24_25-Lumber	5%	5%	0.02	1.06	1.01	0.18	14	0.0	0.00	0.00	0.05	317	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC24_25-Lumber	3%	4%	0.03	1.08	1.04	0.18	10	0.1	0.01	0.01	0.14	790	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC24_25-Lumber	6%	1%	0.00	1.07	1.00	0.18	10	0.2	0.00	0.03	0.01	418	11.9	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC24_25-Lumber	2%	2%	0.01	1.06	1.04	0.18	10	0.1	0.02	0.01	0.04	207	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC24_25-Lumber	3%	3%	0.01	1.09	1.05	0.18	6	0.1	0.01	0.01	0.07	394	1.3	4
1	212	Fans - ASD (100+ hp)	SIC24_25-Lumber	6%	1%	0.01	1.07	1.00	0.18	6	0.4	0.01	0.06	0.02	1,378	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC24_25-Lumber	1%	2%	0.00	1.06	1.05	0.18	6	0.1	0.02	0.02	0.03	199	2.5	2
1	214	Optimize drying process	SIC24_25-Lumber	20%	20%	0.05	1.18	0.95	0.16	10	1.2	0.20	0.19	0.04	212	2.1	3
1	300	Base Pumps	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.18	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC24_25-Lumber	10%	10%	0.01	1.13	1.02	0.18	10	0.6	0.10	0.09	0.01	44	10.2	1
1	302	Pumps - Controls	SIC24_25-Lumber	30%	30%	0.03	1.32	0.93	0.16	10	1.8	0.31	0.29	0.01	68	6.6	1
1	303	Pumps - System Optimization	SIC24_25-Lumber	33%	33%	0.07	1.38	0.93	0.16	10	1.7	0.30	0.29	0.03	145	3.1	2
1	304	Pumps - Sizing	SIC24_25-Lumber	20%	20%	0.02	1.27	1.01	0.18	10	0.6	0.11	0.11	0.01	80	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC24_25-Lumber	3%	3%	0.06	1.07	1.04	0.18	14	0.0	0.00	0.00	0.22	1,277	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC24_25-Lumber	6%	1%	0.08	1.08	1.01	0.19	14	0.0	0.00	0.01	0.15	9,386	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC24_25-Lumber	5%	5%	0.02	1.06	1.01	0.18	14	0.0	0.01	0.01	0.05	317	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC24_25-Lumber	3%	4%	0.03	1.08	1.04	0.18	10	0.1	0.02	0.02	0.14	790	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC24_25-Lumber	6%	1%	0.00	1.07	1.00	0.18	10	0.3	0.00	0.05	0.01	419	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC24_25-Lumber	2%	2%	0.01	1.06	1.04	0.18	10	0.1	0.02	0.02	0.04	207	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC24_25-Lumber	3%	3%	0.01	1.09	1.05	0.18	6	0.1	0.02	0.02	0.07	394	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC24_25-Lumber	6%	1%	0.01	1.07	1.00	0.18	6	0.5	0.01	0.08	0.02	1,380	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC24_25-Lumber	1%	2%	0.00	1.06	1.05	0.18	6	0.1	0.02	0.02	0.03	199	2.5	2
1	400	Base Drives	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	403	Air conveying systems	SIC24_25-Lumber	41%	10%	0.04	1.54	0.91	0.24	14	2.2	0.09	0.36	0.01	190	9.1	1
1	404	Replace V-Belts	SIC24_25-Lumber	6%	6%	0.01	1.10	1.03	0.18	10	1.1	0.18	0.17	0.02	92	4.9	1
1	405	Drives - EE motor	SIC24_25-Lumber	3%	4%	0.01	1.09	1.05	0.18	10	0.7	0.12	0.11	0.03	166	2.7	2
1	500	Base Heating	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	503	Heat Pumps - Drying	SIC24_25-Lumber	22%	22%	0.19	1.29	1.01	0.17	15	0.3	0.05	0.05	0.08	456	0.9	9
1	550	Base Refrigeration	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.23	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.18	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC24_25-Lumber	0%	0%	0.10	1.06	1.06	0.23	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC24_25-Lumber	12%	2%	0.02	1.06	0.94	0.22	20	0.3	0.01	0.00	0.01	296	5.1	2
1	702	High Efficiency Chiller Motors	SIC24_25-Lumber	3%	3%	0.01	1.07	1.03	0.22	20	0.1	0.02	0.00	0.03	126	2.4	3
1	703	EMS - Chiller	SIC24_25-Lumber	10%	2%	0.03	1.17	1.06	0.25	10	0.0	0.00	0.00	0.04	864	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC24_25-Lumber	8%	8%	0.02	1.11	1.02	0.22	10	0.1	0.02	0.00	0.04	202	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC24_25-Lumber	10%	2%	0.02	1.11	1.00	0.23	15	0.1	0.01	0.00	0.02	469	3.5	2
1	706	EMS Optimization - Chiller	SIC24_25-Lumber	5%	5%	0.01	1.09	1.04	0.22	5	0.1	0.01	0.00	0.04	172	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC24_25-Lumber	10%	10%	0.01	1.10	0.99	0.21	10	0.1	0.03	0.00	0.01	60	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC24_25-Lumber	10%	10%	0.74	1.11	1.00	0.22	10	0.1	0.03	0.00	1.08	4,980	0.1	89
1	709	Window Film (Standard) - Chiller	SIC24_25-Lumber	5%	5%	0.03	1.09	1.03	0.22	10	0.1	0.01	0.00	0.09	395	0.9	7
1	710	Roof Insulation - Chiller	SIC24_25-Lumber	5%	5%	0.04	1.09	1.04	0.23	20	0.0	0.01	0.00	0.07	340	0.9	9
1	711	Cool Roof - Chiller	SIC24_25-Lumber	24%	24%	0.32	1.15	0.88	0.19	15	0.2	0.05	0.00	0.14	630	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC24_25-Lumber	0%	0%	0.18	1.06	1.06	0.23	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC24_25-Lumber	6%	3%	0.03	1.06	1.01	0.22	15	0.2	0.02	0.00	0.07	642	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC24_25-Lumber	40%	40%	0.13	1.06	0.64	0.14	15	0.8	0.17	0.00	0.04	165	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC24_25-Lumber	21%	21%	0.31	1.07	0.85	0.18	15	0.2	0.04	0.00	0.16	762	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC24_25-Lumber	5%	5%	0.02	1.10	1.05	0.23	10	0.0	0.01	0.00	0.05	235	1.5	4
1	725	DX Coil Cleaning	SIC24_25-Lumber	5%	5%	0.00	1.09	1.04	0.22	5	0.1	0.02	0.00	0.01	64	6.4	1
1	726	Optimize Controls	SIC24_25-Lumber	5%	5%	0.01	1.10	1.05	0.23	5	0.1	0.01	0.00	0.03	131	3.1	1
1	727	Aerosole Duct Sealing	SIC24_25-Lumber	10%	10%	0.01	1.10	0.99	0.21	10	0.2	0.04	0.00	0.01	35	10.4	1
1	728	Duct/Pipe Insulation	SIC24_25-Lumber	10%	10%	0.43	1.11	1.00	0.22	10	0.2	0.04	0.00	0.62	2,873	0.1	51
1	729	Window Film (Standard)	SIC24_25-Lumber	5%	5%	0.02	1.09	1.03	0.22	10	0.1	0.02	0.00	0.05	250	1.4	4

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY							Year 2008										
Vintage E																	
Batch 2				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	Base EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	730	Roof Insulation	SIC24_25-Lumber	5%	5%	0.02	1.09	1.04	0.23	20	0.1	0.01	0.00	0.04	196	1.5	5
1	731	Cool Roof - DX	SIC24_25-Lumber	24%	24%	0.19	1.15	0.88	0.19	15	0.3	0.07	0.00	0.08	364	0.9	9
1	800	Base Lighting	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.18	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC24_25-Lumber	31%	31%	0.03	1.23	0.84	0.15	15	2.0	0.34	0.32	0.01	48	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC24_25-Lumber	72%	72%	0.14	1.55	0.44	0.08	5	0.3	0.05	0.04	0.03	199	2.6	2
1	803	CFL Screw-in 18W	SIC24_25-Lumber	72%	72%	0.02	1.55	0.44	0.08	2	0.3	0.05	0.04	0.01	63	8.7	0
1	804	High Bay T5	SIC24_25-Lumber	49%	49%	0.04	1.09	0.56	0.10	10	0.3	0.05	0.04	0.01	71	6.4	1
1	805	Occupancy Sensor	SIC24_25-Lumber	20%	4%	0.04	1.08	0.87	0.18	9	0.4	0.01	0.07	0.03	945	2.4	3
1	900	Base Other	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.18	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC24_25-Lumber	0%	0%	0.00	1.06	1.06	0.18	5	0.0	0.00	0.00	0.04	254	2.0	2
1	100	Base Compressed Air	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.12	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC26-Paper	17%	17%	0.01	1.11	0.92	0.11	10	0.8	0.09	0.09	0.01	81	8.3	1
1	102	Compressed Air - Controls	SIC26-Paper	12%	12%	0.02	1.17	1.03	0.12	10	0.2	0.02	0.02	0.02	183	3.7	2
1	103	Compressed Air - System Optimization	SIC26-Paper	20%	20%	0.02	1.18	0.95	0.11	10	0.7	0.08	0.07	0.01	101	6.7	1
1	104	Compressed Air- Sizing	SIC26-Paper	9%	9%	0.00	1.13	1.02	0.12	10	0.2	0.03	0.03	0.01	67	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC26-Paper	3%	3%	0.06	1.07	1.04	0.12	14	0.0	0.00	0.00	0.22	1,902	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC26-Paper	6%	1%	0.08	1.08	1.01	0.12	14	0.0	0.00	0.00	0.15	14,003	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC26-Paper	5%	5%	0.02	1.06	1.01	0.12	14	0.0	0.00	0.00	0.05	472	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC26-Paper	3%	4%	0.03	1.08	1.04	0.12	10	0.0	0.01	0.01	0.14	1,176	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC26-Paper	6%	1%	0.00	1.07	1.00	0.12	10	0.1	0.00	0.01	0.01	624	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC26-Paper	2%	2%	0.01	1.06	1.04	0.12	10	0.1	0.01	0.01	0.04	309	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC26-Paper	3%	3%	0.01	1.09	1.05	0.12	6	0.0	0.01	0.00	0.07	586	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC26-Paper	6%	1%	0.01	1.07	1.00	0.12	6	0.2	0.00	0.02	0.02	2,055	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC26-Paper	1%	2%	0.00	1.06	1.05	0.12	6	0.1	0.01	0.01	0.03	296	2.5	2
1	200	Base Fans	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.12	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC26-Paper	2%	2%	0.00	1.08	1.05	0.12	10	0.3	0.03	0.03	0.01	71	9.5	1
1	202	Fans - Controls	SIC26-Paper	30%	30%	0.10	1.37	0.96	0.11	10	2.4	0.28	0.26	0.04	336	2.0	3
1	203	Fans - System Optimization	SIC26-Paper	21%	10%	0.06	1.30	1.02	0.14	10	1.0	0.05	0.10	0.04	693	2.1	3
1	204	Fans- Improve components	SIC26-Paper	5%	5%	0.01	1.11	1.05	0.12	10	0.3	0.03	0.03	0.02	135	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC26-Paper	3%	3%	0.06	1.07	1.04	0.12	14	0.0	0.00	0.00	0.22	1,902	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC26-Paper	6%	1%	0.08	1.08	1.01	0.12	14	0.1	0.00	0.01	0.15	13,966	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC26-Paper	5%	5%	0.02	1.06	1.01	0.12	14	0.1	0.01	0.01	0.05	472	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC26-Paper	3%	4%	0.03	1.08	1.04	0.12	10	0.2	0.02	0.02	0.14	1,176	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC26-Paper	6%	1%	0.00	1.07	1.00	0.12	10	0.5	0.01	0.05	0.01	623	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC26-Paper	2%	2%	0.01	1.06	1.04	0.12	10	0.2	0.03	0.02	0.04	309	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC26-Paper	3%	3%	0.01	1.09	1.05	0.12	6	0.2	0.02	0.02	0.07	586	1.3	4
1	212	Fans - ASD (100+ hp)	SIC26-Paper	6%	1%	0.01	1.07	1.00	0.12	6	0.9	0.01	0.09	0.02	2,053	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC26-Paper	1%	2%	0.00	1.06	1.05	0.12	6	0.2	0.03	0.02	0.03	296	2.5	2
1	300	Base Pumps	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.12	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC26-Paper	10%	10%	0.01	1.13	1.02	0.12	10	1.8	0.21	0.19	0.01	66	10.2	1
1	302	Pumps - Controls	SIC26-Paper	30%	30%	0.03	1.32	0.93	0.11	10	5.5	0.63	0.58	0.01	102	6.6	1
1	303	Pumps - System Optimization	SIC26-Paper	33%	33%	0.07	1.38	0.93	0.11	10	5.4	0.63	0.57	0.03	216	3.1	2
1	304	Pumps - Sizing	SIC26-Paper	20%	20%	0.02	1.27	1.01	0.12	10	2.0	0.23	0.21	0.01	118	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC26-Paper	3%	3%	0.06	1.07	1.04	0.12	14	0.1	0.01	0.01	0.22	1,902	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC26-Paper	6%	1%	0.08	1.08	1.01	0.12	14	0.1	0.00	0.01	0.15	13,979	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC26-Paper	5%	5%	0.02	1.06	1.01	0.12	14	0.1	0.01	0.01	0.05	472	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC26-Paper	3%	4%	0.03	1.08	1.04	0.12	10	0.3	0.04	0.03	0.14	1,176	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC26-Paper	6%	1%	0.00	1.07	1.00	0.12	10	0.9	0.01	0.09	0.01	623	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC26-Paper	2%	2%	0.01	1.06	1.04	0.12	10	0.4	0.04	0.04	0.04	309	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC26-Paper	3%	3%	0.01	1.09	1.05	0.12	6	0.3	0.03	0.03	0.07	586	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC26-Paper	6%	1%	0.01	1.07	1.00	0.12	6	1.5	0.02	0.16	0.02	2,055	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC26-Paper	1%	2%	0.00	1.06	1.05	0.12	6	0.4	0.04	0.04	0.03	296	2.5	2
1	400	Base Drives	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.12	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	405	Drives - EE motor	SIC26-Paper	3%	3%	0.01	1.08	1.05	0.12	10	0.9	0.11	0.10	0.03	249	2.7	2
1	406	Gap Forming papermachine	SIC26-Paper	8%	8%	0.01	1.15	1.06	0.12	20	0.5	0.05	0.05	0.01	85	6.7	1
1	407	High Consistency forming	SIC26-Paper	8%	8%	0.01	1.14	1.06	0.12	20	0.4	0.05	0.05	0.01	84	6.7	1
1	408	Optimization control PM	SIC26-Paper	5%	5%	0.01	1.09	1.04	0.12	10	1.4	0.16	0.15	0.04	342	2.0	3
1	500	Base Heating	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.12	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	550	Base Refrigeration	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.15	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	Base EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	600	Base Other Process	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.12	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC26-Paper	0%	0%	0.10	1.06	1.06	0.15	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC26-Paper	12%	2%	0.02	1.06	0.94	0.15	20	0.2	0.00	0.00	0.01	441	5.1	2
1	702	High Efficiency Chiller Motors	SIC26-Paper	3%	3%	0.01	1.07	1.03	0.15	20	0.0	0.01	0.00	0.03	187	2.4	3
1	703	EMS - Chiller	SIC26-Paper	10%	2%	0.03	1.17	1.06	0.17	10	0.0	0.00	0.00	0.04	1,286	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC26-Paper	8%	8%	0.02	1.11	1.02	0.15	10	0.0	0.01	0.00	0.04	301	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC26-Paper	10%	2%	0.02	1.11	1.00	0.16	15	0.1	0.00	0.00	0.02	698	3.5	2
1	706	EMS Optimization - Chiller	SIC26-Paper	5%	5%	0.01	1.09	1.04	0.15	5	0.0	0.00	0.00	0.04	256	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC26-Paper	10%	10%	0.01	1.10	0.99	0.14	10	0.1	0.01	0.00	0.01	89	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC26-Paper	10%	10%	0.74	1.11	1.00	0.14	10	0.1	0.01	0.00	1.08	7,418	0.1	89
1	709	Window Film (Standard) - Chiller	SIC26-Paper	5%	5%	0.03	1.09	1.03	0.15	10	0.0	0.00	0.00	0.09	588	0.9	7
1	710	Roof Insulation - Chiller	SIC26-Paper	5%	5%	0.04	1.09	1.04	0.15	20	0.0	0.00	0.00	0.07	506	0.9	9
1	711	Cool Roof - Chiller	SIC26-Paper	24%	24%	0.32	1.15	0.88	0.13	15	0.1	0.02	0.00	0.14	939	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC26-Paper	0%	0%	0.18	1.06	1.06	0.15	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC26-Paper	6%	3%	0.03	1.06	1.01	0.15	15	0.1	0.01	0.00	0.07	957	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC26-Paper	40%	40%	0.13	1.06	0.64	0.09	15	0.5	0.07	0.00	0.04	246	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC26-Paper	21%	21%	0.31	1.07	0.85	0.12	15	0.1	0.02	0.00	0.16	1,136	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC26-Paper	5%	5%	0.02	1.10	1.05	0.15	10	0.0	0.00	0.00	0.05	350	1.5	4
1	725	DX Coil Cleaning	SIC26-Paper	5%	5%	0.00	1.09	1.04	0.15	5	0.0	0.01	0.00	0.01	95	6.4	1
1	726	Optimize Controls	SIC26-Paper	5%	5%	0.01	1.10	1.05	0.15	5	0.0	0.00	0.00	0.03	195	3.1	1
1	727	Aerosole Duct Sealing	SIC26-Paper	10%	10%	0.01	1.10	0.99	0.14	10	0.1	0.02	0.00	0.01	52	10.4	1
1	728	Duct/Pipe Insulation	SIC26-Paper	10%	10%	0.43	1.11	1.00	0.14	10	0.1	0.02	0.00	0.62	4,279	0.1	51
1	729	Window Film (Standard)	SIC26-Paper	5%	5%	0.02	1.09	1.03	0.15	10	0.1	0.01	0.00	0.05	372	1.4	4
1	730	Roof Insulation	SIC26-Paper	5%	5%	0.02	1.09	1.04	0.15	20	0.0	0.01	0.00	0.04	292	1.5	5
1	731	Cool Roof - DX	SIC26-Paper	24%	24%	0.19	1.15	0.88	0.13	15	0.2	0.03	0.00	0.08	542	0.9	9
1	800	Base Lighting	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.12	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC26-Paper	31%	31%	0.03	1.23	0.84	0.10	15	1.0	0.12	0.11	0.01	72	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC26-Paper	72%	72%	0.14	1.55	0.44	0.05	5	0.3	0.03	0.03	0.03	296	2.6	2
1	803	CFL Screw-in 18W	SIC26-Paper	72%	72%	0.02	1.55	0.44	0.05	2	0.3	0.03	0.03	0.01	94	8.7	0
1	804	High Bay T5	SIC26-Paper	49%	49%	0.04	1.09	0.56	0.07	10	0.1	0.01	0.01	0.01	105	6.4	1
1	805	Occupancy Sensor	SIC26-Paper	20%	4%	0.04	1.08	0.87	0.12	9	0.2	0.01	0.02	0.03	1,408	2.4	3
1	900	Base Other	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.12	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC26-Paper	0%	0%	0.00	1.06	1.06	0.12	5	0.0	0.00	0.00	0.04	378	2.0	2
1	100	Base Compressed Air	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC27-Printing	17%	17%	0.01	1.11	0.92	0.13	10	0.6	0.08	0.06	0.01	69	8.3	1
1	102	Compressed Air - Controls	SIC27-Printing	12%	12%	0.02	1.17	1.03	0.14	10	0.2	0.02	0.02	0.02	157	3.7	2
1	103	Compressed Air - System Optimization	SIC27-Printing	20%	20%	0.02	1.18	0.95	0.13	10	0.5	0.07	0.05	0.01	86	6.7	1
1	104	Compressed Air- Sizing	SIC27-Printing	9%	9%	0.00	1.13	1.02	0.14	10	0.2	0.02	0.02	0.01	57	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC27-Printing	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,625	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC27-Printing	6%	1%	0.08	1.08	1.01	0.15	14	0.0	0.00	0.00	0.15	11,966	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC27-Printing	5%	5%	0.02	1.06	1.01	0.14	14	0.0	0.00	0.00	0.05	403	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC27-Printing	4%	4%	0.03	1.08	1.04	0.14	10	0.0	0.00	0.00	0.14	1,005	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC27-Printing	6%	1%	0.00	1.07	1.00	0.14	10	0.1	0.00	0.01	0.01	533	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC27-Printing	2%	2%	0.01	1.06	1.04	0.14	10	0.0	0.01	0.00	0.04	264	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC27-Printing	3%	3%	0.01	1.09	1.05	0.14	6	0.0	0.00	0.00	0.07	501	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC27-Printing	6%	1%	0.01	1.07	1.00	0.14	6	0.2	0.00	0.02	0.02	1,756	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC27-Printing	2%	2%	0.00	1.06	1.05	0.14	6	0.0	0.01	0.00	0.03	253	2.5	2
1	200	Base Fans	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC27-Printing	2%	2%	0.00	1.08	1.05	0.14	10	0.1	0.01	0.01	0.01	60	9.5	1
1	202	Fans - Controls	SIC27-Printing	30%	30%	0.10	1.37	0.96	0.13	10	0.9	0.12	0.09	0.04	287	2.0	3
1	203	Fans - System Optimization	SIC27-Printing	21%	10%	0.06	1.30	1.02	0.16	10	0.3	0.02	0.04	0.04	592	2.1	3
1	204	Fans- Improve components	SIC27-Printing	5%	5%	0.01	1.11	1.05	0.14	10	0.1	0.01	0.01	0.02	115	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC27-Printing	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,625	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC27-Printing	6%	1%	0.08	1.08	1.01	0.15	14	0.0	0.00	0.00	0.15	11,935	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC27-Printing	5%	5%	0.02	1.06	1.01	0.14	14	0.0	0.00	0.00	0.05	403	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC27-Printing	4%	4%	0.03	1.08	1.04	0.14	10	0.1	0.01	0.01	0.14	1,005	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC27-Printing	6%	1%	0.00	1.07	1.00	0.14	10	0.2	0.00	0.02	0.01	532	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC27-Printing	2%	2%	0.01	1.06	1.04	0.14	10	0.1	0.01	0.01	0.04	264	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC27-Printing	3%	3%	0.01	1.09	1.05	0.14	6	0.1	0.01	0.01	0.07	501	1.3	4

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	2																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	212	Fans - ASD (100+ hp)	SIC27-Printing	6%	1%	0.01	1.07	1.00	0.14	6	0.3	0.00	0.03	0.02	1,754	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC27-Printing	2%	2%	0.00	1.06	1.05	0.14	6	0.1	0.01	0.01	0.03	253	2.5	2
1	300	Base Pumps	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC27-Printing	10%	10%	0.01	1.13	1.02	0.14	10	0.5	0.07	0.05	0.01	56	10.2	1
1	302	Pumps - Controls	SIC27-Printing	30%	30%	0.03	1.32	0.93	0.13	10	1.5	0.21	0.16	0.01	87	6.6	1
1	303	Pumps - System Optimization	SIC27-Printing	33%	33%	0.07	1.38	0.93	0.13	10	1.5	0.20	0.15	0.03	185	3.1	2
1	304	Pumps - Sizing	SIC27-Printing	20%	20%	0.02	1.27	1.01	0.14	10	0.6	0.08	0.06	0.01	101	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC27-Printing	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,625	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC27-Printing	6%	1%	0.08	1.08	1.01	0.15	14	0.0	0.00	0.00	0.15	11,946	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC27-Printing	5%	5%	0.02	1.06	1.01	0.14	14	0.0	0.00	0.00	0.05	403	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC27-Printing	4%	4%	0.03	1.08	1.04	0.14	10	0.1	0.01	0.01	0.14	1,005	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC27-Printing	6%	1%	0.00	1.07	1.00	0.14	10	0.2	0.00	0.02	0.01	533	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC27-Printing	2%	2%	0.01	1.06	1.04	0.14	10	0.1	0.01	0.01	0.04	264	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC27-Printing	3%	3%	0.01	1.09	1.05	0.14	6	0.1	0.01	0.01	0.07	501	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC27-Printing	6%	1%	0.01	1.07	1.00	0.14	6	0.4	0.01	0.04	0.02	1,756	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC27-Printing	2%	2%	0.00	1.06	1.05	0.14	6	0.1	0.01	0.01	0.03	253	2.5	2
1	400	Base Drives	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.14	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	409	Efficient practices printing press	SIC27-Printing	10%	10%	0.01	1.12	1.01	0.14	20	2.2	0.30	0.23	0.01	73	6.6	1
1	410	Efficient Printing press (fewer cylinders)	SIC27-Printing	20%	20%	0.06	1.27	1.01	0.14	10	2.0	0.27	0.20	0.04	303	1.9	3
1	411	Light cylinders	SIC27-Printing	10%	10%	0.08	1.16	1.04	0.14	10	0.9	0.12	0.09	0.11	774	0.7	9
1	412	Efficient drives	SIC27-Printing	4%	4%	0.01	1.09	1.05	0.14	10	0.4	0.06	0.05	0.03	189	3.0	2
1	500	Base Heating	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.14	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	550	Base Refrigeration	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.14	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC27-Printing	0%	0%	0.10	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC27-Printing	12%	2%	0.02	1.06	0.94	0.18	20	0.7	0.02	0.00	0.01	377	5.1	2
1	702	High Efficiency Chiller Motors	SIC27-Printing	3%	3%	0.01	1.07	1.03	0.18	20	0.2	0.03	0.00	0.03	160	2.4	3
1	703	EMS - Chiller	SIC27-Printing	10%	2%	0.03	1.17	1.06	0.20	10	0.0	0.00	0.00	0.04	1,099	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC27-Printing	8%	8%	0.02	1.11	1.02	0.17	10	0.2	0.03	0.00	0.04	258	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC27-Printing	10%	2%	0.02	1.11	1.00	0.18	15	0.3	0.01	0.00	0.02	597	3.5	2
1	706	EMS Optimization - Chiller	SIC27-Printing	5%	5%	0.01	1.09	1.04	0.18	5	0.1	0.02	0.00	0.04	219	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC27-Printing	10%	10%	0.01	1.10	0.99	0.17	10	0.3	0.05	0.00	0.01	76	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC27-Printing	10%	10%	0.74	1.11	1.00	0.17	10	0.3	0.05	0.00	1.08	6,339	0.1	89
1	709	Window Film (Standard) - Chiller	SIC27-Printing	5%	5%	0.03	1.09	1.03	0.18	10	0.1	0.02	0.00	0.09	503	0.9	7
1	710	Roof Insulation - Chiller	SIC27-Printing	5%	5%	0.04	1.09	1.04	0.18	20	0.1	0.01	0.00	0.07	432	0.9	9
1	711	Cool Roof - Chiller	SIC27-Printing	24%	24%	0.32	1.15	0.88	0.15	15	0.5	0.09	0.00	0.14	802	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC27-Printing	0%	0%	0.18	1.06	1.06	0.18	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC27-Printing	6%	3%	0.03	1.06	1.01	0.18	15	0.5	0.05	0.00	0.07	818	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC27-Printing	40%	40%	0.13	1.06	0.64	0.11	15	1.9	0.33	0.00	0.04	210	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC27-Printing	21%	21%	0.31	1.07	0.85	0.14	15	0.5	0.08	0.00	0.16	970	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC27-Printing	5%	5%	0.02	1.10	1.05	0.18	10	0.1	0.02	0.00	0.05	299	1.5	4
1	725	DX Coil Cleaning	SIC27-Printing	5%	5%	0.00	1.09	1.04	0.18	5	0.2	0.03	0.00	0.01	81	6.4	1
1	726	Optimize Controls	SIC27-Printing	5%	5%	0.01	1.10	1.05	0.18	5	0.1	0.01	0.00	0.03	167	3.1	1
1	727	Aerosole Duct Sealing	SIC27-Printing	10%	10%	0.01	1.10	0.99	0.17	10	0.2	0.04	0.00	0.01	44	10.4	1
1	728	Duct/Pipe Insulation	SIC27-Printing	10%	10%	0.43	1.11	1.00	0.17	10	0.2	0.04	0.00	0.62	3,657	0.1	51
1	729	Window Film (Standard)	SIC27-Printing	5%	5%	0.02	1.09	1.03	0.18	10	0.1	0.02	0.00	0.05	318	1.4	4
1	730	Roof Insulation	SIC27-Printing	5%	5%	0.02	1.09	1.04	0.18	20	0.1	0.01	0.00	0.04	249	1.5	5
1	731	Cool Roof - DX	SIC27-Printing	24%	24%	0.19	1.15	0.88	0.15	15	0.4	0.07	0.00	0.08	463	0.9	9
1	800	Base Lighting	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.14	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC27-Printing	31%	31%	0.03	1.23	0.84	0.11	15	3.1	0.42	0.31	0.01	62	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC27-Printing	72%	72%	0.14	1.55	0.44	0.06	5	0.1	0.02	0.01	0.03	253	2.6	2
1	803	CFL Screw-in 18W	SIC27-Printing	72%	72%	0.02	1.55	0.44	0.06	2	0.1	0.02	0.01	0.01	80	8.7	0
1	804	High Bay T5	SIC27-Printing	49%	49%	0.04	1.09	0.56	0.08	10	0.1	0.01	0.01	0.01	90	6.4	1
1	805	Occupancy Sensor	SIC27-Printing	20%	4%	0.04	1.08	0.87	0.14	9	0.6	0.02	0.06	0.03	1,203	2.4	3
1	900	Base Other	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.14	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC27-Printing	0%	0%	0.00	1.06	1.06	0.14	5	0.0	0.00	0.00	0.04	323	2.0	2
1	100	Base Compressed Air	SIC28-Chemicals	0%	0%	0.00	1.06	1.06	0.10	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC28-Chemicals	17%	17%	0.01	1.11	0.92	0.08	10	0.7	0.07	0.06	0.01	104	8.3	1
1	102	Compressed Air - Controls	SIC28-Chemicals	12%	12%	0.02	1.17	1.03	0.09	10	0.2	0.02	0.01	0.02	235	3.7	2

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E												Summer	Winter	Levelized Cost	Levelized Cost		
Batch 2				Energy	Peak	Total			Peak		Technical	Peak Tech.	Peak Tech.	of Conserved	of Avoided		Customer
	Measure		Building	Savings	Reduction	Costs/	Base		Watts/	Service	Potential	Potential	Potential	Energy	Peak Capacity	Participant	Payback
Segment	Number	Measure	Type	Fraction	Fraction	Sq Ft	EUI	EUI	Sq Ft	Life (yrs)	GWH	MW	MW	$/kWH	$/kW	Test	(Years)
1	103	Compressed Air - System Optimization	SIC28-Chemicals	20%	20%	0.02	1.18	0.95	0.09	10	0.6	0.06	0.05	0.01	130	6.7	1
1	104	Compressed Air- Sizing	SIC28-Chemicals	9%	9%	0.00	1.13	1.02	0.09	10	0.2	0.02	0.02	0.01	86	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC28-Chemicals	3%	3%	0.06	1.07	1.04	0.09	14	0.0	0.00	0.00	0.22	2,438	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC28-Chemicals	6%	1%	0.08	1.08	1.01	0.10	14	0.0	0.00	0.00	0.15	17,950	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC28-Chemicals	5%	5%	0.02	1.06	1.01	0.09	14	0.0	0.00	0.00	0.05	605	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC28-Chemicals	3%	4%	0.03	1.08	1.04	0.09	10	0.0	0.00	0.00	0.14	1,507	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC28-Chemicals	6%	1%	0.00	1.07	1.00	0.10	10	0.1	0.00	0.01	0.01	800	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC28-Chemicals	2%	2%	0.01	1.06	1.04	0.09	10	0.0	0.00	0.00	0.04	396	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC28-Chemicals	3%	3%	0.01	1.09	1.05	0.10	6	0.0	0.00	0.00	0.07	752	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC28-Chemicals	6%	1%	0.01	1.07	1.00	0.10	6	0.2	0.00	0.02	0.02	2,634	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC28-Chemicals	1%	2%	0.00	1.06	1.05	0.10	6	0.0	0.00	0.00	0.03	380	2.5	2
1	200	Base Fans	SIC28-Chemicals	0%	0%	0.00	1.06	1.06	0.10	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC28-Chemicals	2%	2%	0.00	1.08	1.05	0.10	10	0.1	0.01	0.01	0.01	91	9.5	1
1	202	Fans - Controls	SIC28-Chemicals	30%	30%	0.10	1.37	0.96	0.09	10	1.4	0.12	0.11	0.04	430	2.0	3
1	203	Fans - System Optimization	SIC28-Chemicals	21%	10%	0.06	1.30	1.02	0.11	10	0.5	0.02	0.04	0.04	888	2.1	3
1	204	Fans- Improve components	SIC28-Chemicals	5%	5%	0.01	1.11	1.05	0.10	10	0.1	0.01	0.01	0.02	173	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC28-Chemicals	3%	3%	0.06	1.07	1.04	0.09	14	0.0	0.00	0.00	0.22	2,438	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC28-Chemicals	6%	1%	0.08	1.08	1.01	0.10	14	0.0	0.00	0.00	0.15	17,903	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC28-Chemicals	5%	5%	0.02	1.06	1.01	0.09	14	0.0	0.00	0.00	0.05	605	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC28-Chemicals	3%	4%	0.03	1.08	1.04	0.09	10	0.1	0.01	0.01	0.14	1,507	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC28-Chemicals	6%	1%	0.00	1.07	1.00	0.10	10	0.3	0.00	0.02	0.01	798	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC28-Chemicals	2%	2%	0.01	1.06	1.04	0.09	10	0.1	0.01	0.01	0.04	396	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC28-Chemicals	3%	3%	0.01	1.09	1.05	0.10	6	0.1	0.01	0.01	0.07	752	1.3	4
1	212	Fans - ASD (100+ hp)	SIC28-Chemicals	6%	1%	0.01	1.07	1.00	0.10	6	0.5	0.00	0.04	0.02	2,631	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC28-Chemicals	1%	2%	0.00	1.06	1.05	0.10	6	0.1	0.01	0.01	0.03	380	2.5	2
1	300	Base Pumps	SIC28-Chemicals	0%	0%	0.00	1.06	1.06	0.10	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC28-Chemicals	10%	10%	0.01	1.13	1.02	0.09	10	2.4	0.22	0.19	0.01	85	10.2	1
1	302	Pumps - Controls	SIC28-Chemicals	30%	30%	0.03	1.32	0.93	0.08	10	7.4	0.67	0.58	0.01	131	6.6	1
1	303	Pumps - System Optimization	SIC28-Chemicals	33%	33%	0.07	1.38	0.93	0.08	10	7.3	0.67	0.58	0.03	278	3.1	2
1	304	Pumps - Sizing	SIC28-Chemicals	20%	20%	0.02	1.27	1.01	0.09	10	2.7	0.25	0.21	0.01	152	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC28-Chemicals	3%	3%	0.06	1.07	1.04	0.09	14	0.1	0.01	0.01	0.22	2,438	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC28-Chemicals	6%	1%	0.08	1.08	1.01	0.10	14	0.1	0.00	0.01	0.15	17,920	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC28-Chemicals	5%	5%	0.02	1.06	1.01	0.09	14	0.1	0.01	0.01	0.05	605	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC28-Chemicals	3%	4%	0.03	1.08	1.04	0.09	10	0.4	0.04	0.04	0.14	1,507	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC28-Chemicals	6%	1%	0.00	1.07	1.00	0.10	10	1.2	0.01	0.09	0.01	799	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC28-Chemicals	2%	2%	0.01	1.06	1.04	0.09	10	0.5	0.04	0.04	0.04	396	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC28-Chemicals	3%	3%	0.01	1.09	1.05	0.10	6	0.4	0.04	0.03	0.07	752	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC28-Chemicals	6%	1%	0.01	1.07	1.00	0.10	6	2.0	0.02	0.16	0.02	2,635	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC28-Chemicals	1%	2%	0.00	1.06	1.05	0.10	6	0.5	0.05	0.04	0.03	380	2.5	2
1	400	Base Drives	SIC28-Chemicals	0%	0%	0.00	1.06	1.06	0.10	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	413	Clean Room - Controls	SIC28-Chemicals	10%	10%	0.02	1.12	1.01	0.09	10	0.7	0.07	0.06	0.03	377	2.3	3
1	414	Clean Room - New Designs	SIC28-Chemicals	30%	30%	0.14	1.40	0.98	0.09	10	1.1	0.10	0.08	0.05	603	1.4	5
1	415	Drives - Process Controls (batch + site)	SIC28-Chemicals	8%	8%	0.03	1.11	1.02	0.09	10	1.6	0.15	0.13	0.05	520	1.7	4
1	416	Process Drives - ASD	SIC28-Chemicals	1%	1%	0.00	1.06	1.06	0.10	10	0.2	0.02	0.01	0.05	545	1.6	4
1	500	Base Heating	SIC28-Chemicals	0%	0%	0.00	1.06	1.06	0.10	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	550	Base Refrigeration	SIC28-Chemicals	0%	0%	0.00	1.06	1.06	0.12	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC28-Chemicals	0%	0%	0.00	1.06	1.06	0.10	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	601	Other Process Controls (batch + site)	SIC28-Chemicals	8%	8%	0.03	1.11	1.02	0.09	10	1.3	0.12	0.10	0.05	520	1.7	4
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC28-Chemicals	0%	0%	0.10	1.06	1.06	0.12	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC28-Chemicals	12%	2%	0.02	1.06	0.94	0.12	20	0.2	0.00	0.00	0.01	565	5.1	2
1	702	High Efficiency Chiller Motors	SIC28-Chemicals	3%	3%	0.01	1.07	1.03	0.12	20	0.0	0.01	0.00	0.03	240	2.4	3
1	703	EMS - Chiller	SIC28-Chemicals	10%	2%	0.03	1.17	1.06	0.13	10	0.0	0.00	0.00	0.04	1,649	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC28-Chemicals	8%	8%	0.02	1.11	1.02	0.12	10	0.1	0.01	0.00	0.04	386	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC28-Chemicals	10%	2%	0.02	1.11	1.00	0.12	15	0.1	0.00	0.00	0.02	895	3.5	2
1	706	EMS Optimization - Chiller	SIC28-Chemicals	5%	5%	0.01	1.09	1.04	0.12	5	0.0	0.00	0.00	0.04	329	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC28-Chemicals	10%	10%	0.01	1.10	0.99	0.11	10	0.1	0.01	0.00	0.01	115	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC28-Chemicals	10%	10%	0.74	1.11	1.00	0.11	10	0.1	0.01	0.00	1.08	9,509	0.1	89
1	709	Window Film (Standard) - Chiller	SIC28-Chemicals	5%	5%	0.03	1.09	1.03	0.12	10	0.0	0.00	0.00	0.09	754	0.9	7
1	710	Roof Insulation - Chiller	SIC28-Chemicals	5%	5%	0.04	1.09	1.04	0.12	20	0.0	0.00	0.00	0.07	649	0.9	9

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	2																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	711	Cool Roof - Chiller	SIC28-Chemicals	24%	24%	0.32	1.15	0.88	0.10	15	0.1	0.02	0.00	0.14	1,203	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC28-Chemicals	0%	0%	0.18	1.06	1.06	0.12	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC28-Chemicals	6%	3%	0.03	1.06	1.01	0.12	15	0.3	0.02	0.00	0.07	1,226	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC28-Chemicals	40%	40%	0.13	1.06	0.64	0.07	15	1.0	0.12	0.00	0.04	315	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC28-Chemicals	21%	21%	0.31	1.07	0.85	0.10	15	0.3	0.03	0.00	0.16	1,456	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC28-Chemicals	5%	5%	0.02	1.10	1.05	0.12	10	0.1	0.01	0.00	0.05	449	1.5	4
1	725	DX Coil Cleaning	SIC28-Chemicals	5%	5%	0.00	1.09	1.04	0.12	5	0.1	0.01	0.00	0.01	121	6.4	1
1	726	Optimize Controls	SIC28-Chemicals	5%	5%	0.01	1.10	1.05	0.12	5	0.0	0.00	0.00	0.03	251	3.1	1
1	727	Aerosole Duct Sealing	SIC28-Chemicals	10%	10%	0.01	1.10	0.99	0.11	10	0.1	0.01	0.00	0.01	66	10.4	1
1	728	Duct/Pipe Insulation	SIC28-Chemicals	10%	10%	0.43	1.11	1.00	0.11	10	0.1	0.01	0.00	0.62	5,486	0.1	51
1	729	Window Film (Standard)	SIC28-Chemicals	5%	5%	0.02	1.09	1.03	0.12	10	0.1	0.01	0.00	0.05	477	1.4	4
1	730	Roof Insulation	SIC28-Chemicals	5%	5%	0.02	1.09	1.04	0.12	20	0.0	0.00	0.00	0.04	374	1.5	5
1	731	Cool Roof - DX	SIC28-Chemicals	24%	24%	0.19	1.15	0.88	0.10	15	0.2	0.02	0.00	0.08	694	0.9	9
1	800	Base Lighting	SIC28-Chemicals	0%	0%	0.00	1.06	1.06	0.10	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC28-Chemicals	31%	31%	0.03	1.23	0.84	0.08	15	1.5	0.13	0.12	0.01	93	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC28-Chemicals	72%	72%	0.14	1.55	0.44	0.04	5	0.3	0.03	0.02	0.03	380	2.6	2
1	803	CFL Screw-in 18W	SIC28-Chemicals	72%	72%	0.02	1.55	0.44	0.04	2	0.3	0.03	0.02	0.01	121	8.7	0
1	804	High Bay T5	SIC28-Chemicals	49%	49%	0.04	1.09	0.56	0.05	10	0.5	0.05	0.04	0.01	135	6.4	1
1	805	Occupancy Sensor	SIC28-Chemicals	20%	4%	0.04	1.08	0.87	0.09	9	0.3	0.01	0.03	0.03	1,805	2.4	3
1	900	Base Other	SIC28-Chemicals	0%	0%	0.00	1.06	1.06	0.10	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	100	Base Compressed Air	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.09	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC29-Petroleum	17%	17%	0.01	1.11	0.92	0.08	10	0.3	0.02	0.02	0.01	105	8.3	1
1	102	Compressed Air - Controls	SIC29-Petroleum	12%	12%	0.02	1.17	1.03	0.09	10	0.1	0.01	0.01	0.02	239	3.7	2
1	103	Compressed Air - System Optimization	SIC29-Petroleum	20%	20%	0.02	1.18	0.95	0.08	10	0.2	0.02	0.02	0.01	132	6.7	1
1	104	Compressed Air- Sizing	SIC29-Petroleum	9%	9%	0.00	1.13	1.02	0.09	10	0.1	0.01	0.01	0.01	87	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC29-Petroleum	3%	3%	0.06	1.07	1.04	0.09	14	0.0	0.00	0.00	0.22	2,482	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC29-Petroleum	6%	1%	0.08	1.08	1.01	0.10	14	0.0	0.00	0.00	0.15	18,272	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC29-Petroleum	5%	5%	0.02	1.06	1.01	0.09	14	0.0	0.00	0.00	0.05	615	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC29-Petroleum	4%	4%	0.03	1.08	1.04	0.09	10	0.0	0.00	0.00	0.14	1,534	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC29-Petroleum	6%	1%	0.00	1.07	1.00	0.09	10	0.0	0.00	0.00	0.01	814	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC29-Petroleum	2%	2%	0.01	1.06	1.04	0.09	10	0.0	0.00	0.00	0.04	403	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC29-Petroleum	3%	3%	0.01	1.09	1.05	0.09	6	0.0	0.00	0.00	0.07	765	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC29-Petroleum	6%	1%	0.01	1.07	1.00	0.09	6	0.1	0.00	0.01	0.02	2,681	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC29-Petroleum	2%	2%	0.00	1.06	1.05	0.09	6	0.0	0.00	0.00	0.03	386	2.5	2
1	114	Power recovery	SIC29-Petroleum	1%	1%	0.00	1.07	1.06	0.09	10	0.0	0.00	0.00	0.05	538	1.6	4
1	115	Refinery Controls	SIC29-Petroleum	3%	3%	0.00	1.08	1.05	0.09	10	0.0	0.00	0.00	0.02	275	3.2	2
1	200	Base Fans	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.09	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC29-Petroleum	2%	2%	0.00	1.08	1.05	0.09	10	0.0	0.00	0.00	0.01	92	9.5	1
1	202	Fans - Controls	SIC29-Petroleum	30%	30%	0.10	1.37	0.96	0.09	10	0.1	0.01	0.01	0.04	438	2.0	3
1	203	Fans - System Optimization	SIC29-Petroleum	21%	10%	0.06	1.30	1.02	0.10	10	0.0	0.00	0.00	0.04	904	2.1	3
1	204	Fans- Improve components	SIC29-Petroleum	5%	5%	0.01	1.11	1.05	0.09	10	0.0	0.00	0.00	0.02	176	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC29-Petroleum	3%	3%	0.06	1.07	1.04	0.09	14	0.0	0.00	0.00	0.22	2,482	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC29-Petroleum	6%	1%	0.08	1.08	1.01	0.10	14	0.0	0.00	0.00	0.15	18,224	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC29-Petroleum	5%	5%	0.02	1.06	1.01	0.09	14	0.0	0.00	0.00	0.05	615	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC29-Petroleum	4%	4%	0.03	1.08	1.04	0.09	10	0.0	0.00	0.00	0.14	1,534	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC29-Petroleum	6%	1%	0.00	1.07	1.00	0.09	10	0.0	0.00	0.00	0.01	813	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC29-Petroleum	2%	2%	0.01	1.06	1.04	0.09	10	0.0	0.00	0.00	0.04	403	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC29-Petroleum	3%	3%	0.01	1.09	1.05	0.09	6	0.0	0.00	0.00	0.07	765	1.3	4
1	212	Fans - ASD (100+ hp)	SIC29-Petroleum	6%	1%	0.01	1.07	1.00	0.09	6	0.0	0.00	0.00	0.02	2,679	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC29-Petroleum	2%	2%	0.00	1.06	1.05	0.09	6	0.0	0.00	0.00	0.03	386	2.5	2
1	215	Power recovery	SIC29-Petroleum	1%	1%	0.00	1.07	1.06	0.09	10	0.0	0.00	0.00	0.05	538	1.6	4
1	216	Refinery Controls	SIC29-Petroleum	3%	3%	0.00	1.08	1.05	0.09	10	0.0	0.00	0.00	0.02	275	3.2	2
1	300	Base Pumps	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.09	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC29-Petroleum	10%	10%	0.01	1.13	1.02	0.09	10	0.4	0.03	0.03	0.01	86	10.2	1
1	302	Pumps - Controls	SIC29-Petroleum	30%	30%	0.03	1.32	0.93	0.08	10	1.1	0.10	0.09	0.01	133	6.6	1
1	303	Pumps - System Optimization	SIC29-Petroleum	33%	33%	0.07	1.38	0.93	0.08	10	1.1	0.10	0.09	0.03	282	3.1	2
1	304	Pumps - Sizing	SIC29-Petroleum	20%	20%	0.02	1.27	1.01	0.09	10	0.4	0.04	0.03	0.01	155	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC29-Petroleum	3%	3%	0.06	1.07	1.04	0.09	14	0.0	0.00	0.00	0.22	2,482	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC29-Petroleum	6%	1%	0.08	1.08	1.01	0.10	14	0.0	0.00	0.00	0.15	18,241	0.5	16

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	2																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC29-Petroleum	5%	5%	0.02	1.06	1.01	0.09	14	0.0	0.00	0.00	0.05	615	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC29-Petroleum	4%	4%	0.03	1.08	1.04	0.09	10	0.1	0.01	0.01	0.14	1,534	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC29-Petroleum	6%	1%	0.00	1.07	1.00	0.09	10	0.2	0.00	0.01	0.01	813	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC29-Petroleum	2%	2%	0.01	1.06	1.04	0.09	10	0.1	0.01	0.01	0.04	403	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC29-Petroleum	3%	3%	0.01	1.09	1.05	0.09	6	0.1	0.01	0.00	0.07	765	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC29-Petroleum	6%	1%	0.01	1.07	1.00	0.09	6	0.3	0.00	0.02	0.02	2,682	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC29-Petroleum	2%	2%	0.00	1.06	1.05	0.09	6	0.1	0.01	0.01	0.03	386	2.5	2
1	314	Power recovery	SIC29-Petroleum	1%	1%	0.00	1.07	1.06	0.09	10	0.0	0.00	0.00	0.05	538	1.6	4
1	315	Refinery Controls	SIC29-Petroleum	3%	3%	0.00	1.08	1.05	0.09	10	0.1	0.01	0.01	0.02	275	3.2	2
1	400	Base Drives	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.09	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	500	Base Heating	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.09	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	550	Base Refrigeration	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.12	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.09	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	602	Efficient desalter	SIC29-Petroleum	20%	20%	0.04	1.18	0.95	0.08	10	0.0	0.00	0.00	0.03	330	2.7	2
1	606	Power recovery	SIC29-Petroleum	1%	1%	0.00	1.07	1.06	0.09	10	0.0	0.00	0.00	0.05	538	1.6	4
1	607	Refinery Controls	SIC29-Petroleum	3%	3%	0.00	1.08	1.05	0.09	10	0.0	0.00	0.00	0.02	275	3.2	2
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC29-Petroleum	0%	0%	0.10	1.06	1.06	0.12	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC29-Petroleum	12%	2%	0.02	1.06	0.94	0.12	20	0.0	0.00	0.00	0.01	575	5.1	2
1	702	High Efficiency Chiller Motors	SIC29-Petroleum	3%	3%	0.01	1.07	1.03	0.12	20	0.0	0.00	0.00	0.03	244	2.4	3
1	703	EMS - Chiller	SIC29-Petroleum	10%	2%	0.03	1.17	1.06	0.13	10	0.0	0.00	0.00	0.04	1,679	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC29-Petroleum	8%	8%	0.02	1.11	1.02	0.11	10	0.0	0.00	0.00	0.04	393	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC29-Petroleum	10%	2%	0.02	1.11	1.00	0.12	15	0.0	0.00	0.00	0.02	911	3.5	2
1	706	EMS Optimization - Chiller	SIC29-Petroleum	5%	5%	0.01	1.09	1.04	0.12	5	0.0	0.00	0.00	0.04	335	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC29-Petroleum	10%	10%	0.01	1.10	0.99	0.11	10	0.0	0.00	0.00	0.01	117	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC29-Petroleum	10%	10%	0.74	1.11	1.00	0.11	10	0.0	0.00	0.00	1.08	9,679	0.1	89
1	709	Window Film (Standard) - Chiller	SIC29-Petroleum	5%	5%	0.03	1.09	1.03	0.11	10	0.0	0.00	0.00	0.09	768	0.9	7
1	710	Roof Insulation - Chiller	SIC29-Petroleum	5%	5%	0.04	1.09	1.04	0.12	20	0.0	0.00	0.00	0.07	660	0.9	9
1	711	Cool Roof - Chiller	SIC29-Petroleum	24%	24%	0.32	1.15	0.88	0.10	15	0.0	0.00	0.00	0.14	1,225	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC29-Petroleum	0%	0%	0.18	1.06	1.06	0.12	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC29-Petroleum	6%	3%	0.03	1.06	1.01	0.12	15	0.0	0.00	0.00	0.07	1,248	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC29-Petroleum	40%	40%	0.13	1.06	0.64	0.07	15	0.0	0.00	0.00	0.04	321	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC29-Petroleum	21%	21%	0.31	1.07	0.85	0.09	15	0.0	0.00	0.00	0.16	1,482	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC29-Petroleum	5%	5%	0.02	1.10	1.05	0.12	10	0.0	0.00	0.00	0.05	457	1.5	4
1	725	DX Coil Cleaning	SIC29-Petroleum	5%	5%	0.00	1.09	1.04	0.12	5	0.0	0.00	0.00	0.01	124	6.4	1
1	726	Optimize Controls	SIC29-Petroleum	5%	5%	0.01	1.10	1.05	0.12	5	0.0	0.00	0.00	0.03	255	3.1	1
1	727	Aerosole Duct Sealing	SIC29-Petroleum	10%	10%	0.01	1.10	0.99	0.11	10	0.0	0.00	0.00	0.01	67	10.4	1
1	728	Duct/Pipe Insulation	SIC29-Petroleum	10%	10%	0.43	1.11	1.00	0.11	10	0.0	0.00	0.00	0.62	5,584	0.1	51
1	729	Window Film (Standard)	SIC29-Petroleum	5%	5%	0.02	1.09	1.03	0.11	10	0.0	0.00	0.00	0.05	486	1.4	4
1	730	Roof Insulation	SIC29-Petroleum	5%	5%	0.02	1.09	1.04	0.12	20	0.0	0.00	0.00	0.04	381	1.5	5
1	731	Cool Roof - DX	SIC29-Petroleum	24%	24%	0.19	1.15	0.88	0.10	15	0.0	0.00	0.00	0.08	707	0.9	9
1	800	Base Lighting	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.09	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC29-Petroleum	31%	31%	0.03	1.23	0.84	0.07	15	0.1	0.01	0.01	0.01	94	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC29-Petroleum	72%	72%	0.14	1.55	0.44	0.04	5	0.0	0.00	0.00	0.03	387	2.6	2
1	803	CFL Screw-in 18W	SIC29-Petroleum	72%	72%	0.02	1.55	0.44	0.04	2	0.0	0.00	0.00	0.01	123	8.7	0
1	804	High Bay T5	SIC29-Petroleum	49%	49%	0.04	1.09	0.56	0.05	10	0.0	0.00	0.00	0.01	138	6.4	1
1	805	Occupancy Sensor	SIC29-Petroleum	20%	4%	0.04	1.08	0.87	0.09	9	0.0	0.00	0.00	0.03	1,837	2.4	3
1	900	Base Other	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.09	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC29-Petroleum	0%	0%	0.00	1.06	1.06	0.09	5	0.0	0.00	0.00	0.04	493	2.0	2
1	100	Base Compressed Air	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.15	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC30-Rubber-Plastics	17%	17%	0.01	1.11	0.92	0.13	10	1.4	0.19	0.17	0.01	67	8.3	1
1	102	Compressed Air - Controls	SIC30-Rubber-Plastics	12%	12%	0.02	1.17	1.03	0.14	10	0.3	0.05	0.04	0.02	153	3.7	2
1	103	Compressed Air - System Optimization	SIC30-Rubber-Plastics	20%	20%	0.02	1.18	0.95	0.13	10	1.2	0.16	0.15	0.01	84	6.7	1
1	104	Compressed Air- Sizing	SIC30-Rubber-Plastics	9%	9%	0.00	1.13	1.02	0.14	10	0.4	0.06	0.05	0.01	56	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC30-Rubber-Plastics	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,584	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC30-Rubber-Plastics	6%	1%	0.08	1.08	1.01	0.15	14	0.0	0.00	0.00	0.15	11,660	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC30-Rubber-Plastics	5%	5%	0.02	1.06	1.01	0.14	14	0.0	0.00	0.00	0.05	393	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC30-Rubber-Plastics	3%	4%	0.03	1.08	1.04	0.15	10	0.1	0.01	0.01	0.14	979	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC30-Rubber-Plastics	6%	1%	0.00	1.07	1.00	0.15	10	0.2	0.00	0.03	0.01	520	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC30-Rubber-Plastics	2%	2%	0.01	1.06	1.04	0.14	10	0.1	0.01	0.01	0.04	257	2.2	3

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage Batch	E 2																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	111	Comp Air - Replace 100+ HP motor	SIC30-Rubber-Plastics	3%	3%	0.01	1.09	1.05	0.15	6	0.1	0.01	0.01	0.07	488	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC30-Rubber-Plastics	6%	1%	0.01	1.07	1.00	0.15	6	0.4	0.00	0.05	0.02	1,711	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC30-Rubber-Plastics	1%	2%	0.00	1.06	1.05	0.15	6	0.1	0.01	0.01	0.03	247	2.5	2
1	200	Base Fans	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.15	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC30-Rubber-Plastics	2%	2%	0.00	1.08	1.05	0.15	10	0.2	0.03	0.03	0.01	59	9.5	1
1	202	Fans - Controls	SIC30-Rubber-Plastics	30%	30%	0.10	1.37	0.96	0.13	10	1.9	0.27	0.24	0.04	279	2.0	3
1	203	Fans - System Optimization	SIC30-Rubber-Plastics	21%	10%	0.06	1.30	1.02	0.16	10	0.8	0.05	0.10	0.04	577	2.1	3
1	204	Fans- Improve components	SIC30-Rubber-Plastics	5%	5%	0.01	1.11	1.05	0.15	10	0.2	0.03	0.03	0.02	112	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC30-Rubber-Plastics	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,584	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC30-Rubber-Plastics	6%	1%	0.08	1.08	1.01	0.15	14	0.0	0.00	0.01	0.15	11,629	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC30-Rubber-Plastics	5%	5%	0.02	1.06	1.01	0.14	14	0.0	0.01	0.01	0.05	393	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC30-Rubber-Plastics	3%	4%	0.03	1.08	1.04	0.15	10	0.2	0.02	0.02	0.14	979	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC30-Rubber-Plastics	6%	1%	0.00	1.07	1.00	0.15	10	0.4	0.01	0.05	0.01	519	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC30-Rubber-Plastics	2%	2%	0.01	1.06	1.04	0.14	10	0.2	0.02	0.02	0.04	257	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC30-Rubber-Plastics	3%	3%	0.01	1.09	1.05	0.15	6	0.1	0.02	0.02	0.07	488	1.3	4
1	212	Fans - ASD (100+ hp)	SIC30-Rubber-Plastics	6%	1%	0.01	1.07	1.00	0.15	6	0.7	0.01	0.09	0.02	1,709	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC30-Rubber-Plastics	1%	2%	0.00	1.06	1.05	0.15	6	0.2	0.02	0.02	0.03	247	2.5	2
1	300	Base Pumps	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.15	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC30-Rubber-Plastics	10%	10%	0.01	1.13	1.02	0.14	10	1.1	0.16	0.14	0.01	55	10.2	1
1	302	Pumps - Controls	SIC30-Rubber-Plastics	30%	30%	0.03	1.32	0.93	0.13	10	3.4	0.48	0.43	0.01	85	6.6	1
1	303	Pumps - System Optimization	SIC30-Rubber-Plastics	33%	33%	0.07	1.38	0.93	0.13	10	3.4	0.47	0.42	0.03	180	3.1	2
1	304	Pumps - Sizing	SIC30-Rubber-Plastics	20%	20%	0.02	1.27	1.01	0.14	10	1.2	0.17	0.16	0.01	99	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC30-Rubber-Plastics	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,584	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC30-Rubber-Plastics	6%	1%	0.08	1.08	1.01	0.15	14	0.1	0.00	0.01	0.15	11,640	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC30-Rubber-Plastics	5%	5%	0.02	1.06	1.01	0.14	14	0.1	0.01	0.01	0.05	393	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC30-Rubber-Plastics	3%	4%	0.03	1.08	1.04	0.15	10	0.2	0.03	0.03	0.14	979	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC30-Rubber-Plastics	6%	1%	0.00	1.07	1.00	0.15	10	0.5	0.01	0.07	0.01	519	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC30-Rubber-Plastics	2%	2%	0.01	1.06	1.04	0.14	10	0.2	0.03	0.03	0.04	257	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC30-Rubber-Plastics	3%	3%	0.01	1.09	1.05	0.15	6	0.2	0.03	0.02	0.07	488	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC30-Rubber-Plastics	6%	1%	0.01	1.07	1.00	0.15	6	0.9	0.01	0.12	0.02	1,711	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC30-Rubber-Plastics	1%	2%	0.00	1.06	1.05	0.15	6	0.2	0.03	0.03	0.03	247	2.5	2
1	400	Base Drives	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.15	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	417	O&M - Extruders/Injection Moulding	SIC30-Rubber-Plastics	10%	10%	0.01	1.12	1.01	0.14	12	5.0	0.69	0.62	0.01	47	11.3	1
1	418	Extruders/injection Moulding-multipump	SIC30-Rubber-Plastics	30%	30%	0.11	1.40	0.98	0.14	12	7.4	1.04	0.93	0.04	251	2.1	3
1	419	Direct drive Extruders	SIC30-Rubber-Plastics	50%	50%	0.33	1.94	0.97	0.14	12	4.3	0.60	0.53	0.05	339	1.6	5
1	420	Injection Moulding - Impulse Cooling	SIC30-Rubber-Plastics	21%	21%	0.08	1.26	1.00	0.14	12	2.9	0.41	0.37	0.04	278	1.9	4
1	421	Injection Moulding - Direct drive	SIC30-Rubber-Plastics	20%	20%	0.10	1.25	1.00	0.14	12	2.8	0.39	0.34	0.06	411	1.3	6
1	500	Base Heating	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.15	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	550	Base Refrigeration	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.19	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.15	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC30-Rubber-Plastics	0%	0%	0.10	1.06	1.06	0.19	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC30-Rubber-Plastics	12%	2%	0.02	1.06	0.94	0.18	20	0.7	0.03	0.01	0.01	367	5.1	2
1	702	High Efficiency Chiller Motors	SIC30-Rubber-Plastics	3%	3%	0.01	1.07	1.03	0.18	20	0.2	0.03	0.00	0.03	156	2.4	3
1	703	EMS - Chiller	SIC30-Rubber-Plastics	10%	2%	0.03	1.17	1.06	0.20	10	0.0	0.00	0.00	0.04	1,071	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC30-Rubber-Plastics	8%	8%	0.02	1.11	1.02	0.18	10	0.2	0.03	0.00	0.04	251	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC30-Rubber-Plastics	10%	2%	0.02	1.11	1.00	0.19	15	0.3	0.01	0.00	0.02	582	3.5	2
1	706	EMS Optimization - Chiller	SIC30-Rubber-Plastics	5%	5%	0.01	1.09	1.04	0.18	5	0.1	0.02	0.00	0.04	213	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC30-Rubber-Plastics	10%	10%	0.01	1.10	0.99	0.17	10	0.3	0.05	0.00	0.01	74	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC30-Rubber-Plastics	10%	10%	0.74	1.11	1.00	0.17	10	0.3	0.05	0.00	1.08	6,176	0.1	89
1	709	Window Film (Standard) - Chiller	SIC30-Rubber-Plastics	5%	5%	0.03	1.09	1.03	0.18	10	0.1	0.02	0.00	0.09	490	0.9	7
1	710	Roof Insulation - Chiller	SIC30-Rubber-Plastics	5%	5%	0.04	1.09	1.04	0.18	20	0.1	0.02	0.00	0.07	421	0.9	9
1	711	Cool Roof - Chiller	SIC30-Rubber-Plastics	24%	24%	0.32	1.15	0.88	0.15	15	0.5	0.09	0.00	0.14	782	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC30-Rubber-Plastics	0%	0%	0.18	1.06	1.06	0.19	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC30-Rubber-Plastics	6%	3%	0.03	1.06	1.01	0.18	15	0.7	0.06	0.00	0.07	797	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC30-Rubber-Plastics	40%	40%	0.13	1.06	0.64	0.11	15	2.7	0.47	0.00	0.04	205	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC30-Rubber-Plastics	21%	21%	0.31	1.07	0.85	0.15	15	0.7	0.12	0.00	0.16	946	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC30-Rubber-Plastics	5%	5%	0.02	1.10	1.05	0.18	10	0.2	0.03	0.00	0.05	292	1.5	4
1	725	DX Coil Cleaning	SIC30-Rubber-Plastics	5%	5%	0.00	1.09	1.04	0.18	5	0.3	0.04	0.00	0.01	79	6.4	1
1	726	Optimize Controls	SIC30-Rubber-Plastics	5%	5%	0.01	1.10	1.05	0.18	5	0.1	0.02	0.00	0.03	163	3.1	1

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year	2008										
Vintage	E																
Batch	2																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	727	Aerosole Duct Sealing	SIC30-Rubber-Plastics	10%	10%	0.01	1.10	0.99	0.17	10	0.6	0.10	0.00	0.01	43	10.4	1
1	728	Duct/Pipe Insulation	SIC30-Rubber-Plastics	10%	10%	0.43	1.11	1.00	0.17	10	0.5	0.09	0.00	0.62	3,563	0.1	51
1	729	Window Film (Standard)	SIC30-Rubber-Plastics	5%	5%	0.02	1.09	1.03	0.18	10	0.2	0.04	0.00	0.05	310	1.4	4
1	730	Roof Insulation	SIC30-Rubber-Plastics	5%	5%	0.02	1.09	1.04	0.18	20	0.2	0.03	0.00	0.04	243	1.5	5
1	731	Cool Roof - DX	SIC30-Rubber-Plastics	24%	24%	0.19	1.15	0.88	0.15	15	1.0	0.17	0.00	0.08	451	0.9	9
1	800	Base Lighting	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.15	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC30-Rubber-Plastics	31%	31%	0.03	1.23	0.84	0.12	15	3.8	0.53	0.48	0.01	60	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC30-Rubber-Plastics	72%	72%	0.14	1.55	0.44	0.06	5	1.2	0.17	0.15	0.03	247	2.6	2
1	803	CFL Screw-in 18W	SIC30-Rubber-Plastics	72%	72%	0.02	1.55	0.44	0.06	2	1.2	0.17	0.15	0.01	78	8.7	0
1	804	High Bay T5	SIC30-Rubber-Plastics	49%	49%	0.04	1.09	0.56	0.08	10	0.2	0.03	0.03	0.01	88	6.4	1
1	805	Occupancy Sensor	SIC30-Rubber-Plastics	20%	4%	0.04	1.08	0.87	0.14	9	0.8	0.02	0.11	0.03	1,172	2.4	3
1	900	Base Other	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.15	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC30-Rubber-Plastics	0%	0%	0.00	1.06	1.06	0.15	5	0.0	0.00	0.00	0.04	314	2.0	2
1	100	Base Compressed Air	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.12	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC32-Stone-Clay-Glass	17%	17%	0.01	1.11	0.92	0.11	10	2.9	0.33	0.32	0.01	82	8.3	1
1	102	Compressed Air - Controls	SIC32-Stone-Clay-Glass	12%	12%	0.02	1.17	1.03	0.12	10	0.7	0.08	0.08	0.02	185	3.7	2
1	103	Compressed Air - System Optimization	SIC32-Stone-Clay-Glass	20%	20%	0.02	1.18	0.95	0.11	10	2.4	0.28	0.27	0.01	102	6.7	1
1	104	Compressed Air- Sizing	SIC32-Stone-Clay-Glass	9%	9%	0.00	1.13	1.02	0.12	10	0.8	0.10	0.09	0.01	68	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC32-Stone-Clay-Glass	3%	3%	0.06	1.07	1.04	0.12	14	0.0	0.00	0.00	0.22	1,920	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC32-Stone-Clay-Glass	6%	1%	0.08	1.08	1.01	0.12	14	0.1	0.00	0.01	0.15	14,132	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC32-Stone-Clay-Glass	5%	5%	0.02	1.06	1.01	0.12	14	0.1	0.01	0.01	0.05	476	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC32-Stone-Clay-Glass	3%	4%	0.03	1.08	1.04	0.12	10	0.2	0.02	0.02	0.14	1,187	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC32-Stone-Clay-Glass	6%	1%	0.00	1.07	1.00	0.12	10	0.5	0.00	0.05	0.01	630	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC32-Stone-Clay-Glass	2%	2%	0.01	1.06	1.04	0.12	10	0.2	0.02	0.02	0.04	311	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC32-Stone-Clay-Glass	3%	3%	0.01	1.09	1.05	0.12	6	0.2	0.02	0.02	0.07	592	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC32-Stone-Clay-Glass	6%	1%	0.01	1.07	1.00	0.12	6	0.8	0.01	0.09	0.02	2,074	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC32-Stone-Clay-Glass	1%	2%	0.00	1.06	1.05	0.12	6	0.2	0.02	0.02	0.03	299	2.5	2
1	200	Base Fans	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.12	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC32-Stone-Clay-Glass	2%	2%	0.00	1.08	1.05	0.12	10	0.5	0.06	0.06	0.01	71	9.5	1
1	202	Fans - Controls	SIC32-Stone-Clay-Glass	30%	30%	0.10	1.37	0.96	0.11	10	5.0	0.57	0.56	0.04	339	2.0	3
1	203	Fans - System Optimization	SIC32-Stone-Clay-Glass	21%	10%	0.06	1.30	1.02	0.13	10	2.0	0.11	0.22	0.04	699	2.1	3
1	204	Fans- Improve components	SIC32-Stone-Clay-Glass	5%	5%	0.01	1.11	1.05	0.12	10	0.5	0.06	0.06	0.02	136	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC32-Stone-Clay-Glass	3%	3%	0.06	1.07	1.04	0.12	14	0.1	0.01	0.01	0.22	1,920	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC32-Stone-Clay-Glass	6%	1%	0.08	1.08	1.01	0.12	14	0.1	0.00	0.01	0.15	14,095	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC32-Stone-Clay-Glass	5%	5%	0.02	1.06	1.01	0.12	14	0.1	0.01	0.01	0.05	476	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC32-Stone-Clay-Glass	3%	4%	0.03	1.08	1.04	0.12	10	0.4	0.05	0.05	0.14	1,187	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC32-Stone-Clay-Glass	6%	1%	0.00	1.07	1.00	0.12	10	1.1	0.01	0.12	0.01	629	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC32-Stone-Clay-Glass	2%	2%	0.01	1.06	1.04	0.12	10	0.4	0.05	0.05	0.04	311	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC32-Stone-Clay-Glass	3%	3%	0.01	1.09	1.05	0.12	6	0.4	0.04	0.04	0.07	592	1.3	4
1	212	Fans - ASD (100+ hp)	SIC32-Stone-Clay-Glass	6%	1%	0.01	1.07	1.00	0.12	6	1.8	0.02	0.20	0.02	2,072	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC32-Stone-Clay-Glass	1%	2%	0.00	1.06	1.05	0.12	6	0.5	0.05	0.05	0.03	299	2.5	2
1	300	Base Pumps	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.12	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC32-Stone-Clay-Glass	10%	10%	0.01	1.13	1.02	0.12	10	2.8	0.32	0.31	0.01	67	10.2	1
1	302	Pumps - Controls	SIC32-Stone-Clay-Glass	30%	30%	0.03	1.32	0.93	0.11	10	8.5	0.98	0.96	0.01	103	6.6	1
1	303	Pumps - System Optimization	SIC32-Stone-Clay-Glass	33%	33%	0.07	1.38	0.93	0.11	10	8.4	0.97	0.95	0.03	218	3.1	2
1	304	Pumps - Sizing	SIC32-Stone-Clay-Glass	20%	20%	0.02	1.27	1.01	0.12	10	3.1	0.36	0.35	0.01	120	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC32-Stone-Clay-Glass	3%	3%	0.06	1.07	1.04	0.12	14	0.1	0.01	0.01	0.22	1,920	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC32-Stone-Clay-Glass	6%	1%	0.08	1.08	1.01	0.12	14	0.2	0.00	0.02	0.15	14,108	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC32-Stone-Clay-Glass	5%	5%	0.02	1.06	1.01	0.12	14	0.2	0.02	0.02	0.05	476	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC32-Stone-Clay-Glass	3%	4%	0.03	1.08	1.04	0.12	10	0.5	0.06	0.06	0.14	1,187	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC32-Stone-Clay-Glass	6%	1%	0.00	1.07	1.00	0.12	10	1.4	0.01	0.15	0.01	629	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC32-Stone-Clay-Glass	2%	2%	0.01	1.06	1.04	0.12	10	0.6	0.06	0.06	0.04	311	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC32-Stone-Clay-Glass	3%	3%	0.01	1.09	1.05	0.12	6	0.5	0.05	0.05	0.07	592	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC32-Stone-Clay-Glass	6%	1%	0.01	1.07	1.00	0.12	6	2.3	0.02	0.26	0.02	2,074	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC32-Stone-Clay-Glass	1%	2%	0.00	1.06	1.05	0.12	6	0.6	0.07	0.07	0.03	299	2.5	2
1	400	Base Drives	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.12	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	405	Drives - EE motor	SIC32-Stone-Clay-Glass	3%	4%	0.01	1.09	1.05	0.12	10	0.8	0.09	0.09	0.02	207	3.3	2
1	415	Drives - Process Controls (batch + site)	SIC32-Stone-Clay-Glass	2%	2%	0.03	1.08	1.05	0.12	10	0.7	0.09	0.08	0.19	1,688	0.4	16
1	422	Efficient grinding	SIC32-Stone-Clay-Glass	21%	21%	0.25	1.28	1.01	0.12	15	3.7	0.43	0.42	0.11	951	0.6	12

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2																	
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	423	Process control	SIC32-Stone-Clay-Glass	2%	2%	0.00	1.08	1.05	0.12	10	0.7	0.09	0.08	0.02	143	4.8	1
1	424	Process optimization	SIC32-Stone-Clay-Glass	10%	10%	0.03	1.15	1.04	0.12	10	0.5	0.06	0.06	0.05	394	1.7	4
1	500	Base Heating	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.12	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	504	Top-heating (glass)	SIC32-Stone-Clay-Glass	4%	4%	0.00	1.09	1.04	0.12	8	0.4	0.04	0.04	0.02	162	4.4	1
1	550	Base Refrigeration	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.15	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.12	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC32-Stone-Clay-Glass	0%	0%	0.10	1.06	1.06	0.15	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC32-Stone-Clay-Glass	12%	2%	0.02	1.06	0.94	0.15	20	0.5	0.02	0.00	0.01	445	5.1	2
1	702	High Efficiency Chiller Motors	SIC32-Stone-Clay-Glass	3%	3%	0.01	1.07	1.03	0.15	20	0.1	0.02	0.00	0.03	189	2.4	3
1	703	EMS - Chiller	SIC32-Stone-Clay-Glass	10%	2%	0.03	1.17	1.06	0.17	10	0.0	0.00	0.00	0.04	1,298	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC32-Stone-Clay-Glass	8%	8%	0.02	1.11	1.02	0.15	10	0.1	0.02	0.00	0.04	304	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC32-Stone-Clay-Glass	10%	2%	0.02	1.11	1.00	0.16	15	0.2	0.01	0.00	0.02	705	3.5	2
1	706	EMS Optimization - Chiller	SIC32-Stone-Clay-Glass	5%	5%	0.01	1.09	1.04	0.15	5	0.1	0.01	0.00	0.04	259	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC32-Stone-Clay-Glass	10%	10%	0.01	1.10	0.99	0.14	10	0.2	0.03	0.00	0.01	90	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC32-Stone-Clay-Glass	10%	10%	0.74	1.11	1.00	0.14	10	0.2	0.03	0.00	1.08	7,486	0.1	89
1	709	Window Film (Standard) - Chiller	SIC32-Stone-Clay-Glass	5%	5%	0.03	1.09	1.03	0.15	10	0.1	0.01	0.00	0.09	594	0.9	7
1	710	Roof Insulation - Chiller	SIC32-Stone-Clay-Glass	5%	5%	0.04	1.09	1.04	0.15	20	0.1	0.01	0.00	0.07	511	0.9	9
1	711	Cool Roof - Chiller	SIC32-Stone-Clay-Glass	24%	24%	0.32	1.15	0.88	0.13	15	0.4	0.06	0.00	0.14	947	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC32-Stone-Clay-Glass	0%	0%	0.18	1.06	1.06	0.15	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC32-Stone-Clay-Glass	6%	3%	0.03	1.06	1.01	0.15	15	0.5	0.03	0.00	0.07	966	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC32-Stone-Clay-Glass	40%	40%	0.13	1.06	0.64	0.09	15	1.8	0.25	0.00	0.04	248	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC32-Stone-Clay-Glass	21%	21%	0.31	1.07	0.85	0.12	15	0.5	0.07	0.00	0.16	1,146	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC32-Stone-Clay-Glass	5%	5%	0.02	1.10	1.05	0.15	10	0.1	0.02	0.00	0.05	353	1.5	4
1	725	DX Coil Cleaning	SIC32-Stone-Clay-Glass	5%	5%	0.00	1.09	1.04	0.15	5	0.2	0.02	0.00	0.01	96	6.4	1
1	726	Optimize Controls	SIC32-Stone-Clay-Glass	5%	5%	0.01	1.10	1.05	0.15	5	0.1	0.02	0.00	0.03	197	3.1	1
1	727	Aerosole Duct Sealing	SIC32-Stone-Clay-Glass	10%	10%	0.01	1.10	0.99	0.14	10	0.4	0.06	0.00	0.01	52	10.4	1
1	728	Duct/Pipe Insulation	SIC32-Stone-Clay-Glass	10%	10%	0.43	1.11	1.00	0.14	10	0.4	0.06	0.00	0.62	4,319	0.1	51
1	729	Window Film (Standard)	SIC32-Stone-Clay-Glass	5%	5%	0.02	1.09	1.03	0.15	10	0.2	0.03	0.00	0.05	376	1.4	4
1	730	Roof Insulation	SIC32-Stone-Clay-Glass	5%	5%	0.02	1.09	1.04	0.15	20	0.1	0.02	0.00	0.04	295	1.5	5
1	731	Cool Roof - DX	SIC32-Stone-Clay-Glass	24%	24%	0.19	1.15	0.88	0.13	15	0.7	0.10	0.00	0.08	547	0.9	9
1	800	Base Lighting	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.12	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC32-Stone-Clay-Glass	31%	31%	0.03	1.23	0.84	0.10	15	2.2	0.26	0.25	0.01	73	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC32-Stone-Clay-Glass	72%	72%	0.14	1.55	0.44	0.05	5	1.0	0.12	0.12	0.03	299	2.6	2
1	803	CFL Screw-in 18W	SIC32-Stone-Clay-Glass	72%	72%	0.02	1.55	0.44	0.05	2	1.0	0.12	0.12	0.01	95	8.7	0
1	804	High Bay T5	SIC32-Stone-Clay-Glass	49%	49%	0.04	1.09	0.56	0.06	10	1.5	0.17	0.16	0.01	106	6.4	1
1	805	Occupancy Sensor	SIC32-Stone-Clay-Glass	20%	4%	0.04	1.08	0.87	0.12	9	0.6	0.01	0.07	0.03	1,421	2.4	3
1	900	Base Other	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.12	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC32-Stone-Clay-Glass	0%	0%	0.00	1.06	1.06	0.12	5	0.0	0.00	0.00	0.04	381	2.0	2
1	100	Base Compressed Air	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.19	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC33-Primary Metals	17%	17%	0.01	1.11	0.92	0.16	10	0.1	0.02	0.02	0.01	54	8.3	1
1	102	Compressed Air - Controls	SIC33-Primary Metals	12%	12%	0.02	1.17	1.03	0.18	10	0.0	0.00	0.00	0.02	122	3.7	2
1	103	Compressed Air - System Optimization	SIC33-Primary Metals	20%	20%	0.02	1.18	0.95	0.16	10	0.1	0.02	0.01	0.01	67	6.7	1
1	104	Compressed Air- Sizing	SIC33-Primary Metals	9%	9%	0.00	1.13	1.02	0.18	10	0.0	0.01	0.00	0.01	45	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC33-Primary Metals	3%	3%	0.06	1.07	1.04	0.18	14	0.0	0.00	0.00	0.22	1,268	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC33-Primary Metals	6%	1%	0.08	1.08	1.01	0.19	14	0.0	0.00	0.00	0.15	9,333	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC33-Primary Metals	5%	5%	0.02	1.06	1.01	0.18	14	0.0	0.00	0.00	0.05	314	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC33-Primary Metals	4%	4%	0.03	1.08	1.04	0.18	10	0.0	0.00	0.00	0.14	784	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC33-Primary Metals	6%	1%	0.00	1.07	1.00	0.19	10	0.0	0.00	0.00	0.01	416	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC33-Primary Metals	2%	2%	0.01	1.06	1.04	0.18	10	0.0	0.00	0.00	0.04	206	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC33-Primary Metals	3%	3%	0.01	1.09	1.05	0.18	6	0.0	0.00	0.00	0.07	391	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC33-Primary Metals	6%	1%	0.01	1.07	1.00	0.19	6	0.0	0.00	0.00	0.02	1,369	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC33-Primary Metals	2%	2%	0.00	1.06	1.05	0.18	6	0.0	0.00	0.00	0.03	197	2.5	2
1	200	Base Fans	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.19	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC33-Primary Metals	2%	2%	0.00	1.08	1.05	0.18	10	0.0	0.00	0.00	0.01	47	9.5	1
1	202	Fans - Controls	SIC33-Primary Metals	30%	30%	0.10	1.37	0.96	0.17	10	0.2	0.03	0.03	0.04	224	2.0	3
1	203	Fans - System Optimization	SIC33-Primary Metals	21%	10%	0.06	1.30	1.02	0.20	10	0.1	0.01	0.01	0.04	462	2.1	3
1	204	Fans- Improve components	SIC33-Primary Metals	5%	5%	0.01	1.11	1.05	0.18	10	0.0	0.00	0.00	0.02	90	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC33-Primary Metals	3%	3%	0.06	1.07	1.04	0.18	14	0.0	0.00	0.00	0.22	1,268	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC33-Primary Metals	6%	1%	0.08	1.08	1.01	0.19	14	0.0	0.00	0.00	0.15	9,309	0.5	16

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	Base EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	207	Fans - Motor practices-1 (1-5 HP)	SIC33-Primary Metals	5%	5%	0.02	1.06	1.01	0.18	14	0.0	0.00	0.00	0.05	314	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC33-Primary Metals	4%	4%	0.03	1.08	1.04	0.18	10	0.0	0.00	0.00	0.14	784	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC33-Primary Metals	6%	1%	0.00	1.07	1.00	0.19	10	0.0	0.00	0.01	0.01	415	11.9	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC33-Primary Metals	2%	2%	0.01	1.06	1.04	0.18	10	0.0	0.00	0.00	0.04	206	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC33-Primary Metals	3%	3%	0.01	1.09	1.05	0.18	6	0.0	0.00	0.00	0.07	391	1.3	4
1	212	Fans - ASD (100+ hp)	SIC33-Primary Metals	6%	1%	0.01	1.07	1.00	0.19	6	0.1	0.00	0.01	0.02	1,368	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC33-Primary Metals	2%	2%	0.00	1.06	1.05	0.18	6	0.0	0.00	0.00	0.03	197	2.5	2
1	300	Base Pumps	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.19	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC33-Primary Metals	10%	10%	0.01	1.13	1.02	0.18	10	0.1	0.02	0.02	0.01	44	10.2	1
1	302	Pumps - Controls	SIC33-Primary Metals	30%	30%	0.03	1.32	0.93	0.16	10	0.3	0.05	0.05	0.01	68	6.6	1
1	303	Pumps - System Optimization	SIC33-Primary Metals	33%	33%	0.07	1.38	0.93	0.16	10	0.3	0.05	0.05	0.03	144	3.1	2
1	304	Pumps - Sizing	SIC33-Primary Metals	20%	20%	0.02	1.27	1.01	0.18	10	0.1	0.02	0.02	0.01	79	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC33-Primary Metals	3%	3%	0.06	1.07	1.04	0.18	14	0.0	0.00	0.00	0.22	1,268	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC33-Primary Metals	6%	1%	0.08	1.08	1.01	0.19	14	0.0	0.00	0.00	0.15	9,317	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC33-Primary Metals	5%	5%	0.02	1.06	1.01	0.18	14	0.0	0.00	0.00	0.05	314	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC33-Primary Metals	4%	4%	0.03	1.08	1.04	0.18	10	0.0	0.00	0.00	0.14	784	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC33-Primary Metals	6%	1%	0.00	1.07	1.00	0.19	10	0.0	0.00	0.01	0.01	415	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC33-Primary Metals	2%	2%	0.01	1.06	1.04	0.18	10	0.0	0.00	0.00	0.04	206	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC33-Primary Metals	3%	3%	0.01	1.09	1.05	0.18	6	0.0	0.00	0.00	0.07	391	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC33-Primary Metals	6%	1%	0.01	1.07	1.00	0.19	6	0.1	0.00	0.01	0.02	1,370	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC33-Primary Metals	2%	2%	0.00	1.06	1.05	0.18	6	0.0	0.00	0.00	0.03	197	2.5	2
1	400	Base Drives	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.19	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	415	Drives - Process Controls (batch + site)	SIC33-Primary Metals	5%	5%	0.03	1.09	1.04	0.18	10	0.1	0.01	0.01	0.08	439	1.0	6
1	425	Drives - Process Control	SIC33-Primary Metals	5%	5%	0.02	1.09	1.04	0.18	15	0.1	0.01	0.01	0.03	200	2.0	4
1	426	Efficient drives - rolling	SIC33-Primary Metals	6%	6%	0.01	1.10	1.03	0.18	10	0.1	0.01	0.01	0.03	145	3.1	2
1	500	Base Heating	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.19	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	505	Efficient electric melting	SIC33-Primary Metals	10%	10%	0.04	1.15	1.04	0.18	20	0.2	0.03	0.03	0.03	184	2.0	4
1	506	Intelligent extruder (DOE)	SIC33-Primary Metals	2%	2%	0.02	1.08	1.06	0.18	10	0.0	0.00	0.00	0.13	738	0.6	11
1	507	Near Net Shape Casting	SIC33-Primary Metals	12%	12%	0.01	1.17	1.03	0.18	15	0.0	0.01	0.01	0.01	62	6.5	1
1	508	Heating - Process Control	SIC33-Primary Metals	5%	5%	0.02	1.09	1.04	0.18	15	0.2	0.03	0.03	0.03	200	2.0	4
1	550	Base Refrigeration	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.23	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.19	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC33-Primary Metals	0%	0%	0.10	1.06	1.06	0.23	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC33-Primary Metals	12%	2%	0.02	1.06	0.94	0.23	20	0.0	0.00	0.00	0.01	294	5.1	2
1	702	High Efficiency Chiller Motors	SIC33-Primary Metals	3%	3%	0.01	1.07	1.03	0.23	20	0.0	0.00	0.00	0.03	125	2.4	3
1	703	EMS - Chiller	SIC33-Primary Metals	10%	2%	0.03	1.17	1.06	0.25	10	0.0	0.00	0.00	0.04	857	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC33-Primary Metals	8%	8%	0.02	1.11	1.02	0.22	10	0.0	0.00	0.00	0.04	201	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC33-Primary Metals	10%	2%	0.02	1.11	1.00	0.24	15	0.0	0.00	0.00	0.02	465	3.5	2
1	706	EMS Optimization - Chiller	SIC33-Primary Metals	5%	5%	0.01	1.09	1.04	0.23	5	0.0	0.00	0.00	0.04	171	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC33-Primary Metals	10%	10%	0.01	1.10	0.99	0.22	10	0.0	0.00	0.00	0.01	60	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC33-Primary Metals	10%	10%	0.74	1.11	1.00	0.22	10	0.0	0.00	0.00	1.08	4,944	0.1	89
1	709	Window Film (Standard) - Chiller	SIC33-Primary Metals	5%	5%	0.03	1.09	1.03	0.22	10	0.0	0.00	0.00	0.09	392	0.9	7
1	710	Roof Insulation - Chiller	SIC33-Primary Metals	5%	5%	0.04	1.09	1.04	0.23	20	0.0	0.00	0.00	0.07	337	0.9	9
1	711	Cool Roof - Chiller	SIC33-Primary Metals	24%	24%	0.32	1.15	0.88	0.19	15	0.0	0.00	0.00	0.14	626	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC33-Primary Metals	0%	0%	0.18	1.06	1.06	0.23	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC33-Primary Metals	6%	3%	0.03	1.06	1.01	0.23	15	0.0	0.00	0.00	0.07	638	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC33-Primary Metals	40%	40%	0.13	1.06	0.64	0.14	15	0.1	0.01	0.00	0.04	164	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC33-Primary Metals	21%	21%	0.31	1.07	0.85	0.18	15	0.0	0.00	0.00	0.16	757	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC33-Primary Metals	5%	5%	0.02	1.10	1.05	0.23	10	0.0	0.00	0.00	0.05	233	1.5	4
1	725	DX Coil Cleaning	SIC33-Primary Metals	5%	5%	0.00	1.09	1.04	0.23	5	0.0	0.00	0.00	0.01	63	6.4	1
1	726	Optimize Controls	SIC33-Primary Metals	5%	5%	0.01	1.10	1.05	0.23	5	0.0	0.00	0.00	0.03	130	3.1	1
1	727	Aerosole Duct Sealing	SIC33-Primary Metals	10%	10%	0.01	1.10	0.99	0.22	10	0.0	0.00	0.00	0.01	34	10.4	1
1	728	Duct/Pipe Insulation	SIC33-Primary Metals	10%	10%	0.43	1.11	1.00	0.22	10	0.0	0.00	0.00	0.62	2,852	0.1	51
1	729	Window Film (Standard)	SIC33-Primary Metals	5%	5%	0.02	1.09	1.03	0.23	10	0.0	0.00	0.00	0.05	248	1.4	4
1	730	Roof Insulation	SIC33-Primary Metals	5%	5%	0.02	1.09	1.04	0.23	20	0.0	0.00	0.00	0.04	195	1.5	5
1	731	Cool Roof - DX	SIC33-Primary Metals	24%	24%	0.19	1.15	0.88	0.19	15	0.0	0.00	0.00	0.08	361	0.9	9
1	800	Base Lighting	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.19	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC33-Primary Metals	31%	31%	0.03	1.23	0.84	0.15	15	0.1	0.02	0.02	0.01	48	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC33-Primary Metals	72%	72%	0.14	1.55	0.44	0.08	5	0.1	0.01	0.01	0.03	198	2.6	2

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2																	
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	803	CFL Screw-in 18W	SIC33-Primary Metals	72%	72%	0.02	1.55	0.44	0.08	2	0.1	0.01	0.01	0.01	63	8.7	0
1	804	High Bay T5	SIC33-Primary Metals	49%	49%	0.04	1.09	0.56	0.10	10	0.0	0.00	0.00	0.01	70	6.4	1
1	805	Occupancy Sensor	SIC33-Primary Metals	20%	4%	0.04	1.08	0.87	0.18	9	0.0	0.00	0.00	0.03	938	2.4	3
1	900	Base Other	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.19	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC33-Primary Metals	0%	0%	0.00	1.06	1.06	0.19	5	0.0	0.00	0.00	0.04	252	2.0	2
1	100	Base Compressed Air	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.17	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC34-Fab Metals	17%	17%	0.01	1.11	0.92	0.14	10	2.2	0.34	0.32	0.01	60	8.3	1
1	102	Compressed Air - Controls	SIC34-Fab Metals	12%	12%	0.02	1.17	1.03	0.16	10	0.6	0.09	0.08	0.02	136	3.7	2
1	103	Compressed Air - System Optimization	SIC34-Fab Metals	20%	20%	0.02	1.18	0.95	0.15	10	1.9	0.29	0.27	0.01	75	6.7	1
1	104	Compressed Air- Sizing	SIC34-Fab Metals	9%	9%	0.00	1.13	1.02	0.16	10	0.6	0.10	0.09	0.01	50	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC34-Fab Metals	3%	3%	0.06	1.07	1.04	0.16	14	0.0	0.00	0.00	0.22	1,416	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC34-Fab Metals	6%	1%	0.08	1.08	1.01	0.17	14	0.0	0.00	0.01	0.15	10,424	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC34-Fab Metals	5%	5%	0.02	1.06	1.01	0.16	14	0.0	0.01	0.01	0.05	351	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC34-Fab Metals	3%	4%	0.03	1.08	1.04	0.16	10	0.1	0.02	0.02	0.14	875	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC34-Fab Metals	6%	1%	0.00	1.07	1.00	0.17	10	0.4	0.01	0.05	0.01	465	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC34-Fab Metals	2%	2%	0.01	1.06	1.04	0.16	10	0.1	0.02	0.02	0.04	230	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC34-Fab Metals	3%	3%	0.01	1.09	1.05	0.16	6	0.1	0.02	0.02	0.07	437	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC34-Fab Metals	6%	1%	0.01	1.07	1.00	0.17	6	0.6	0.01	0.09	0.02	1,530	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC34-Fab Metals	1%	2%	0.00	1.06	1.05	0.16	6	0.1	0.02	0.02	0.03	220	2.5	2
1	200	Base Fans	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.17	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC34-Fab Metals	2%	2%	0.00	1.08	1.05	0.16	10	0.1	0.01	0.01	0.01	53	9.5	1
1	202	Fans - Controls	SIC34-Fab Metals	30%	30%	0.10	1.37	0.96	0.15	10	0.9	0.14	0.13	0.04	250	2.0	3
1	203	Fans - System Optimization	SIC34-Fab Metals	21%	10%	0.06	1.30	1.02	0.18	10	0.4	0.03	0.05	0.04	516	2.1	3
1	204	Fans- Improve components	SIC34-Fab Metals	5%	5%	0.01	1.11	1.05	0.16	10	0.1	0.02	0.01	0.02	100	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC34-Fab Metals	3%	3%	0.06	1.07	1.04	0.16	14	0.0	0.00	0.00	0.22	1,416	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC34-Fab Metals	6%	1%	0.08	1.08	1.01	0.17	14	0.0	0.00	0.00	0.15	10,397	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC34-Fab Metals	5%	5%	0.02	1.06	1.01	0.16	14	0.0	0.00	0.00	0.05	351	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC34-Fab Metals	3%	4%	0.03	1.08	1.04	0.16	10	0.1	0.01	0.01	0.14	875	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC34-Fab Metals	6%	1%	0.00	1.07	1.00	0.17	10	0.2	0.00	0.03	0.01	464	11.9	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC34-Fab Metals	2%	2%	0.01	1.06	1.04	0.16	10	0.1	0.01	0.01	0.04	230	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC34-Fab Metals	3%	3%	0.01	1.09	1.05	0.16	6	0.1	0.01	0.01	0.07	437	1.3	4
1	212	Fans - ASD (100+ hp)	SIC34-Fab Metals	6%	1%	0.01	1.07	1.00	0.17	6	0.3	0.00	0.05	0.02	1,528	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC34-Fab Metals	1%	2%	0.00	1.06	1.05	0.16	6	0.1	0.01	0.01	0.03	220	2.5	2
1	300	Base Pumps	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.17	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC34-Fab Metals	10%	10%	0.01	1.13	1.02	0.16	10	0.5	0.08	0.08	0.01	49	10.2	1
1	302	Pumps - Controls	SIC34-Fab Metals	30%	30%	0.03	1.32	0.93	0.14	10	1.6	0.25	0.23	0.01	76	6.6	1
1	303	Pumps - System Optimization	SIC34-Fab Metals	33%	33%	0.07	1.38	0.93	0.14	10	1.6	0.25	0.23	0.03	161	3.1	2
1	304	Pumps - Sizing	SIC34-Fab Metals	20%	20%	0.02	1.27	1.01	0.16	10	0.6	0.09	0.09	0.01	88	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC34-Fab Metals	3%	3%	0.06	1.07	1.04	0.16	14	0.0	0.00	0.00	0.22	1,416	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC34-Fab Metals	6%	1%	0.08	1.08	1.01	0.17	14	0.0	0.00	0.00	0.15	10,407	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC34-Fab Metals	5%	5%	0.02	1.06	1.01	0.16	14	0.0	0.00	0.00	0.05	351	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC34-Fab Metals	3%	4%	0.03	1.08	1.04	0.16	10	0.1	0.01	0.01	0.14	875	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC34-Fab Metals	6%	1%	0.00	1.07	1.00	0.17	10	0.3	0.00	0.04	0.01	464	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC34-Fab Metals	2%	2%	0.01	1.06	1.04	0.16	10	0.1	0.02	0.02	0.04	230	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC34-Fab Metals	3%	3%	0.01	1.09	1.05	0.16	6	0.1	0.01	0.01	0.07	437	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC34-Fab Metals	6%	1%	0.01	1.07	1.00	0.17	6	0.4	0.01	0.06	0.02	1,530	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC34-Fab Metals	1%	2%	0.00	1.06	1.05	0.16	6	0.1	0.02	0.02	0.03	220	2.5	2
1	400	Base Drives	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.17	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	427	Drives - Optimization process (M&T)	SIC34-Fab Metals	10%	10%	0.01	1.12	1.01	0.16	10	0.7	0.10	0.10	0.01	80	6.3	1
1	428	Drives - Scheduling	SIC34-Fab Metals	5%	1%	0.01	1.11	1.05	0.17	10	0.2	0.01	0.03	0.03	1,005	2.7	2
1	429	Machinery	SIC34-Fab Metals	7%	7%	0.01	1.12	1.04	0.16	10	0.3	0.04	0.04	0.03	178	2.8	2
1	500	Base Heating	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.17	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Efficient Curing ovens	SIC34-Fab Metals	20%	20%	0.09	1.25	1.00	0.16	15	1.5	0.23	0.22	0.04	261	1.7	5
1	510	Heating - Optimization process (M&T)	SIC34-Fab Metals	10%	10%	0.01	1.12	1.01	0.16	10	0.8	0.12	0.11	0.01	80	6.3	1
1	511	Heating - Scheduling	SIC34-Fab Metals	5%	1%	0.01	1.11	1.05	0.17	10	0.2	0.01	0.04	0.03	1,005	2.7	2
1	550	Base Refrigeration	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.21	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.17	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	603	New transformers welding	SIC34-Fab Metals	25%	25%	0.05	1.22	0.91	0.14	15	0.2	0.03	0.03	0.02	134	3.4	2
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC34-Fab Metals	0%	0%	0.10	1.06	1.06	0.21	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2																	
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC34-Fab Metals	12%	2%	0.02	1.06	0.94	0.20	20	0.3	0.01	0.00	0.01	328	5.1	2
1	702	High Efficiency Chiller Motors	SIC34-Fab Metals	3%	3%	0.01	1.07	1.03	0.20	20	0.1	0.02	0.00	0.03	139	2.4	3
1	703	EMS - Chiller	SIC34-Fab Metals	10%	2%	0.03	1.17	1.06	0.22	10	0.0	0.00	0.00	0.04	958	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC34-Fab Metals	8%	8%	0.02	1.11	1.02	0.20	10	0.1	0.02	0.00	0.04	224	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC34-Fab Metals	10%	2%	0.02	1.11	1.00	0.21	15	0.1	0.01	0.00	0.02	520	3.5	2
1	706	EMS Optimization - Chiller	SIC34-Fab Metals	5%	5%	0.01	1.09	1.04	0.20	5	0.1	0.01	0.00	0.04	191	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC34-Fab Metals	10%	10%	0.01	1.10	0.99	0.19	10	0.1	0.03	0.00	0.01	67	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC34-Fab Metals	10%	10%	0.74	1.11	1.00	0.19	10	0.1	0.03	0.00	1.08	5,522	0.1	89
1	709	Window Film (Standard) - Chiller	SIC34-Fab Metals	5%	5%	0.03	1.09	1.03	0.20	10	0.1	0.01	0.00	0.09	438	0.9	7
1	710	Roof Insulation - Chiller	SIC34-Fab Metals	5%	5%	0.04	1.09	1.04	0.20	20	0.0	0.01	0.00	0.07	377	0.9	9
1	711	Cool Roof - Chiller	SIC34-Fab Metals	24%	24%	0.32	1.15	0.88	0.17	15	0.2	0.05	0.00	0.14	699	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC34-Fab Metals	0%	0%	0.18	1.06	1.06	0.21	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC34-Fab Metals	6%	3%	0.03	1.06	1.01	0.20	15	0.4	0.03	0.00	0.07	712	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC34-Fab Metals	40%	40%	0.13	1.06	0.64	0.12	15	1.3	0.25	0.00	0.04	183	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC34-Fab Metals	21%	21%	0.31	1.07	0.85	0.16	15	0.3	0.06	0.00	0.16	845	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC34-Fab Metals	5%	5%	0.02	1.10	1.05	0.20	10	0.1	0.02	0.00	0.05	261	1.5	4
1	725	DX Coil Cleaning	SIC34-Fab Metals	5%	5%	0.00	1.09	1.04	0.20	5	0.1	0.02	0.00	0.01	71	6.4	1
1	726	Optimize Controls	SIC34-Fab Metals	5%	5%	0.01	1.10	1.05	0.20	5	0.0	0.01	0.00	0.03	146	3.1	1
1	727	Aerosole Duct Sealing	SIC34-Fab Metals	10%	10%	0.01	1.10	0.99	0.19	10	0.2	0.04	0.00	0.01	38	10.4	1
1	728	Duct/Pipe Insulation	SIC34-Fab Metals	10%	10%	0.43	1.11	1.00	0.19	10	0.2	0.03	0.00	0.62	3,186	0.1	51
1	729	Window Film (Standard)	SIC34-Fab Metals	5%	5%	0.02	1.09	1.03	0.20	10	0.1	0.02	0.00	0.05	277	1.4	4
1	730	Roof Insulation	SIC34-Fab Metals	5%	5%	0.02	1.09	1.04	0.20	20	0.1	0.01	0.00	0.04	217	1.5	5
1	731	Cool Roof - DX	SIC34-Fab Metals	24%	24%	0.19	1.15	0.88	0.17	15	0.3	0.06	0.00	0.08	403	0.9	9
1	800	Base Lighting	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.17	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC34-Fab Metals	31%	31%	0.03	1.23	0.84	0.13	15	2.6	0.41	0.39	0.01	54	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC34-Fab Metals	72%	72%	0.14	1.55	0.44	0.07	5	0.5	0.08	0.07	0.03	221	2.6	2
1	803	CFL Screw-in 18W	SIC34-Fab Metals	72%	72%	0.02	1.55	0.44	0.07	2	0.5	0.08	0.07	0.01	70	8.7	0
1	804	High Bay T5	SIC34-Fab Metals	49%	49%	0.04	1.09	0.56	0.09	10	0.3	0.05	0.04	0.01	79	6.4	1
1	805	Occupancy Sensor	SIC34-Fab Metals	20%	4%	0.04	1.08	0.87	0.16	9	0.6	0.02	0.08	0.03	1,048	2.4	3
1	900	Base Other	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.17	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC34-Fab Metals	0%	0%	0.00	1.06	1.06	0.17	5	0.0	0.00	0.00	0.04	281	2.0	2
1	100	Base Compressed Air	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.25	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC35-Ind Machinery	17%	17%	0.01	1.11	0.92	0.21	10	3.3	0.76	0.42	0.01	41	8.3	1
1	102	Compressed Air - Controls	SIC35-Ind Machinery	12%	12%	0.02	1.17	1.03	0.24	10	0.8	0.19	0.10	0.02	92	3.7	2
1	103	Compressed Air - System Optimization	SIC35-Ind Machinery	20%	20%	0.02	1.18	0.95	0.22	10	2.8	0.64	0.35	0.01	51	6.7	1
1	104	Compressed Air- Sizing	SIC35-Ind Machinery	9%	9%	0.00	1.13	1.02	0.24	10	1.0	0.22	0.12	0.01	34	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC35-Ind Machinery	3%	3%	0.06	1.07	1.04	0.24	14	0.0	0.01	0.00	0.22	957	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC35-Ind Machinery	6%	1%	0.08	1.08	1.01	0.25	14	0.1	0.00	0.01	0.15	7,042	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC35-Ind Machinery	5%	5%	0.02	1.06	1.01	0.23	14	0.1	0.01	0.01	0.05	237	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC35-Ind Machinery	3%	4%	0.03	1.08	1.04	0.24	10	0.2	0.05	0.02	0.14	591	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC35-Ind Machinery	6%	1%	0.00	1.07	1.00	0.25	10	0.5	0.01	0.07	0.01	314	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC35-Ind Machinery	2%	2%	0.01	1.06	1.04	0.24	10	0.2	0.05	0.03	0.04	155	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC35-Ind Machinery	3%	3%	0.01	1.09	1.05	0.24	6	0.2	0.04	0.02	0.07	295	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC35-Ind Machinery	6%	1%	0.01	1.07	1.00	0.25	6	0.9	0.02	0.11	0.02	1,033	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC35-Ind Machinery	1%	2%	0.00	1.06	1.05	0.24	6	0.2	0.05	0.03	0.03	149	2.5	2
1	200	Base Fans	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.25	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC35-Ind Machinery	2%	2%	0.00	1.08	1.05	0.24	10	0.1	0.02	0.01	0.01	36	9.5	1
1	202	Fans - Controls	SIC35-Ind Machinery	30%	30%	0.10	1.37	0.96	0.22	10	0.9	0.20	0.11	0.04	169	2.0	3
1	203	Fans - System Optimization	SIC35-Ind Machinery	21%	10%	0.06	1.30	1.02	0.27	10	0.4	0.04	0.04	0.04	348	2.1	3
1	204	Fans- Improve components	SIC35-Ind Machinery	5%	5%	0.01	1.11	1.05	0.24	10	0.1	0.02	0.01	0.02	68	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC35-Ind Machinery	3%	3%	0.06	1.07	1.04	0.24	14	0.0	0.00	0.00	0.22	957	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC35-Ind Machinery	6%	1%	0.08	1.08	1.01	0.25	14	0.0	0.00	0.00	0.15	7,024	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC35-Ind Machinery	5%	5%	0.02	1.06	1.01	0.23	14	0.0	0.00	0.00	0.05	237	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC35-Ind Machinery	3%	4%	0.03	1.08	1.04	0.24	10	0.1	0.02	0.01	0.14	591	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC35-Ind Machinery	6%	1%	0.00	1.07	1.00	0.25	10	0.2	0.00	0.02	0.01	313	11.9	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC35-Ind Machinery	2%	2%	0.01	1.06	1.04	0.24	10	0.1	0.02	0.01	0.04	155	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC35-Ind Machinery	3%	3%	0.01	1.09	1.05	0.24	6	0.1	0.01	0.01	0.07	295	1.3	4
1	212	Fans - ASD (100+ hp)	SIC35-Ind Machinery	6%	1%	0.01	1.07	1.00	0.25	6	0.3	0.01	0.04	0.02	1,032	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC35-Ind Machinery	1%	2%	0.00	1.06	1.05	0.24	6	0.1	0.02	0.01	0.03	149	2.5	2

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2																	
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	300	Base Pumps	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.25	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC35-Ind Machinery	10%	10%	0.01	1.13	1.02	0.24	10	0.5	0.12	0.06	0.01	33	10.2	1
1	302	Pumps - Controls	SIC35-Ind Machinery	30%	30%	0.03	1.32	0.93	0.21	10	1.5	0.36	0.20	0.01	51	6.6	1
1	303	Pumps - System Optimization	SIC35-Ind Machinery	33%	33%	0.07	1.38	0.93	0.21	10	1.5	0.35	0.19	0.03	109	3.1	2
1	304	Pumps - Sizing	SIC35-Ind Machinery	20%	20%	0.02	1.27	1.01	0.23	10	0.6	0.13	0.07	0.01	60	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC35-Ind Machinery	3%	3%	0.06	1.07	1.04	0.24	14	0.0	0.00	0.00	0.22	957	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC35-Ind Machinery	6%	1%	0.08	1.08	1.01	0.25	14	0.0	0.00	0.00	0.15	7,030	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC35-Ind Machinery	5%	5%	0.02	1.06	1.01	0.23	14	0.0	0.01	0.00	0.05	237	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC35-Ind Machinery	3%	4%	0.03	1.08	1.04	0.24	10	0.1	0.02	0.01	0.14	591	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC35-Ind Machinery	6%	1%	0.00	1.07	1.00	0.25	10	0.2	0.01	0.03	0.01	313	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC35-Ind Machinery	2%	2%	0.01	1.06	1.04	0.24	10	0.1	0.02	0.01	0.04	155	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC35-Ind Machinery	3%	3%	0.01	1.09	1.05	0.24	6	0.1	0.02	0.01	0.07	295	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC35-Ind Machinery	6%	1%	0.01	1.07	1.00	0.25	6	0.4	0.01	0.05	0.02	1,034	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC35-Ind Machinery	1%	2%	0.00	1.06	1.05	0.24	6	0.1	0.02	0.01	0.03	149	2.5	2
1	400	Base Drives	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.25	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	427	Drives - Optimization process (M&T)	SIC35-Ind Machinery	10%	10%	0.01	1.12	1.01	0.23	10	0.7	0.15	0.08	0.01	54	6.3	1
1	428	Drives - Scheduling	SIC35-Ind Machinery	5%	1%	0.01	1.11	1.05	0.25	10	0.2	0.01	0.03	0.03	679	2.7	2
1	429	Machinery	SIC35-Ind Machinery	7%	7%	0.01	1.12	1.04	0.24	10	0.3	0.07	0.04	0.03	120	2.8	2
1	500	Base Heating	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.25	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Efficient Curing ovens	SIC35-Ind Machinery	20%	20%	0.09	1.25	1.00	0.23	15	0.3	0.08	0.04	0.04	176	1.7	5
1	510	Heating - Optimization process (M&T)	SIC35-Ind Machinery	10%	10%	0.01	1.12	1.01	0.23	10	0.3	0.06	0.03	0.01	54	6.3	1
1	511	Heating - Scheduling	SIC35-Ind Machinery	5%	1%	0.01	1.11	1.05	0.25	10	0.1	0.00	0.01	0.03	679	2.7	2
1	550	Base Refrigeration	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.31	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.25	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	603	New transformers welding	SIC35-Ind Machinery	25%	25%	0.05	1.22	0.91	0.21	15	0.2	0.04	0.02	0.02	91	3.4	2
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC35-Ind Machinery	0%	0%	0.10	1.06	1.06	0.31	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC35-Ind Machinery	12%	2%	0.02	1.06	0.94	0.30	20	0.7	0.04	0.01	0.01	222	5.1	2
1	702	High Efficiency Chiller Motors	SIC35-Ind Machinery	3%	3%	0.01	1.07	1.03	0.30	20	0.2	0.05	0.00	0.03	94	2.4	3
1	703	EMS - Chiller	SIC35-Ind Machinery	10%	2%	0.03	1.17	1.06	0.33	10	0.0	0.00	0.00	0.04	647	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC35-Ind Machinery	8%	8%	0.02	1.11	1.02	0.29	10	0.2	0.06	0.00	0.04	152	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC35-Ind Machinery	10%	2%	0.02	1.11	1.00	0.31	15	0.3	0.02	0.00	0.02	351	3.5	2
1	706	EMS Optimization - Chiller	SIC35-Ind Machinery	5%	5%	0.01	1.09	1.04	0.30	5	0.1	0.03	0.00	0.04	129	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC35-Ind Machinery	10%	10%	0.01	1.10	0.99	0.29	10	0.3	0.09	0.00	0.01	45	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC35-Ind Machinery	10%	10%	0.74	1.11	1.00	0.29	10	0.3	0.08	0.00	1.08	3,730	0.1	89
1	709	Window Film (Standard) - Chiller	SIC35-Ind Machinery	5%	5%	0.03	1.09	1.03	0.30	10	0.1	0.04	0.00	0.09	296	0.9	7
1	710	Roof Insulation - Chiller	SIC35-Ind Machinery	5%	5%	0.04	1.09	1.04	0.30	20	0.1	0.03	0.00	0.07	254	0.9	9
1	711	Cool Roof - Chiller	SIC35-Ind Machinery	24%	24%	0.32	1.15	0.88	0.25	15	0.5	0.16	0.00	0.14	472	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC35-Ind Machinery	0%	0%	0.18	1.06	1.06	0.31	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC35-Ind Machinery	6%	3%	0.03	1.06	1.01	0.30	15	0.7	0.11	0.00	0.07	481	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC35-Ind Machinery	40%	40%	0.13	1.06	0.64	0.18	15	2.7	0.77	0.00	0.04	124	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC35-Ind Machinery	21%	21%	0.31	1.07	0.85	0.24	15	0.7	0.20	0.00	0.16	571	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC35-Ind Machinery	5%	5%	0.02	1.10	1.05	0.30	10	0.2	0.05	0.00	0.05	176	1.5	4
1	725	DX Coil Cleaning	SIC35-Ind Machinery	5%	5%	0.00	1.09	1.04	0.30	5	0.2	0.07	0.00	0.01	48	6.4	1
1	726	Optimize Controls	SIC35-Ind Machinery	5%	5%	0.01	1.10	1.05	0.30	5	0.1	0.04	0.00	0.03	98	3.1	1
1	727	Aerosole Duct Sealing	SIC35-Ind Machinery	10%	10%	0.01	1.10	0.99	0.29	10	0.5	0.15	0.00	0.01	26	10.4	1
1	728	Duct/Pipe Insulation	SIC35-Ind Machinery	10%	10%	0.43	1.11	1.00	0.29	10	0.5	0.14	0.00	0.62	2,152	0.1	51
1	729	Window Film (Standard)	SIC35-Ind Machinery	5%	5%	0.02	1.09	1.03	0.30	10	0.2	0.07	0.00	0.05	187	1.4	4
1	730	Roof Insulation	SIC35-Ind Machinery	5%	5%	0.02	1.09	1.04	0.30	20	0.1	0.04	0.00	0.04	147	1.5	5
1	731	Cool Roof - DX	SIC35-Ind Machinery	24%	24%	0.19	1.15	0.88	0.25	15	0.9	0.27	0.00	0.08	272	0.9	9
1	800	Base Lighting	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.25	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC35-Ind Machinery	31%	31%	0.03	1.23	0.84	0.19	15	4.0	0.92	0.50	0.01	36	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC35-Ind Machinery	72%	72%	0.14	1.55	0.44	0.10	5	0.6	0.13	0.07	0.03	149	2.6	2
1	803	CFL Screw-in 18W	SIC35-Ind Machinery	72%	72%	0.02	1.55	0.44	0.10	2	0.6	0.13	0.07	0.01	47	8.7	0
1	804	High Bay T5	SIC35-Ind Machinery	49%	49%	0.04	1.09	0.56	0.13	10	0.5	0.11	0.06	0.01	53	6.4	1
1	805	Occupancy Sensor	SIC35-Ind Machinery	20%	4%	0.04	1.08	0.87	0.24	9	0.8	0.04	0.10	0.03	708	2.4	3
1	900	Base Other	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.25	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC35-Ind Machinery	0%	0%	0.00	1.06	1.06	0.25	5	0.0	0.00	0.00	0.04	190	2.0	2
1	100	Base Compressed Air	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC36-Electronics	17%	17%	0.01	1.11	0.92	0.13	10	4.8	0.64	0.55	0.01	69	8.3	1

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	2																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	102	Compressed Air - Controls	SIC36-Electronics	12%	12%	0.02	1.17	1.03	0.14	10	1.2	0.16	0.14	0.02	157	3.7	2
1	103	Compressed Air - System Optimization	SIC36-Electronics	20%	20%	0.02	1.18	0.95	0.13	10	4.0	0.54	0.46	0.01	87	6.7	1
1	104	Compressed Air- Sizing	SIC36-Electronics	9%	9%	0.00	1.13	1.02	0.14	10	1.4	0.19	0.16	0.01	57	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC36-Electronics	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.01	0.01	0.22	1,632	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC36-Electronics	6%	1%	0.08	1.08	1.01	0.15	14	0.1	0.00	0.01	0.15	12,016	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC36-Electronics	5%	5%	0.02	1.06	1.01	0.14	14	0.1	0.01	0.01	0.05	405	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC36-Electronics	4%	4%	0.03	1.08	1.04	0.14	10	0.3	0.04	0.03	0.14	1,009	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC36-Electronics	6%	1%	0.00	1.07	1.00	0.14	10	0.8	0.01	0.09	0.01	536	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC36-Electronics	2%	2%	0.01	1.06	1.04	0.14	10	0.3	0.04	0.04	0.04	265	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC36-Electronics	3%	3%	0.01	1.09	1.05	0.14	6	0.3	0.03	0.03	0.07	503	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC36-Electronics	6%	1%	0.01	1.07	1.00	0.14	6	1.3	0.02	0.15	0.02	1,763	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC36-Electronics	2%	2%	0.00	1.06	1.05	0.14	6	0.3	0.04	0.04	0.03	254	2.5	2
1	200	Base Fans	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC36-Electronics	2%	2%	0.00	1.08	1.05	0.14	10	0.1	0.01	0.01	0.01	61	9.5	1
1	202	Fans - Controls	SIC36-Electronics	30%	30%	0.10	1.37	0.96	0.13	10	1.1	0.14	0.12	0.04	288	2.0	3
1	203	Fans - System Optimization	SIC36-Electronics	21%	10%	0.06	1.30	1.02	0.16	10	0.4	0.03	0.05	0.04	594	2.1	3
1	204	Fans- Improve components	SIC36-Electronics	5%	5%	0.01	1.11	1.05	0.14	10	0.1	0.02	0.01	0.02	116	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC36-Electronics	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,632	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC36-Electronics	6%	1%	0.08	1.08	1.01	0.15	14	0.0	0.00	0.00	0.15	11,984	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC36-Electronics	5%	5%	0.02	1.06	1.01	0.14	14	0.0	0.00	0.00	0.05	405	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC36-Electronics	4%	4%	0.03	1.08	1.04	0.14	10	0.1	0.01	0.01	0.14	1,009	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC36-Electronics	6%	1%	0.00	1.07	1.00	0.14	10	0.2	0.00	0.03	0.01	534	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC36-Electronics	2%	2%	0.01	1.06	1.04	0.14	10	0.1	0.01	0.01	0.04	265	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC36-Electronics	3%	3%	0.01	1.09	1.05	0.14	6	0.1	0.01	0.01	0.07	503	1.3	4
1	212	Fans - ASD (100+ hp)	SIC36-Electronics	6%	1%	0.01	1.07	1.00	0.14	6	0.4	0.00	0.04	0.02	1,761	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC36-Electronics	2%	2%	0.00	1.06	1.05	0.14	6	0.1	0.01	0.01	0.03	254	2.5	2
1	300	Base Pumps	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC36-Electronics	10%	10%	0.01	1.13	1.02	0.14	10	0.6	0.08	0.07	0.01	57	10.2	1
1	302	Pumps - Controls	SIC36-Electronics	30%	30%	0.03	1.32	0.93	0.13	10	1.9	0.25	0.22	0.01	87	6.6	1
1	303	Pumps - System Optimization	SIC36-Electronics	33%	33%	0.07	1.38	0.93	0.13	10	1.8	0.25	0.21	0.03	186	3.1	2
1	304	Pumps - Sizing	SIC36-Electronics	20%	20%	0.02	1.27	1.01	0.14	10	0.7	0.09	0.08	0.01	102	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC36-Electronics	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,632	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC36-Electronics	6%	1%	0.08	1.08	1.01	0.15	14	0.0	0.00	0.00	0.15	11,995	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC36-Electronics	5%	5%	0.02	1.06	1.01	0.14	14	0.0	0.00	0.00	0.05	405	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC36-Electronics	4%	4%	0.03	1.08	1.04	0.14	10	0.1	0.02	0.01	0.14	1,009	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC36-Electronics	6%	1%	0.00	1.07	1.00	0.14	10	0.3	0.00	0.03	0.01	535	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC36-Electronics	2%	2%	0.01	1.06	1.04	0.14	10	0.1	0.02	0.01	0.04	265	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC36-Electronics	3%	3%	0.01	1.09	1.05	0.14	6	0.1	0.01	0.01	0.07	503	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC36-Electronics	6%	1%	0.01	1.07	1.00	0.14	6	0.5	0.01	0.06	0.02	1,764	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC36-Electronics	2%	2%	0.00	1.06	1.05	0.14	6	0.1	0.02	0.01	0.03	254	2.5	2
1	400	Base Drives	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.14	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	413	Clean Room - Controls	SIC36-Electronics	10%	10%	0.03	1.12	1.01	0.14	10	1.0	0.13	0.11	0.04	315	1.8	4
1	428	Drives - Scheduling	SIC36-Electronics	5%	1%	0.01	1.10	1.05	0.15	10	0.2	0.00	0.02	0.03	1,271	2.5	3
1	429	Machinery	SIC36-Electronics	4%	4%	0.01	1.09	1.05	0.14	10	0.1	0.02	0.02	0.03	211	2.7	2
1	500	Base Heating	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.14	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Efficient Curing ovens	SIC36-Electronics	20%	20%	0.09	1.25	1.00	0.14	15	1.4	0.19	0.16	0.04	300	1.7	5
1	550	Base Refrigeration	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.14	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	604	Efficient processes (welding, etc.)	SIC36-Electronics	25%	25%	0.05	1.22	0.91	0.12	15	2.0	0.27	0.23	0.02	155	3.4	2
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC36-Electronics	0%	0%	0.10	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC36-Electronics	12%	2%	0.02	1.06	0.94	0.18	20	2.3	0.08	0.02	0.01	378	5.1	2
1	702	High Efficiency Chiller Motors	SIC36-Electronics	3%	3%	0.01	1.07	1.03	0.17	20	0.5	0.09	0.00	0.03	160	2.4	3
1	703	EMS - Chiller	SIC36-Electronics	10%	2%	0.03	1.17	1.06	0.19	10	0.1	0.00	0.00	0.04	1,104	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC36-Electronics	8%	8%	0.02	1.11	1.02	0.17	10	0.6	0.10	0.00	0.04	259	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC36-Electronics	10%	2%	0.02	1.11	1.00	0.18	15	0.9	0.03	0.01	0.02	599	3.5	2
1	706	EMS Optimization - Chiller	SIC36-Electronics	5%	5%	0.01	1.09	1.04	0.18	5	0.4	0.06	0.00	0.04	220	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC36-Electronics	10%	10%	0.01	1.10	0.99	0.17	10	1.0	0.16	0.01	0.01	77	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC36-Electronics	10%	10%	0.74	1.11	1.00	0.17	10	0.9	0.15	0.01	1.08	6,365	0.1	89
1	709	Window Film (Standard) - Chiller	SIC36-Electronics	5%	5%	0.03	1.09	1.03	0.17	10	0.4	0.07	0.00	0.09	505	0.9	7

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage	E																
Batch	2																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	710	Roof Insulation - Chiller	SIC36-Electronics	5%	5%	0.04	1.09	1.04	0.18	20	0.3	0.05	0.00	0.07	434	0.9	9
1	711	Cool Roof - Chiller	SIC36-Electronics	24%	24%	0.32	1.15	0.88	0.15	15	1.7	0.28	0.01	0.14	806	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC36-Electronics	0%	0%	0.18	1.06	1.06	0.18	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC36-Electronics	6%	3%	0.03	1.06	1.01	0.18	15	1.9	0.16	0.00	0.07	821	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC36-Electronics	40%	40%	0.13	1.06	0.64	0.11	15	6.9	1.17	0.00	0.04	211	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC36-Electronics	21%	21%	0.31	1.07	0.85	0.14	15	1.8	0.30	0.00	0.16	974	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC36-Electronics	5%	5%	0.02	1.10	1.05	0.18	10	0.4	0.08	0.00	0.05	301	1.5	4
1	725	DX Coil Cleaning	SIC36-Electronics	5%	5%	0.00	1.09	1.04	0.18	5	0.6	0.11	0.00	0.01	81	6.4	1
1	726	Optimize Controls	SIC36-Electronics	5%	5%	0.01	1.10	1.05	0.18	5	0.3	0.05	0.00	0.03	168	3.1	1
1	727	Aerosole Duct Sealing	SIC36-Electronics	10%	10%	0.01	1.10	0.99	0.17	10	1.2	0.21	0.00	0.01	44	10.4	1
1	728	Duct/Pipe Insulation	SIC36-Electronics	10%	10%	0.43	1.11	1.00	0.17	10	1.1	0.19	0.00	0.62	3,672	0.1	51
1	729	Window Film (Standard)	SIC36-Electronics	5%	5%	0.02	1.09	1.03	0.17	10	0.5	0.09	0.00	0.05	319	1.4	4
1	730	Roof Insulation	SIC36-Electronics	5%	5%	0.02	1.09	1.04	0.18	20	0.3	0.06	0.00	0.04	250	1.5	5
1	731	Cool Roof - DX	SIC36-Electronics	24%	24%	0.19	1.15	0.88	0.15	15	2.1	0.36	0.00	0.08	465	0.9	9
1	800	Base Lighting	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.14	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC36-Electronics	31%	31%	0.03	1.23	0.84	0.11	15	8.5	1.15	0.98	0.01	62	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC36-Electronics	72%	72%	0.14	1.55	0.44	0.06	5	1.0	0.14	0.12	0.03	254	2.6	2
1	803	CFL Screw-in 18W	SIC36-Electronics	72%	72%	0.02	1.55	0.44	0.06	2	1.0	0.14	0.12	0.01	81	8.7	0
1	804	High Bay T5	SIC36-Electronics	49%	49%	0.04	1.09	0.56	0.08	10	0.4	0.06	0.05	0.01	91	6.4	1
1	805	Occupancy Sensor	SIC36-Electronics	20%	4%	0.04	1.08	0.87	0.14	9	1.7	0.05	0.19	0.03	1,208	2.4	3
1	900	Base Other	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.14	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC36-Electronics	0%	0%	0.00	1.06	1.06	0.14	5	0.0	0.00	0.00	0.04	324	2.0	2
1	100	Base Compressed Air	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.18	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC37-Transp Eqp	17%	17%	0.01	1.11	0.92	0.15	10	1.1	0.19	0.16	0.01	56	8.3	1
1	102	Compressed Air - Controls	SIC37-Transp Eqp	12%	12%	0.02	1.17	1.03	0.17	10	0.3	0.05	0.04	0.02	128	3.7	2
1	103	Compressed Air - System Optimization	SIC37-Transp Eqp	20%	20%	0.02	1.18	0.95	0.16	10	0.9	0.16	0.13	0.01	71	6.7	1
1	104	Compressed Air- Sizing	SIC37-Transp Eqp	9%	9%	0.00	1.13	1.02	0.17	10	0.3	0.05	0.05	0.01	47	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC37-Transp Eqp	3%	3%	0.06	1.07	1.04	0.17	14	0.0	0.00	0.00	0.22	1,327	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC37-Transp Eqp	6%	1%	0.08	1.08	1.01	0.18	14	0.0	0.00	0.00	0.15	9,768	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC37-Transp Eqp	5%	5%	0.02	1.06	1.01	0.17	14	0.0	0.00	0.00	0.05	329	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC37-Transp Eqp	4%	4%	0.03	1.08	1.04	0.17	10	0.1	0.01	0.01	0.14	820	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC37-Transp Eqp	6%	1%	0.00	1.07	1.00	0.18	10	0.2	0.00	0.03	0.01	435	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC37-Transp Eqp	2%	2%	0.01	1.06	1.04	0.17	10	0.1	0.01	0.01	0.04	215	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC37-Transp Eqp	3%	3%	0.01	1.09	1.05	0.18	6	0.1	0.01	0.01	0.07	409	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC37-Transp Eqp	6%	1%	0.01	1.07	1.00	0.18	6	0.3	0.00	0.04	0.02	1,433	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC37-Transp Eqp	2%	2%	0.00	1.06	1.05	0.17	6	0.1	0.01	0.01	0.03	207	2.5	2
1	200	Base Fans	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.18	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC37-Transp Eqp	2%	2%	0.00	1.08	1.05	0.18	10	0.0	0.01	0.01	0.01	49	9.5	1
1	202	Fans - Controls	SIC37-Transp Eqp	30%	30%	0.10	1.37	0.96	0.16	10	0.4	0.06	0.05	0.04	234	2.0	3
1	203	Fans - System Optimization	SIC37-Transp Eqp	21%	10%	0.06	1.30	1.02	0.19	10	0.1	0.01	0.02	0.04	483	2.1	3
1	204	Fans- Improve components	SIC37-Transp Eqp	5%	5%	0.01	1.11	1.05	0.18	10	0.0	0.01	0.01	0.02	94	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC37-Transp Eqp	3%	3%	0.06	1.07	1.04	0.17	14	0.0	0.00	0.00	0.22	1,327	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC37-Transp Eqp	6%	1%	0.08	1.08	1.01	0.18	14	0.0	0.00	0.00	0.15	9,743	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC37-Transp Eqp	5%	5%	0.02	1.06	1.01	0.17	14	0.0	0.00	0.00	0.05	329	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC37-Transp Eqp	4%	4%	0.03	1.08	1.04	0.17	10	0.0	0.00	0.00	0.14	820	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC37-Transp Eqp	6%	1%	0.00	1.07	1.00	0.18	10	0.1	0.00	0.01	0.01	434	11.9	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC37-Transp Eqp	2%	2%	0.01	1.06	1.04	0.17	10	0.0	0.01	0.00	0.04	215	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC37-Transp Eqp	3%	3%	0.01	1.09	1.05	0.18	6	0.0	0.00	0.00	0.07	409	1.3	4
1	212	Fans - ASD (100+ hp)	SIC37-Transp Eqp	6%	1%	0.01	1.07	1.00	0.18	6	0.1	0.00	0.02	0.02	1,432	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC37-Transp Eqp	2%	2%	0.00	1.06	1.05	0.17	6	0.0	0.01	0.00	0.03	207	2.5	2
1	300	Base Pumps	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.18	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC37-Transp Eqp	10%	10%	0.01	1.13	1.02	0.17	10	0.2	0.04	0.03	0.01	46	10.2	1
1	302	Pumps - Controls	SIC37-Transp Eqp	30%	30%	0.03	1.32	0.93	0.15	10	0.6	0.11	0.09	0.01	71	6.6	1
1	303	Pumps - System Optimization	SIC37-Transp Eqp	33%	33%	0.07	1.38	0.93	0.15	10	0.6	0.11	0.09	0.03	151	3.1	2
1	304	Pumps - Sizing	SIC37-Transp Eqp	20%	20%	0.02	1.27	1.01	0.17	10	0.2	0.04	0.03	0.01	83	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC37-Transp Eqp	3%	3%	0.06	1.07	1.04	0.17	14	0.0	0.00	0.00	0.22	1,327	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC37-Transp Eqp	6%	1%	0.08	1.08	1.01	0.18	14	0.0	0.00	0.00	0.15	9,752	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC37-Transp Eqp	5%	5%	0.02	1.06	1.01	0.17	14	0.0	0.00	0.00	0.05	329	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC37-Transp Eqp	4%	4%	0.03	1.08	1.04	0.17	10	0.0	0.01	0.01	0.14	820	0.6	11

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008											
Vintage E																	
Batch 2				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	Base EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	309	Pumps - ASD (6-100 hp)	SIC37-Transp Eqp	6%	1%	0.00	1.07	1.00	0.18	10	0.1	0.00	0.01	0.01	435	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC37-Transp Eqp	2%	2%	0.01	1.06	1.04	0.17	10	0.0	0.01	0.01	0.04	215	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC37-Transp Eqp	3%	3%	0.01	1.09	1.05	0.18	6	0.0	0.01	0.00	0.07	409	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC37-Transp Eqp	6%	1%	0.01	1.07	1.00	0.18	6	0.2	0.00	0.02	0.02	1,434	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC37-Transp Eqp	2%	2%	0.00	1.06	1.05	0.17	6	0.0	0.01	0.01	0.03	207	2.5	2
1	400	Base Drives	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	427	Drives - Optimization process (M&T)	SIC37-Transp Eqp	10%	10%	0.01	1.13	1.02	0.17	10	0.1	0.02	0.02	0.01	74	6.3	1
1	428	Drives - Scheduling	SIC37-Transp Eqp	5%	1%	0.01	1.11	1.05	0.18	10	0.1	0.00	0.01	0.03	941	2.7	2
1	429	Machinery	SIC37-Transp Eqp	11%	11%	0.02	1.17	1.04	0.17	10	0.1	0.02	0.01	0.03	161	2.9	2
1	500	Base Heating	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Efficient Curing ovens	SIC37-Transp Eqp	20%	20%	0.09	1.25	1.00	0.17	15	0.2	0.03	0.02	0.04	244	1.7	5
1	510	Heating - Optimization process (M&T)	SIC37-Transp Eqp	10%	10%	0.01	1.13	1.02	0.17	10	0.1	0.02	0.01	0.01	74	6.3	1
1	550	Base Refrigeration	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.22	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.18	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	603	New transformers welding	SIC37-Transp Eqp	25%	25%	0.05	1.22	0.91	0.15	15	0.2	0.03	0.03	0.02	126	3.4	2
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC37-Transp Eqp	0%	0%	0.10	1.06	1.06	0.22	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC37-Transp Eqp	12%	2%	0.02	1.06	0.94	0.22	20	0.3	0.01	0.00	0.01	307	5.1	2
1	702	High Efficiency Chiller Motors	SIC37-Transp Eqp	3%	3%	0.01	1.07	1.03	0.22	20	0.1	0.01	0.00	0.03	130	2.4	3
1	703	EMS - Chiller	SIC37-Transp Eqp	10%	2%	0.03	1.17	1.06	0.24	10	0.0	0.00	0.00	0.04	897	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC37-Transp Eqp	8%	8%	0.02	1.11	1.02	0.21	10	0.1	0.01	0.00	0.04	210	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC37-Transp Eqp	10%	2%	0.02	1.11	1.00	0.23	15	0.1	0.00	0.00	0.02	487	3.5	2
1	706	EMS Optimization - Chiller	SIC37-Transp Eqp	5%	5%	0.01	1.09	1.04	0.22	5	0.0	0.01	0.00	0.04	179	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC37-Transp Eqp	10%	10%	0.01	1.10	0.99	0.21	10	0.1	0.02	0.00	0.01	62	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC37-Transp Eqp	10%	10%	0.74	1.11	1.00	0.21	10	0.1	0.02	0.00	1.08	5,175	0.1	89
1	709	Window Film (Standard) - Chiller	SIC37-Transp Eqp	5%	5%	0.03	1.09	1.03	0.21	10	0.0	0.01	0.00	0.09	411	0.9	7
1	710	Roof Insulation - Chiller	SIC37-Transp Eqp	5%	5%	0.04	1.09	1.04	0.22	20	0.0	0.01	0.00	0.07	353	0.9	9
1	711	Cool Roof - Chiller	SIC37-Transp Eqp	24%	24%	0.32	1.15	0.88	0.18	15	0.2	0.04	0.00	0.14	655	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC37-Transp Eqp	0%	0%	0.18	1.06	1.06	0.22	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC37-Transp Eqp	6%	3%	0.03	1.06	1.01	0.22	15	0.2	0.02	0.00	0.07	667	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC37-Transp Eqp	40%	40%	0.13	1.06	0.64	0.13	15	0.7	0.16	0.00	0.04	172	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC37-Transp Eqp	21%	21%	0.31	1.07	0.85	0.18	15	0.2	0.04	0.00	0.16	792	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC37-Transp Eqp	5%	5%	0.02	1.10	1.05	0.22	10	0.0	0.01	0.00	0.05	244	1.5	4
1	725	DX Coil Cleaning	SIC37-Transp Eqp	5%	5%	0.00	1.09	1.04	0.22	5	0.1	0.01	0.00	0.01	66	6.4	1
1	726	Optimize Controls	SIC37-Transp Eqp	5%	5%	0.01	1.10	1.05	0.22	5	0.0	0.01	0.00	0.03	136	3.1	1
1	727	Aerosole Duct Sealing	SIC37-Transp Eqp	10%	10%	0.01	1.10	0.99	0.21	10	0.1	0.03	0.00	0.01	36	10.4	1
1	728	Duct/Pipe Insulation	SIC37-Transp Eqp	10%	10%	0.43	1.11	1.00	0.21	10	0.1	0.02	0.00	0.62	2,985	0.1	51
1	729	Window Film (Standard)	SIC37-Transp Eqp	5%	5%	0.02	1.09	1.03	0.22	10	0.1	0.01	0.00	0.05	260	1.4	4
1	730	Roof Insulation	SIC37-Transp Eqp	5%	5%	0.02	1.09	1.04	0.22	20	0.0	0.01	0.00	0.04	204	1.5	5
1	731	Cool Roof - DX	SIC37-Transp Eqp	24%	24%	0.19	1.15	0.88	0.18	15	0.2	0.05	0.00	0.08	378	0.9	9
1	800	Base Lighting	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.18	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC37-Transp Eqp	31%	31%	0.03	1.23	0.84	0.14	15	1.6	0.27	0.23	0.01	50	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC37-Transp Eqp	72%	72%	0.14	1.55	0.44	0.07	5	0.2	0.03	0.03	0.03	207	2.6	2
1	803	CFL Screw-in 18W	SIC37-Transp Eqp	72%	72%	0.02	1.55	0.44	0.07	2	0.2	0.03	0.03	0.01	66	8.7	0
1	804	High Bay T5	SIC37-Transp Eqp	49%	49%	0.04	1.09	0.56	0.09	10	0.1	0.02	0.02	0.01	74	6.4	1
1	805	Occupancy Sensor	SIC37-Transp Eqp	20%	4%	0.04	1.08	0.87	0.17	9	0.3	0.01	0.05	0.03	982	2.4	3
1	900	Base Other	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.18	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC37-Transp Eqp	0%	0%	0.00	1.06	1.06	0.18	5	0.0	0.00	0.00	0.04	263	2.0	2
1	100	Base Compressed Air	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC38-Instruments	17%	17%	0.01	1.11	0.92	0.12	10	2.5	0.33	0.29	0.01	71	8.3	1
1	102	Compressed Air - Controls	SIC38-Instruments	12%	12%	0.02	1.17	1.03	0.14	10	0.6	0.08	0.07	0.02	161	3.7	2
1	103	Compressed Air - System Optimization	SIC38-Instruments	20%	20%	0.02	1.18	0.95	0.13	10	2.1	0.28	0.24	0.01	89	6.7	1
1	104	Compressed Air- Sizing	SIC38-Instruments	9%	9%	0.00	1.13	1.02	0.14	10	0.7	0.10	0.08	0.01	59	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC38-Instruments	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,667	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC38-Instruments	6%	1%	0.08	1.08	1.01	0.14	14	0.0	0.00	0.01	0.15	12,275	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC38-Instruments	5%	5%	0.02	1.06	1.01	0.13	14	0.0	0.01	0.01	0.05	413	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC38-Instruments	4%	4%	0.03	1.08	1.04	0.14	10	0.2	0.02	0.02	0.14	1,031	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC38-Instruments	6%	1%	0.00	1.07	1.00	0.14	10	0.4	0.00	0.05	0.01	547	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC38-Instruments	2%	2%	0.01	1.06	1.04	0.14	10	0.2	0.02	0.02	0.04	271	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC38-Instruments	3%	3%	0.01	1.09	1.05	0.14	6	0.1	0.02	0.02	0.07	514	1.3	4

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year	2008										
Vintage	E																
Batch	2																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	112	Comp Air - ASD (100+ hp)	SIC38-Instruments	6%	1%	0.01	1.07	1.00	0.14	6	0.7	0.01	0.08	0.02	1,801	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC38-Instruments	2%	2%	0.00	1.06	1.05	0.14	6	0.2	0.02	0.02	0.03	260	2.5	2
1	200	Base Fans	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC38-Instruments	2%	2%	0.00	1.08	1.05	0.14	10	0.1	0.01	0.01	0.01	62	9.5	1
1	202	Fans - Controls	SIC38-Instruments	30%	30%	0.10	1.37	0.96	0.13	10	0.8	0.11	0.10	0.04	294	2.0	3
1	203	Fans - System Optimization	SIC38-Instruments	21%	10%	0.06	1.30	1.02	0.15	10	0.3	0.02	0.04	0.04	607	2.1	3
1	204	Fans- Improve components	SIC38-Instruments	5%	5%	0.01	1.11	1.05	0.14	10	0.1	0.01	0.01	0.02	118	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC38-Instruments	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,667	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC38-Instruments	6%	1%	0.08	1.08	1.01	0.14	14	0.0	0.00	0.00	0.15	12,243	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC38-Instruments	5%	5%	0.02	1.06	1.01	0.13	14	0.0	0.00	0.00	0.05	413	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC38-Instruments	4%	4%	0.03	1.08	1.04	0.14	10	0.1	0.01	0.01	0.14	1,031	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC38-Instruments	6%	1%	0.00	1.07	1.00	0.14	10	0.2	0.00	0.02	0.01	546	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC38-Instruments	2%	2%	0.01	1.06	1.04	0.14	10	0.1	0.01	0.01	0.04	271	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC38-Instruments	3%	3%	0.01	1.09	1.05	0.14	6	0.1	0.01	0.01	0.07	514	1.3	4
1	212	Fans - ASD (100+ hp)	SIC38-Instruments	6%	1%	0.01	1.07	1.00	0.14	6	0.3	0.00	0.03	0.02	1,799	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC38-Instruments	2%	2%	0.00	1.06	1.05	0.14	6	0.1	0.01	0.01	0.03	260	2.5	2
1	300	Base Pumps	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.14	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC38-Instruments	10%	10%	0.01	1.13	1.02	0.14	10	0.5	0.06	0.06	0.01	58	10.2	1
1	302	Pumps - Controls	SIC38-Instruments	30%	30%	0.03	1.32	0.93	0.12	10	1.5	0.20	0.17	0.01	89	6.6	1
1	303	Pumps - System Optimization	SIC38-Instruments	33%	33%	0.07	1.38	0.93	0.12	10	1.5	0.19	0.17	0.03	190	3.1	2
1	304	Pumps - Sizing	SIC38-Instruments	20%	20%	0.02	1.27	1.01	0.13	10	0.5	0.07	0.06	0.01	104	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC38-Instruments	3%	3%	0.06	1.07	1.04	0.14	14	0.0	0.00	0.00	0.22	1,667	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC38-Instruments	6%	1%	0.08	1.08	1.01	0.14	14	0.0	0.00	0.00	0.15	12,254	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC38-Instruments	5%	5%	0.02	1.06	1.01	0.13	14	0.0	0.00	0.00	0.05	413	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC38-Instruments	4%	4%	0.03	1.08	1.04	0.14	10	0.1	0.01	0.01	0.14	1,031	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC38-Instruments	6%	1%	0.00	1.07	1.00	0.14	10	0.2	0.00	0.03	0.01	546	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC38-Instruments	2%	2%	0.01	1.06	1.04	0.14	10	0.1	0.01	0.01	0.04	271	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC38-Instruments	3%	3%	0.01	1.09	1.05	0.14	6	0.1	0.01	0.01	0.07	514	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC38-Instruments	6%	1%	0.01	1.07	1.00	0.14	6	0.4	0.00	0.05	0.02	1,802	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC38-Instruments	2%	2%	0.00	1.06	1.05	0.14	6	0.1	0.01	0.01	0.03	260	2.5	2
1	400	Base Drives	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.14	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	427	Drives - Optimization process (M&T)	SIC38-Instruments	10%	10%	0.01	1.12	1.01	0.13	10	0.6	0.08	0.07	0.01	94	6.3	1
1	428	Drives - Scheduling	SIC38-Instruments	5%	1%	0.01	1.11	1.05	0.15	10	0.2	0.00	0.02	0.03	1,183	2.7	2
1	429	Machinery	SIC38-Instruments	7%	7%	0.01	1.12	1.04	0.14	10	0.3	0.03	0.03	0.03	210	2.8	2
1	500	Base Heating	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.14	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	509	Efficient Curing ovens	SIC38-Instruments	20%	20%	0.09	1.25	1.00	0.13	15	0.7	0.09	0.08	0.04	307	1.7	5
1	550	Base Refrigeration	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.14	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	603	New transformers welding	SIC38-Instruments	25%	25%	0.05	1.22	0.91	0.12	15	0.4	0.05	0.04	0.02	158	3.4	2
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC38-Instruments	0%	0%	0.10	1.06	1.06	0.18	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC38-Instruments	12%	2%	0.02	1.06	0.94	0.17	20	0.9	0.03	0.01	0.01	386	5.1	2
1	702	High Efficiency Chiller Motors	SIC38-Instruments	3%	3%	0.01	1.07	1.03	0.17	20	0.2	0.04	0.00	0.03	164	2.4	3
1	703	EMS - Chiller	SIC38-Instruments	10%	2%	0.03	1.17	1.06	0.19	10	0.0	0.00	0.00	0.04	1,128	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC38-Instruments	8%	8%	0.02	1.11	1.02	0.17	10	0.2	0.04	0.00	0.04	264	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC38-Instruments	10%	2%	0.02	1.11	1.00	0.18	15	0.4	0.01	0.00	0.02	612	3.5	2
1	706	EMS Optimization - Chiller	SIC38-Instruments	5%	5%	0.01	1.09	1.04	0.17	5	0.1	0.02	0.00	0.04	225	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC38-Instruments	10%	10%	0.01	1.10	0.99	0.16	10	0.4	0.06	0.00	0.01	78	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC38-Instruments	10%	10%	0.74	1.11	1.00	0.17	10	0.4	0.06	0.00	1.08	6,502	0.1	89
1	709	Window Film (Standard) - Chiller	SIC38-Instruments	5%	5%	0.03	1.09	1.03	0.17	10	0.2	0.03	0.00	0.09	516	0.9	7
1	710	Roof Insulation - Chiller	SIC38-Instruments	5%	5%	0.04	1.09	1.04	0.17	20	0.1	0.02	0.00	0.07	444	0.9	9
1	711	Cool Roof - Chiller	SIC38-Instruments	24%	24%	0.32	1.15	0.88	0.15	15	0.7	0.11	0.00	0.14	823	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC38-Instruments	0%	0%	0.18	1.06	1.06	0.18	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC38-Instruments	6%	3%	0.03	1.06	1.01	0.17	15	1.3	0.11	0.00	0.07	839	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC38-Instruments	40%	40%	0.13	1.06	0.64	0.11	15	4.7	0.77	0.00	0.04	216	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC38-Instruments	21%	21%	0.31	1.07	0.85	0.14	15	1.2	0.20	0.00	0.16	995	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC38-Instruments	5%	5%	0.02	1.10	1.05	0.17	10	0.3	0.05	0.00	0.05	307	1.5	4
1	725	DX Coil Cleaning	SIC38-Instruments	5%	5%	0.00	1.09	1.04	0.17	5	0.4	0.07	0.00	0.01	83	6.4	1
1	726	Optimize Controls	SIC38-Instruments	5%	5%	0.01	1.10	1.05	0.17	5	0.2	0.03	0.00	0.03	171	3.1	1
1	727	Aerosole Duct Sealing	SIC38-Instruments	10%	10%	0.01	1.10	0.99	0.16	10	0.8	0.12	0.00	0.01	45	10.4	1

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008										
Vintage E																
Batch 2				Energy	Peak	Total			Peak		Technical	Summer Peak Tech.	Winter Peak Tech.	Levelized Cost of Conserved	Levelized Cost of Avoided		Customer
Segment	Measure Number	Measure	Building Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	Base EUI	EUI	Watts/ Sq Ft	Service Life (yrs)	Potential GWH	Potential MW	Potential MW	Energy $/kWH	Peak Capacity $/kW	Participant Test	Payback (Years)
1	728	Duct/Pipe Insulation	SIC38-Instruments	10%	10%	0.43	1.11	1.00	0.17	10	0.7	0.12	0.00	0.62	3,751	0.1	51
1	729	Window Film (Standard)	SIC38-Instruments	5%	5%	0.02	1.09	1.03	0.17	10	0.3	0.05	0.00	0.05	326	1.4	4
1	730	Roof Insulation	SIC38-Instruments	5%	5%	0.02	1.09	1.04	0.17	20	0.2	0.03	0.00	0.04	256	1.5	5
1	731	Cool Roof - DX	SIC38-Instruments	24%	24%	0.19	1.15	0.88	0.15	15	1.3	0.22	0.00	0.08	475	0.9	9
1	800	Base Lighting	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.14	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC38-Instruments	31%	31%	0.03	1.23	0.84	0.11	15	7.1	0.95	0.82	0.01	63	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC38-Instruments	72%	72%	0.14	1.55	0.44	0.06	5	0.7	0.10	0.08	0.03	260	2.6	2
1	803	CFL Screw-in 18W	SIC38-Instruments	72%	72%	0.02	1.55	0.44	0.06	2	0.7	0.10	0.08	0.01	83	8.7	0
1	804	High Bay T5	SIC38-Instruments	49%	49%	0.04	1.09	0.56	0.07	10	0.5	0.07	0.06	0.01	92	6.4	1
1	805	Occupancy Sensor	SIC38-Instruments	20%	4%	0.04	1.08	0.87	0.14	9	1.4	0.04	0.16	0.03	1,234	2.4	3
1	900	Base Other	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.14	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC38-Instruments	0%	0%	0.00	1.06	1.06	0.14	5	0.0	0.00	0.00	0.04	331	2.0	2
1	100	Base Compressed Air	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.13	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	101	Compressed Air-O&M	SIC39_21_31-Misc	17%	17%	0.01	1.11	0.92	0.12	10	1.7	0.22	0.19	0.01	75	8.3	1
1	102	Compressed Air - Controls	SIC39_21_31-Misc	12%	12%	0.02	1.17	1.03	0.13	10	0.4	0.05	0.05	0.02	170	3.7	2
1	103	Compressed Air - System Optimization	SIC39_21_31-Misc	20%	20%	0.02	1.18	0.95	0.12	10	1.5	0.18	0.16	0.01	94	6.7	1
1	104	Compressed Air- Sizing	SIC39_21_31-Misc	9%	9%	0.00	1.13	1.02	0.13	10	0.5	0.06	0.05	0.01	62	10.1	1
1	105	Comp Air - Replace 1-5 HP motor	SIC39_21_31-Misc	3%	3%	0.06	1.07	1.04	0.13	14	0.0	0.00	0.00	0.22	1,769	0.3	24
1	106	Comp Air - ASD (1-5 hp)	SIC39_21_31-Misc	6%	1%	0.08	1.08	1.01	0.13	14	0.0	0.00	0.00	0.15	13,021	0.5	16
1	107	Comp Air - Motor practices-1 (1-5 HP)	SIC39_21_31-Misc	5%	5%	0.02	1.06	1.01	0.13	14	0.0	0.00	0.00	0.05	439	1.3	6
1	108	Comp Air - Replace 6-100 HP motor	SIC39_21_31-Misc	3%	4%	0.03	1.08	1.04	0.13	10	0.1	0.01	0.01	0.14	1,093	0.6	11
1	109	Comp Air - ASD (6-100 hp)	SIC39_21_31-Misc	6%	1%	0.00	1.07	1.00	0.13	10	0.3	0.00	0.03	0.01	580	11.9	1
1	110	Comp Air - Motor practices-1 (6-100 HP)	SIC39_21_31-Misc	2%	2%	0.01	1.06	1.04	0.13	10	0.1	0.01	0.01	0.04	287	2.2	3
1	111	Comp Air - Replace 100+ HP motor	SIC39_21_31-Misc	3%	3%	0.01	1.09	1.05	0.13	6	0.1	0.01	0.01	0.07	545	1.3	4
1	112	Comp Air - ASD (100+ hp)	SIC39_21_31-Misc	6%	1%	0.01	1.07	1.00	0.13	6	0.5	0.01	0.05	0.02	1,911	4.0	1
1	113	Comp Air - Motor practices-1 (100+ HP)	SIC39_21_31-Misc	1%	2%	0.00	1.06	1.05	0.13	6	0.1	0.01	0.01	0.03	275	2.5	2
1	200	Base Fans	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.13	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	201	Fans - O&M	SIC39_21_31-Misc	2%	2%	0.00	1.08	1.05	0.13	10	0.0	0.01	0.01	0.01	66	9.5	1
1	202	Fans - Controls	SIC39_21_31-Misc	30%	30%	0.10	1.37	0.96	0.12	10	0.5	0.06	0.05	0.04	312	2.0	3
1	203	Fans - System Optimization	SIC39_21_31-Misc	21%	10%	0.06	1.30	1.02	0.15	10	0.2	0.01	0.02	0.04	644	2.1	3
1	204	Fans- Improve components	SIC39_21_31-Misc	5%	5%	0.01	1.11	1.05	0.13	10	0.1	0.01	0.01	0.02	125	5.0	1
1	205	Fans - Replace 1-5 HP motor	SIC39_21_31-Misc	3%	3%	0.06	1.07	1.04	0.13	14	0.0	0.00	0.00	0.22	1,769	0.3	24
1	206	Fans - ASD (1-5 hp)	SIC39_21_31-Misc	6%	1%	0.08	1.08	1.01	0.13	14	0.0	0.00	0.00	0.15	12,988	0.5	16
1	207	Fans - Motor practices-1 (1-5 HP)	SIC39_21_31-Misc	5%	5%	0.02	1.06	1.01	0.13	14	0.0	0.00	0.00	0.05	439	1.3	6
1	208	Fans - Replace 6-100 HP motor	SIC39_21_31-Misc	3%	4%	0.03	1.08	1.04	0.13	10	0.0	0.00	0.00	0.14	1,093	0.6	11
1	209	Fans - ASD (6-100 hp)	SIC39_21_31-Misc	6%	1%	0.00	1.07	1.00	0.13	10	0.1	0.00	0.01	0.01	579	12.0	1
1	210	Fans - Motor practices-1 (6-100 HP)	SIC39_21_31-Misc	2%	2%	0.01	1.06	1.04	0.13	10	0.0	0.01	0.00	0.04	287	2.2	3
1	211	Fans - Replace 100+ HP motor	SIC39_21_31-Misc	3%	3%	0.01	1.09	1.05	0.13	6	0.0	0.00	0.00	0.07	545	1.3	4
1	212	Fans - ASD (100+ hp)	SIC39_21_31-Misc	6%	1%	0.01	1.07	1.00	0.13	6	0.2	0.00	0.02	0.02	1,909	4.0	1
1	213	Fans - Motor practices-1 (100+ HP)	SIC39_21_31-Misc	1%	2%	0.00	1.06	1.05	0.13	6	0.0	0.01	0.00	0.03	275	2.5	2
1	300	Base Pumps	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.13	14	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	301	Pumps - O&M	SIC39_21_31-Misc	10%	10%	0.01	1.13	1.02	0.13	10	0.3	0.03	0.03	0.01	61	10.2	1
1	302	Pumps - Controls	SIC39_21_31-Misc	30%	30%	0.03	1.32	0.93	0.12	10	0.8	0.10	0.09	0.01	95	6.6	1
1	303	Pumps - System Optimization	SIC39_21_31-Misc	33%	33%	0.07	1.38	0.93	0.12	10	0.8	0.10	0.09	0.03	201	3.1	2
1	304	Pumps - Sizing	SIC39_21_31-Misc	20%	20%	0.02	1.27	1.01	0.13	10	0.3	0.04	0.03	0.01	110	5.7	1
1	305	Pumps - Replace 1-5 HP motor	SIC39_21_31-Misc	3%	3%	0.06	1.07	1.04	0.13	14	0.0	0.00	0.00	0.22	1,769	0.3	24
1	306	Pumps - ASD (1-5 hp)	SIC39_21_31-Misc	6%	1%	0.08	1.08	1.01	0.13	14	0.0	0.00	0.00	0.15	13,000	0.5	16
1	307	Pumps - Motor practices-1 (1-5 HP)	SIC39_21_31-Misc	5%	5%	0.02	1.06	1.01	0.13	14	0.0	0.00	0.00	0.05	439	1.3	6
1	308	Pumps - Replace 6-100 HP motor	SIC39_21_31-Misc	3%	4%	0.03	1.08	1.04	0.13	10	0.1	0.01	0.01	0.14	1,093	0.6	11
1	309	Pumps - ASD (6-100 hp)	SIC39_21_31-Misc	6%	1%	0.00	1.07	1.00	0.13	10	0.1	0.00	0.01	0.01	580	11.9	1
1	310	Pumps - Motor practices-1 (6-100 HP)	SIC39_21_31-Misc	2%	2%	0.01	1.06	1.04	0.13	10	0.1	0.01	0.01	0.04	287	2.2	3
1	311	Pumps - Replace 100+ HP motor	SIC39_21_31-Misc	3%	3%	0.01	1.09	1.05	0.13	6	0.0	0.01	0.00	0.07	545	1.3	4
1	312	Pumps - ASD (100+ hp)	SIC39_21_31-Misc	6%	1%	0.01	1.07	1.00	0.13	6	0.2	0.00	0.02	0.02	1,911	4.0	1
1	313	Pumps - Motor practices-1 (100+ HP)	SIC39_21_31-Misc	1%	2%	0.00	1.06	1.05	0.13	6	0.1	0.01	0.01	0.03	275	2.5	2
1	400	Base Drives	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.13	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	416	Process Drives - ASD	SIC39_21_31-Misc	1%	1%	0.00	1.06	1.06	0.13	10	0.1	0.01	0.01	0.05	408	1.5	4
1	428	Drives - Scheduling	SIC39_21_31-Misc	5%	1%	0.01	1.10	1.05	0.14	10	0.1	0.00	0.02	0.03	1,378	2.5	3
1	430	Efficient Machinery	SIC39_21_31-Misc	3%	4%	0.01	1.09	1.05	0.13	10	0.1	0.01	0.01	0.03	229	2.7	2
1	500	Base Heating	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.13	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A

C.3 Non-Additive Energy Efficiency Measure Results - Industrial

DSM ASSYST SUMMARY						Year 2008										
Vintage E																
Batch 2																
Segment	Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	Summer Peak Tech. Potential MW	Winter Peak Tech. Potential MW	Levelized Cost of Conserved Energy $/kWH	Levelized Cost of Avoided Peak Capacity $/kW	Participant Test	Customer Payback (Years)
1	509	Efficient Curing ovens	SIC39_21_31-Misc	20%	20%	0.09	1.25	1.00	0.13	15	0.3	0.04	0.04	0.04	325	1.7	5
1	550	Base Refrigeration	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.17	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	600	Base Other Process	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.13	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	605	Process control	SIC39_21_31-Misc	4%	4%	0.02	1.10	1.05	0.13	15	0.0	0.00	0.00	0.05	371	1.5	5
1	700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC39_21_31-Misc	0%	0%	0.10	1.06	1.06	0.17	20	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC39_21_31-Misc	12%	2%	0.02	1.06	0.94	0.16	20	0.5	0.02	0.00	0.01	410	5.1	2
1	702	High Efficiency Chiller Motors	SIC39_21_31-Misc	3%	3%	0.01	1.07	1.03	0.16	20	0.1	0.02	0.00	0.03	174	2.4	3
1	703	EMS - Chiller	SIC39_21_31-Misc	10%	2%	0.03	1.17	1.06	0.18	10	0.0	0.00	0.00	0.04	1,196	2.1	3
1	704	Chiller Tune Up/Diagnostics	SIC39_21_31-Misc	8%	8%	0.02	1.11	1.02	0.16	10	0.1	0.02	0.00	0.04	280	1.8	4
1	705	VSD for Chiller Pumps and Towers	SIC39_21_31-Misc	10%	2%	0.02	1.11	1.00	0.17	15	0.2	0.01	0.00	0.02	649	3.5	2
1	706	EMS Optimization - Chiller	SIC39_21_31-Misc	5%	5%	0.01	1.09	1.04	0.16	5	0.1	0.01	0.00	0.04	238	2.4	2
1	707	Aerosole Duct Sealing - Chiller	SIC39_21_31-Misc	10%	10%	0.01	1.10	0.99	0.16	10	0.2	0.04	0.00	0.01	83	6.0	1
1	708	Duct/Pipe Insulation - Chiller	SIC39_21_31-Misc	10%	10%	0.74	1.11	1.00	0.16	10	0.2	0.03	0.00	1.08	6,898	0.1	89
1	709	Window Film (Standard) - Chiller	SIC39_21_31-Misc	5%	5%	0.03	1.09	1.03	0.16	10	0.1	0.02	0.00	0.09	547	0.9	7
1	710	Roof Insulation - Chiller	SIC39_21_31-Misc	5%	5%	0.04	1.09	1.04	0.16	20	0.1	0.01	0.00	0.07	471	0.9	9
1	711	Cool Roof - Chiller	SIC39_21_31-Misc	24%	24%	0.32	1.15	0.88	0.14	15	0.4	0.06	0.00	0.14	873	0.5	15
1	720	Base DX Packaged System, EER=10.3, 10 tons	SIC39_21_31-Misc	0%	0%	0.18	1.06	1.06	0.17	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	721	DX Packaged System, EER=10.9, 10 tons	SIC39_21_31-Misc	6%	3%	0.03	1.06	1.01	0.16	15	0.5	0.04	0.00	0.07	890	1.0	8
1	722	Hybrid Dessicant-DX System (Trane CDQ)	SIC39_21_31-Misc	40%	40%	0.13	1.06	0.64	0.10	15	1.7	0.27	0.00	0.04	229	2.0	4
1	723	Geothermal Heat Pump, EER=13, 10 tons	SIC39_21_31-Misc	21%	21%	0.31	1.07	0.85	0.13	15	0.4	0.07	0.00	0.16	1,056	0.4	19
1	724	DX Tune Up/ Advanced Diagnostics	SIC39_21_31-Misc	5%	5%	0.02	1.10	1.05	0.16	10	0.1	0.02	0.00	0.05	326	1.5	4
1	725	DX Coil Cleaning	SIC39_21_31-Misc	5%	5%	0.00	1.09	1.04	0.16	5	0.2	0.03	0.00	0.01	88	6.4	1
1	726	Optimize Controls	SIC39_21_31-Misc	5%	5%	0.01	1.10	1.05	0.16	5	0.1	0.01	0.00	0.03	182	3.1	1
1	727	Aerosole Duct Sealing	SIC39_21_31-Misc	10%	10%	0.01	1.10	0.99	0.16	10	0.3	0.05	0.00	0.01	48	10.4	1
1	728	Duct/Pipe Insulation	SIC39_21_31-Misc	10%	10%	0.43	1.11	1.00	0.16	10	0.3	0.05	0.00	0.62	3,980	0.1	51
1	729	Window Film (Standard)	SIC39_21_31-Misc	5%	5%	0.02	1.09	1.03	0.16	10	0.1	0.02	0.00	0.05	346	1.4	4
1	730	Roof Insulation	SIC39_21_31-Misc	5%	5%	0.02	1.09	1.04	0.16	20	0.1	0.01	0.00	0.04	271	1.5	5
1	731	Cool Roof - DX	SIC39_21_31-Misc	24%	24%	0.19	1.15	0.88	0.14	15	0.5	0.09	0.00	0.08	504	0.9	9
1	800	Base Lighting	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.13	10	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	801	Premium T8, Elecctronic Ballast	SIC39_21_31-Misc	31%	31%	0.03	1.23	0.84	0.11	15	3.7	0.46	0.40	0.01	67	8.4	1
1	802	CFL Hardwired, Modular 18W	SIC39_21_31-Misc	72%	72%	0.14	1.55	0.44	0.05	5	0.3	0.04	0.04	0.03	276	2.6	2
1	803	CFL Screw-in 18W	SIC39_21_31-Misc	72%	72%	0.02	1.55	0.44	0.05	2	0.3	0.04	0.04	0.01	88	8.7	0
1	804	High Bay T5	SIC39_21_31-Misc	49%	49%	0.04	1.09	0.56	0.07	10	0.0	0.01	0.00	0.01	98	6.4	1
1	805	Occupancy Sensor	SIC39_21_31-Misc	20%	4%	0.04	1.08	0.87	0.13	9	0.7	0.02	0.08	0.03	1,309	2.4	3
1	900	Base Other	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.13	15	0.0	0.00	0.00	N/A	N/A	N/A	N/A
1	901	Replace V-belts	SIC39_21_31-Misc	0%	0%	0.00	1.06	1.06	0.13	5	0.0	0.00	0.00	0.04	351	2.0	2

Appendix D

Supply-Curve Adjusted Energy Efficiency Measure Results

D. Supply-Curve Adjusted Energy Efficiency Measure Results

Energy Supply Curve				
Sector	Measure Number	Measure	Measure GWH Savings	Marginal Energy Cost $/kWH
Residental	109	HVAC Proper Sizing	17.31	$0.00
Residental	135	HVAC Proper Sizing	9.08	$0.00
Residental	901	Energy Star TV	6.39	$0.00
Residental	911	Energy Star TV	17.55	$0.00
Residental	921	Energy Star Set-Top Box	58.80	$0.00
Residental	931	Energy Star DVD Player	16.03	$0.00
Residental	941	Energy Star VCR	6.67	$0.00
Residental	951	Energy Star Desktop PC	25.73	$0.00
Residental	961	Energy Star Laptop PC	2.93	$0.00
Residental	241	CFL (18-Watt integral ballast), 6.0 hr/day	314.51	$0.01
Residental	231	CFL (18-Watt integral ballast), 2.5 hr/day	611.54	$0.01
Residental	408	Water Heater Blanket	132.70	$0.01
Residental	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	121.21	$0.01
Residental	411	Heat Trap	143.79	$0.02
Residental	802	High Efficiency One Speed Pool Pump (1.5 hp)	215.57	$0.02
Residental	251	ROB 2L4'T8, 1EB	21.91	$0.02
Residental	221	CFL (18-Watt integral ballast), 0.5 hr/day	69.89	$0.02
Residental	407	Faucet Aerators	55.00	$0.02
Residental	252	RET 2L4'T8, 1EB	76.72	$0.02
Residental	405	Low Flow Showerhead	104.29	$0.03
Residental	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	113.18	$0.03
Residental	140	Proper Refrigerant Charging and Air Flow	94.64	$0.04
Residental	114	Proper Refrigerant Charging and Air Flow	185.59	$0.04
Residental	301	HE Refrigerator - Energy Star version of above	230.70	$0.04
Residental	801	Two Speed Pool Pump (1.5 hp)	210.32	$0.04
Residental	117	Reflective Roof	225.44	$0.06
Residental	120	Window Tinting	17.38	$0.06
Residental	138	AC Maintenance (Outdoor Coil Cleaning)	93.60	$0.06
Residental	112	AC Maintenance (Outdoor Coil Cleaning)	180.00	$0.06
Residental	143	Reflective Roof	112.64	$0.06
Residental	409	Water Heater Temperature Check and Adjustment	7.93	$0.07
Residental	121	Default Window With Sunscreen	161.27	$0.07
Residental	146	Window Tinting	7.92	$0.08
Residental	198	Window Tinting	0.78	$0.09
Residental	406	Pipe Wrap	31.24	$0.09
Residental	351	HE Freezer	20.48	$0.09
Residental	410	Water Heater Timeclock	71.12	$0.09
Residental	147	Default Window With Sunscreen	74.88	$0.09
Residental	191	HE Room Air Conditioner - EER 11	19.36	$0.10
Residental	502	Energy Star CW CEE Tier 2 (MEF=2.0)	209.34	$0.10
Residental	196	Reflective Roof	9.27	$0.10
Residental	199	Default Window With Sunscreen	6.76	$0.11
Residental	139	AC Maintenance (Indoor Coil Cleaning)	87.63	$0.11
Residental	113	AC Maintenance (Indoor Coil Cleaning)	168.48	$0.12
Residental	122	Single Pane Clear Windows to Double Pane Low-E Windows	105.01	$0.13
Residental	803	Variable-Speed Pool Pump (<1 hp)	238.65	$0.14
Residental	610	High Efficiency CD (EF=3.01 w/moisture sensor)	96.88	$0.16
Residental	148	Single Pane Clear Windows to Double Pane Low-E Windows	53.03	$0.16
Residental	401	Heat Pump Water Heater (EF=2.9)	775.60	$0.17
Residental	116	Duct Repair	219.83	$0.18
Residental	142	Duct Repair	109.04	$0.18
Residental	119	Window Film	55.57	$0.19
Residental	200	Single Pane Clear Windows to Double Pane Low-E Windows	4.32	$0.22
Residental	701	Energy Star DW (EF=0.68)	152.74	$0.23
Residental	145	Window Film	28.88	$0.24
Residental	127	Weather Strip/Caulk w/Blower Door	22.00	$0.24
Residental	153	Weather Strip/Caulk w/Blower Door	10.86	$0.25
Residental	202	Ceiling R-0 to R-19 Insulation	2.16	$0.25
Residental	197	Window Film	2.82	$0.27
Residental	503	Energy Star CW CEE Tier 3 (MEF=2.2)	79.40	$0.27
Residental	101	14 SEER Split-System Air Conditioner	54.07	$0.30

Summer Peak Capacity Supply Curve				
End Use	Measure Number	Measure	Measure MW Savings	Marginal Capacity Cost $/kW
Residental	109	HVAC Proper Sizing	23.17	$0
Residental	135	HVAC Proper Sizing	11.96	$0
Residental	901	Energy Star TV	0.80	$0
Residental	911	Energy Star TV	2.20	$0
Residental	921	Energy Star Set-Top Box	7.39	$0
Residental	931	Energy Star DVD Player	2.01	$0
Residental	941	Energy Star VCR	0.84	$0
Residental	951	Energy Star Desktop PC	3.23	$0
Residental	961	Energy Star Laptop PC	0.37	$0
Residental	141	Electronically Commutated Motors (ECM) on an Air Handler Unit	38.99	$44
Residental	802	High Efficiency One Speed Pool Pump (1.5 hp)	46.03	$79
Residental	115	Electronically Commutated Motors (ECM) on an Air Handler Unit	38.38	$89
Residental	121	Default Window With Sunscreen	120.86	$91
Residental	114	Proper Refrigerant Charging and Air Flow	73.14	$92
Residental	140	Proper Refrigerant Charging and Air Flow	36.68	$92
Residental	120	Window Tinting	8.06	$121
Residental	147	Default Window With Sunscreen	55.14	$127
Residental	117	Reflective Roof	91.49	$137
Residental	408	Water Heater Blanket	10.51	$149
Residental	199	Default Window With Sunscreen	5.13	$149
Residental	138	AC Maintenance (Outdoor Coil Cleaning)	36.72	$153
Residental	112	AC Maintenance (Outdoor Coil Cleaning)	71.76	$156
Residental	143	Reflective Roof	43.36	$165
Residental	146	Window Tinting	3.61	$172
Residental	191	HE Room Air Conditioner - EER 11	10.02	$184
Residental	198	Window Tinting	0.37	$184
Residental	241	CFL (18-Watt integral ballast), 6.0 hr/day	16.46	$195
Residental	801	Two Speed Pool Pump (1.5 hp)	44.90	$210
Residental	411	Heat Trap	11.39	$212
Residental	231	CFL (18-Watt integral ballast), 2.5 hr/day	32.00	$212
Residental	196	Reflective Roof	3.68	$258
Residental	407	Faucet Aerators	4.38	$285
Residental	139	AC Maintenance (Indoor Coil Cleaning)	34.40	$290
Residental	113	AC Maintenance (Indoor Coil Cleaning)	67.21	$295
Residental	122	Single Pane Clear Windows to Double Pane Low-E Windows	43.21	$312
Residental	301	HE Refrigerator - Energy Star version of above	30.67	$331
Residental	142	Duct Repair	59.59	$334
Residental	251	ROB 2L4'T8, 1EB	1.15	$337
Residental	405	Low Flow Showerhead	8.34	$361
Residental	221	CFL (18-Watt integral ballast), 0.5 hr/day	3.66	$380
Residental	116	Duct Repair	101.07	$392
Residental	148	Single Pane Clear Windows to Double Pane Low-E Windows	21.41	$402
Residental	252	RET 2L4'T8, 1EB	4.01	$462
Residental	200	Single Pane Clear Windows to Double Pane Low-E Windows	1.79	$526
Residental	119	Window Film	19.00	$565
Residental	101	14 SEER Split-System Air Conditioner	25.92	$626
Residental	803	Variable-Speed Pool Pump (<1 hp)	50.95	$651
Residental	351	HE Freezer	2.72	$681
Residental	502	Energy Star CW CEE Tier 2 (MEF=2.0)	29.41	$708
Residental	202	Ceiling R-0 to R-19 Insulation	0.74	$739
Residental	124	Ceiling R-0 to R-19 Insulation	8.41	$806
Residental	192	HE Room Air Conditioner - EER 12	3.39	$845
Residental	409	Water Heater Temperature Check and Adjustment	0.63	$846
Residental	145	Window Film	8.09	$849
Residental	150	Ceiling R-0 to R-19 Insulation	3.58	$892
Residental	197	Window Film	0.81	$921
Residental	404	AC Heat Recovery Units	73.05	$961
Residental	610	High Efficiency CD (EF=3.01 w/moisture sensor)	15.64	$973
Residental	102	15 SEER Split-System Air Conditioner	20.28	$978
Residental	406	Pipe Wrap	2.48	$1,136
Residental	410	Water Heater Timeclock	5.63	$1,168

D. Supply-Curve Adjusted Energy Efficiency Measure Results

Energy Supply Curve				
Sector	Measure Number	Measure	Measure GWH Savings	Marginal Energy Cost $/kWH
Residental	124	Ceiling R-0 to R-19 Insulation	22.36	$0.30
Residental	105	14 SEER Split-System Heat Pump	171.37	$0.31
Residental	150	Ceiling R-0 to R-19 Insulation	10.12	$0.32
Residental	404	AC Heat Recovery Units	208.69	$0.34
Residental	192	HE Room Air Conditioner - EER 12	6.55	$0.44
Residental	102	15 SEER Split-System Air Conditioner	38.43	$0.52
Residental	205	Weather Strip/Caulk w/Blower Door	0.82	$0.52
Residental	106	15 SEER Split-System Heat Pump	62.95	$0.58
Residental	132	15 SEER Split-System Heat Pump	141.82	$0.65
Residental	804	PV-Powered Pool Pumps	152.98	$0.69
Residental	103	17 SEER Split-System Air Conditioner	51.88	$0.71
Residental	131	14 SEER Split-System Heat Pump	66.88	$0.81
Residental	118	Radient Barrier	162.08	$0.92
Residental	107	17 SEER Split-System Heat Pump	82.73	$0.95
Residental	133	17 SEER Split-System Heat Pump	180.39	$0.95
Residental	104	19 SEER Split-System Air Conditioner	38.62	$0.97
Residental	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	156.98	$1.37
Residental	144	Radient Barrier	82.70	$1.38
Residental	137	Sealed Attics	66.16	$1.86
Residental	403	Solar Water Heat	41.11	$4.12
Residental	203	Ceiling R-19 to R-38 Insulation	0.61	$6.58
Residental	125	Ceiling R-19 to R-38 Insulation	5.44	$9.60
Residental	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	11.03	$11.67
Residental	151	Ceiling R-19 to R-38 Insulation	2.21	$13.36
Residental	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	0.66	$13.51
Residental	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	4.36	$19.47
Commercial	317	Thermal Energy Storage (TES)	-5.60	-$0.41
Commercial	711	Energy Star or Better Monitor	10.36	$0.00
Commercial	721	Energy Star or Better Monitor	0.00	$0.00
Commercial	731	Energy Star or Better Copier	1.94	$0.00
Commercial	609	Heat Trap	10.23	$0.00
Commercial	407	Separate Makeup Air / Exhaust Hoods AC	36.90	$0.00
Commercial	510	Demand Defrost Electric	41.30	$0.00
Commercial	151	PSMH, 250W, magnetic ballast	58.25	$0.01
Commercial	702	PC Network Power Management Enabling	81.11	$0.01
Commercial	329	Aerosole Duct Sealing	109.89	$0.01
Commercial	516	Freezer-Cooler Replacement Gaskets	17.63	$0.01
Commercial	344	Aerosole Duct Sealing	9.53	$0.01
Commercial	505	Efficient compressor motor	24.34	$0.01
Commercial	507	Floating head pressure controls	8.47	$0.01
Commercial	509	Demand Hot Gas Defrost	3.63	$0.01
Commercial	111	Premium T8, Elecctronic Ballast	243.42	$0.01
Commercial	308	Aerosole Duct Sealing	35.05	$0.01
Commercial	712	Monitor Power Management Enabling	38.15	$0.01
Commercial	131	CFL Screw-in 18W	402.28	$0.01
Commercial	153	High Bay T5	50.01	$0.01
Commercial	327	DX Coil Cleaning	38.45	$0.01
Commercial	502	Strip curtains for walk-ins	13.18	$0.02
Commercial	115	Lighting Control Tuneup	4.97	$0.02
Commercial	122	ROB Premium T8, EB, Reflector	55.06	$0.02
Commercial	112	Premium T8, EB, Reflector	97.32	$0.02
Commercial	511	Anti-sweat (humidistat) controls	17.03	$0.02
Commercial	161	LED Exit Sign	36.60	$0.02
Commercial	901	Vending Misers (cooled machines only)	36.53	$0.02
Commercial	701	PC Manual Power Management Enabling	43.73	$0.02
Commercial	121	ROB Premium T8, 1EB	70.69	$0.02
Commercial	503	Night covers for display cases	11.94	$0.02
Commercial	306	VSD for Chiller Pumps and Towers	31.40	$0.02
Commercial	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	64.83	$0.02
Commercial	328	Optimize Controls	25.92	$0.02
Commercial	124	Lighting Control Tuneup	2.13	$0.03

Summer Peak Capacity Supply Curve				
End Use	Measure Number	Measure	Measure MW Savings	Marginal Capacity Cost $/kW
Residental	103	17 SEER Split-System Air Conditioner	29.32	$1,252
Residental	132	15 SEER Split-System Heat Pump	58.57	$1,585
Residental	118	Radient Barrier	91.96	$1,629
Residental	104	19 SEER Split-System Air Conditioner	21.82	$1,719
Residental	503	Energy Star CW CEE Tier 3 (MEF=2.2)	11.16	$1,945
Residental	105	14 SEER Split-System Heat Pump	26.20	$2,057
Residental	401	Heat Pump Water Heater (EF=2.9)	61.43	$2,102
Residental	131	14 SEER Split-System Heat Pump	25.30	$2,141
Residental	133	17 SEER Split-System Heat Pump	79.26	$2,171
Residental	701	Energy Star DW (EF=0.68)	14.98	$2,344
Residental	144	Radient Barrier	46.19	$2,471
Residental	106	15 SEER Split-System Heat Pump	14.68	$2,483
Residental	107	17 SEER Split-System Heat Pump	25.45	$3,075
Residental	804	PV-Powered Pool Pumps	32.66	$3,209
Residental	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	57.11	$3,779
Residental	137	Sealed Attics	23.02	$5,357
Residental	127	Weather Strip/Caulk w/Blower Door	0.69	$7,734
Residental	153	Weather Strip/Caulk w/Blower Door	0.34	$8,000
Residental	205	Weather Strip/Caulk w/Blower Door	0.03	$16,549
Residental	203	Ceiling R-19 to R-38 Insulation	0.20	$20,020
Residental	125	Ceiling R-19 to R-38 Insulation	1.97	$26,594
Residental	126	Wall 2x4 R-0 to Blow-In R-13 Insulation	3.96	$32,529
Residental	403	Solar Water Heat	4.65	$36,426
Residental	151	Ceiling R-19 to R-38 Insulation	0.76	$38,906
Residental	204	Wall 2x4 R-0 to Blow-In R-13 Insulation	0.22	$41,146
Residental	152	Wall 2x4 R-0 to Blow-In R-13 Insulation	1.49	$56,983
Commercial	711	Energy Star or Better Monitor	1.34	$0
Commercial	721	Energy Star or Better Monitor	0.00	$0
Commercial	731	Energy Star or Better Copier	0.26	$0
Commercial	609	Heat Trap	1.35	$5
Commercial	407	Separate Makeup Air / Exhaust Hoods AC	4.84	$6
Commercial	510	Demand Defrost Electric	5.12	$17
Commercial	329	Aerosole Duct Sealing	22.47	$26
Commercial	151	PSMH, 250W, magnetic ballast	11.63	$26
Commercial	344	Aerosole Duct Sealing	2.05	$30
Commercial	327	DX Coil Cleaning	11.62	$46
Commercial	516	Freezer-Cooler Replacement Gaskets	2.19	$47
Commercial	308	Aerosole Duct Sealing	6.94	$50
Commercial	111	Premium T8, Elecctronic Ballast	46.93	$51
Commercial	505	Efficient compressor motor	3.02	$57
Commercial	507	Floating head pressure controls	1.05	$59
Commercial	334	Ceiling Insulation	45.32	$60
Commercial	509	Demand Hot Gas Defrost	0.45	$61
Commercial	702	PC Network Power Management Enabling	6.92	$62
Commercial	349	Ceiling Insulation	4.14	$65
Commercial	131	CFL Screw-in 18W	77.89	$68
Commercial	153	High Bay T5	9.98	$69
Commercial	335	Roof Insulation	14.59	$73
Commercial	350	Roof Insulation	1.34	$78
Commercial	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	19.21	$78
Commercial	122	ROB Premium T8, EB, Reflector	10.97	$80
Commercial	115	Lighting Control Tuneup	0.98	$81
Commercial	112	Premium T8, EB, Reflector	18.88	$88
Commercial	121	ROB Premium T8, 1EB	14.10	$101
Commercial	306	VSD for Chiller Pumps and Towers	6.23	$114
Commercial	317	Thermal Energy Storage (TES)	19.55	$118
Commercial	124	Lighting Control Tuneup	0.43	$127
Commercial	502	Strip curtains for walk-ins	1.63	$128
Commercial	712	Monitor Power Management Enabling	3.26	$133
Commercial	313	Ceiling Insulation	11.95	$134
Commercial	161	LED Exit Sign	5.22	$135

D. Supply-Curve Adjusted Energy Efficiency Measure Results

Energy Supply Curve				
Sector	Measure Number	Measure	Measure GWH Savings	Marginal Energy Cost $/kWH
Commercial	741	Printer Power Management Enabling	39.13	$0.03
Commercial	361	HE PTAC, EER=9.6, 1 ton	59.21	$0.03
Commercial	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	141.91	$0.03
Commercial	515	Oversized Air Cooled Condenser	17.70	$0.03
Commercial	608	Heat Recovery Unit	73.71	$0.03
Commercial	334	Ceiling Insulation	76.23	$0.04
Commercial	403	Air Handler Optimization	55.24	$0.04
Commercial	302	High Efficiency Chiller Motors	15.60	$0.04
Commercial	307	EMS Optimization	11.11	$0.04
Commercial	603	Heat Pump Water Heater (air source)	75.63	$0.04
Commercial	322	Hybrid Dessicant-DX System (Trane CDQ)	275.36	$0.04
Commercial	335	Roof Insulation	26.58	$0.04
Commercial	349	Ceiling Insulation	6.60	$0.04
Commercial	141	CFL Hardwired, Modular 18W	134.09	$0.04
Commercial	402	Variable Speed Drive Control	76.20	$0.04
Commercial	332	Window Film (Standard)	43.43	$0.04
Commercial	347	Window Film (Standard)	2.79	$0.04
Commercial	350	Roof Insulation	2.32	$0.05
Commercial	506	Compressor VSD retrofit	10.11	$0.05
Commercial	326	DX Tune Up/ Advanced Diagnostics	24.59	$0.05
Commercial	305	Chiller Tune Up/Diagnostics	17.45	$0.05
Commercial	732	Copier Power Management Enabling	7.73	$0.05
Commercial	501	High-efficiency fan motors	44.93	$0.05
Commercial	304	EMS - Chiller	4.37	$0.05
Commercial	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	11.43	$0.06
Commercial	362	Occupancy Sensor (hotels)	51.81	$0.06
Commercial	601	High Efficiency Water Heater (electric)	2.21	$0.06
Commercial	202	Outdoor Lighting Controls (Photocell/Timeclock)	6.84	$0.06
Commercial	513	High R-Value Glass Doors	5.25	$0.07
Commercial	508	Refrigeration Commissioning	8.91	$0.08
Commercial	336	Cool Roof - DX	148.59	$0.08
Commercial	313	Ceiling Insulation	19.54	$0.08
Commercial	321	DX Packaged System, EER=10.9, 10 tons	43.53	$0.08
Commercial	351	Cool Roof - DX	11.91	$0.08
Commercial	314	Roof Insulation	6.78	$0.09
Commercial	311	Window Film (Standard)	10.82	$0.11
Commercial	514	Multiplex Compressor System	25.48	$0.11
Commercial	504	Evaporator fan controller for MT walk-ins	1.47	$0.12
Commercial	517	LED Display Lighting	2.42	$0.14
Commercial	113	Occupancy Sensor	55.60	$0.15
Commercial	123	Occupancy Sensor	25.52	$0.16
Commercial	211	Outdoor Lighting Controls (Photocell/Timeclock)	10.09	$0.17
Commercial	315	Cool Roof - Chiller	43.73	$0.18
Commercial	342	Geothermal Heat Pump, EER=13, 10 tons	15.38	$0.20
Commercial	323	Geothermal Heat Pump, EER=13, 10 tons	131.35	$0.24
Commercial	606	Demand controlled circulating systems	1.88	$0.27
Commercial	201	High Pressure Sodium 250W Lamp	85.05	$0.27
Commercial	406	Energy Recovery Ventilation (ERV)	29.44	$0.33
Commercial	610	Hot Water Pipe Insulation	0.40	$0.33
Commercial	722	Monitor Power Management Enabling	0.07	$0.34
Commercial	114	Continuous Dimming	96.56	$0.42
Commercial	341	Packaged HP System, EER=10.9, 10 tons	9.06	$0.45
Commercial	345	Duct/Pipe Insulation	1.20	$1.02
Commercial	330	Duct/Pipe Insulation	11.17	$1.14
Commercial	405	Demand Control Ventilation (DCV)	61.84	$1.58
Commercial	309	Duct/Pipe Insulation	3.93	$1.90
Commercial	604	Solar Water Heater	0.93	$1.97
Commercial	811	Efficient Fryer	16.54	$73.67
Commercial	801	Convection Oven	14.96	$160.81
Industrial	209	Fans - ASD (6-100 hp)	4.55	$0.01
Industrial	309	Pumps - ASD (6-100 hp)	7.51	$0.01

Summer Peak Capacity Supply Curve				
End Use	Measure Number	Measure	Measure MW Savings	Marginal Capacity Cost $/kW
Commercial	326	DX Tune Up/ Advanced Diagnostics	7.43	$153
Commercial	305	Chiller Tune Up/Diagnostics	5.08	$159
Commercial	302	High Efficiency Chiller Motors	3.25	$173
Commercial	314	Roof Insulation	3.50	$179
Commercial	361	HE PTAC, EER=9.6, 1 ton	9.03	$192
Commercial	347	Window Film (Standard)	0.60	$208
Commercial	332	Window Film (Standard)	9.00	$214
Commercial	141	CFL Hardwired, Modular 18W	25.96	$216
Commercial	351	Cool Roof - DX	4.56	$220
Commercial	336	Cool Roof - DX	53.39	$222
Commercial	701	PC Manual Power Management Enabling	3.73	$229
Commercial	404	Electronically Commutated Motors (ECM) on an Air Handler Unit	18.52	$231
Commercial	515	Oversized Air Cooled Condenser	2.19	$246
Commercial	901	Vending Misers (cooled machines only)	2.84	$249
Commercial	608	Heat Recovery Unit	9.71	$251
Commercial	304	EMS - Chiller	0.86	$261
Commercial	322	Hybrid Dessicant-DX System (Trane CDQ)	41.15	$267
Commercial	511	Anti-sweat (humidistat) controls	1.06	$276
Commercial	603	Heat Pump Water Heater (air source)	9.99	$291
Commercial	741	Printer Power Management Enabling	3.40	$303
Commercial	501	High-efficiency fan motors	5.57	$394
Commercial	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	1.52	$417
Commercial	315	Cool Roof - Chiller	18.54	$420
Commercial	406	Energy Recovery Ventilation (ERV)	21.25	$453
Commercial	601	High Efficiency Water Heater (electric)	0.29	$453
Commercial	328	Optimize Controls	1.33	$479
Commercial	342	Geothermal Heat Pump, EER=13, 10 tons	5.93	$508
Commercial	311	Window Film (Standard)	2.24	$515
Commercial	513	High R-Value Glass Doors	0.65	$535
Commercial	732	Copier Power Management Enabling	0.67	$542
Commercial	321	DX Packaged System, EER=10.9, 10 tons	6.49	$556
Commercial	508	Refrigeration Commissioning	1.10	$613
Commercial	506	Compressor VSD retrofit	0.63	$728
Commercial	307	EMS Optimization	0.55	$774
Commercial	202	Outdoor Lighting Controls (Photocell/Timeclock)	0.53	$786
Commercial	113	Occupancy Sensor	10.72	$790
Commercial	123	Occupancy Sensor	5.05	$798
Commercial	514	Multiplex Compressor System	3.16	$924
Commercial	504	Evaporator fan controller for MT walk-ins	0.18	$971
Commercial	403	Air Handler Optimization	1.88	$1,057
Commercial	362	Occupancy Sensor (hotels)	2.71	$1,063
Commercial	517	LED Display Lighting	0.30	$1,156
Commercial	402	Variable Speed Drive Control	2.80	$1,162
Commercial	341	Packaged HP System, EER=10.9, 10 tons	2.78	$1,470
Commercial	323	Geothermal Heat Pump, EER=13, 10 tons	19.63	$1,613
Commercial	114	Continuous Dimming	18.53	$2,203
Commercial	606	Demand controlled circulating systems	0.23	$2,240
Commercial	211	Outdoor Lighting Controls (Photocell/Timeclock)	0.76	$2,276
Commercial	610	Hot Water Pipe Insulation	0.05	$2,469
Commercial	405	Demand Control Ventilation (DCV)	32.79	$2,978
Commercial	201	High Pressure Sodium 250W Lamp	6.57	$3,523
Commercial	722	Monitor Power Management Enabling	0.01	$3,972
Commercial	345	Duct/Pipe Insulation	0.26	$4,752
Commercial	330	Duct/Pipe Insulation	2.29	$5,557
Commercial	309	Duct/Pipe Insulation	0.78	$9,585
Commercial	604	Solar Water Heater	0.12	$14,806
Commercial	811	Efficient Fryer	2.42	$502,673
Commercial	801	Convection Oven	2.08	$1,157,974
Commercial	503	Night covers for display cases	0.00	N/A
Industrial	727	Aerosole Duct Sealing	1.01	$41
Industrial	417	O&M - Extruders/Injection Moulding	0.69	$47

D. Supply-Curve Adjusted Energy Efficiency Measure Results

Energy Supply Curve				
Sector	Measure Number	Measure	Measure GWH Savings	Marginal Energy Cost $/kWH
Industrial	109	Comp Air - ASD (6-100 hp)	4.54	$0.01
Industrial	417	O&M - Extruders/Injection Moulding	4.95	$0.01
Industrial	727	Aerosole Duct Sealing	5.58	$0.01
Industrial	301	Pumps - O&M	15.07	$0.01
Industrial	401	Bakery - Process (Mixing) - O&M	4.97	$0.01
Industrial	104	Compressed Air- Sizing	7.97	$0.01
Industrial	403	Air conveying systems	2.19	$0.01
Industrial	201	Fans - O&M	2.20	$0.01
Industrial	801	Premium T8, Elecctronic Ballast	45.23	$0.01
Industrial	551	Efficient Refrigeration - Operations	3.24	$0.01
Industrial	407	High Consistency forming	0.45	$0.01
Industrial	406	Gap Forming papermachine	0.46	$0.01
Industrial	409	Efficient practices printing press	2.19	$0.01
Industrial	101	Compressed Air-O&M	26.50	$0.01
Industrial	507	Near Net Shape Casting	0.04	$0.01
Industrial	803	CFL Screw-in 18W	8.26	$0.01
Industrial	501	Bakery - Process	1.96	$0.01
Industrial	510	Heating - Optimization process (M&T)	1.10	$0.01
Industrial	427	Drives - Optimization process (M&T)	2.04	$0.01
Industrial	302	Pumps - Controls	44.22	$0.01
Industrial	707	Aerosole Duct Sealing - Chiller	3.73	$0.01
Industrial	725	DX Coil Cleaning	2.68	$0.01
Industrial	103	Compressed Air - System Optimization	19.44	$0.01
Industrial	804	High Bay T5	4.48	$0.02
Industrial	204	Fans- Improve components	2.24	$0.02
Industrial	423	Process control	0.75	$0.02
Industrial	404	Replace V-Belts	1.01	$0.02
Industrial	304	Pumps - Sizing	14.04	$0.02
Industrial	504	Top-heating (glass)	0.37	$0.02
Industrial	604	Efficient processes (welding, etc.)	1.97	$0.02
Industrial	603	New transformers welding	0.89	$0.02
Industrial	212	Fans - ASD (100+ hp)	7.45	$0.02
Industrial	705	VSD for Chiller Pumps and Towers	2.97	$0.02
Industrial	607	Refinery Controls	0.00	$0.02
Industrial	426	Efficient drives - rolling	0.08	$0.03
Industrial	216	Refinery Controls	0.01	$0.03
Industrial	412	Efficient drives	0.43	$0.03
Industrial	312	Pumps - ASD (100+ hp)	10.01	$0.03
Industrial	405	Drives - EE motor	2.38	$0.03
Industrial	429	Machinery	1.05	$0.03
Industrial	430	Efficient Machinery	0.11	$0.03
Industrial	511	Heating - Scheduling	0.32	$0.03
Industrial	402	O&M/drives spinning machines	0.36	$0.03
Industrial	112	Comp Air - ASD (100+ hp)	5.52	$0.03
Industrial	602	Efficient desalter	0.00	$0.03
Industrial	428	Drives - Scheduling	0.99	$0.03
Industrial	102	Compressed Air - Controls	4.95	$0.03
Industrial	722	Hybrid Dessicant-DX System (Trane CDQ)	24.40	$0.03
Industrial	505	Efficient electric melting	0.16	$0.03
Industrial	315	Refinery Controls	0.08	$0.03
Industrial	303	Pumps - System Optimization	34.84	$0.03
Industrial	702	High Efficiency Chiller Motors	1.67	$0.03
Industrial	425	Drives - Process Control	0.07	$0.04
Industrial	508	Heating - Process Control	0.17	$0.04
Industrial	115	Refinery Controls	0.02	$0.04
Industrial	418	Extruders/injection Moulding-multipump	7.04	$0.04
Industrial	213	Fans - Motor practices-1 (100+ HP)	1.83	$0.04
Industrial	902	Membranes for wastewater	0.01	$0.04
Industrial	726	Optimize Controls	1.03	$0.04
Industrial	210	Fans - Motor practices-1 (6-100 HP)	1.75	$0.04
Industrial	413	Clean Room - Controls	1.68	$0.04

Summer Peak Capacity Supply Curve				
End Use	Measure Number	Measure	Measure MW Savings	Marginal Capacity Cost $/kW
Industrial	551	Efficient Refrigeration - Operations	0.55	$52
Industrial	104	Compressed Air- Sizing	1.17	$54
Industrial	401	Bakery - Process (Mixing) - O&M	0.68	$58
Industrial	801	Premium T8, Elecctronic Ballast	6.56	$60
Industrial	301	Pumps - O&M	1.93	$61
Industrial	507	Near Net Shape Casting	0.01	$62
Industrial	201	Fans - O&M	0.29	$63
Industrial	101	Compressed Air-O&M	3.88	$68
Industrial	707	Aerosole Duct Sealing - Chiller	0.68	$71
Industrial	427	Drives - Optimization process (M&T)	0.36	$71
Industrial	510	Heating - Optimization process (M&T)	0.19	$72
Industrial	409	Efficient practices printing press	0.30	$73
Industrial	803	CFL Screw-in 18W	1.17	$77
Industrial	725	DX Coil Cleaning	0.48	$79
Industrial	407	High Consistency forming	0.05	$84
Industrial	406	Gap Forming papermachine	0.05	$85
Industrial	501	Bakery - Process	0.27	$88
Industrial	404	Replace V-Belts	0.17	$96
Industrial	103	Compressed Air - System Optimization	2.84	$98
Industrial	302	Pumps - Controls	5.67	$98
Industrial	804	High Bay T5	0.62	$110
Industrial	402	O&M/drives spinning machines	0.09	$116
Industrial	204	Fans- Improve components	0.30	$120
Industrial	603	New transformers welding	0.15	$128
Industrial	304	Pumps - Sizing	1.80	$132
Industrial	423	Process control	0.09	$143
Industrial	426	Efficient drives - rolling	0.01	$145
Industrial	902	Membranes for wastewater	0.00	$150
Industrial	604	Efficient processes (welding, etc.)	0.27	$155
Industrial	504	Top-heating (glass)	0.04	$162
Industrial	429	Machinery	0.18	$167
Industrial	722	Hybrid Dessicant-DX System (Trane CDQ)	4.39	$178
Industrial	505	Efficient electric melting	0.03	$185
Industrial	702	High Efficiency Chiller Motors	0.30	$188
Industrial	403	Air conveying systems	0.09	$190
Industrial	412	Efficient drives	0.06	$199
Industrial	425	Drives - Process Control	0.01	$206
Industrial	508	Heating - Process Control	0.03	$207
Industrial	102	Compressed Air - Controls	0.72	$208
Industrial	405	Drives - EE motor	0.31	$213
Industrial	726	Optimize Controls	0.19	$214
Industrial	430	Efficient Machinery	0.01	$229
Industrial	214	Optimize drying process	0.18	$233
Industrial	552	Optimization Refrigeration	0.95	$237
Industrial	303	Pumps - System Optimization	4.47	$262
Industrial	418	Extruders/injection Moulding-multipump	0.98	$265
Industrial	706	EMS Optimization - Chiller	0.20	$265
Industrial	607	Refinery Controls	0.00	$275
Industrial	509	Efficient Curing ovens	0.65	$275
Industrial	213	Fans - Motor practices-1 (100+ HP)	0.25	$277
Industrial	210	Fans - Motor practices-1 (6-100 HP)	0.23	$292
Industrial	502	Drying (UV/IR)	0.02	$296
Industrial	216	Refinery Controls	0.00	$297
Industrial	901	Replace V-belts	0.01	$302
Industrial	802	CFL Hardwired, Modular 18W	0.91	$313
Industrial	420	Injection Moulding - Impulse Cooling	0.36	$319
Industrial	704	Chiller Tune Up/Diagnostics	0.32	$320
Industrial	730	Roof Insulation	0.20	$323
Industrial	410	Efficient Printing press (fewer cylinders)	0.25	$323
Industrial	602	Efficient desalter	0.00	$335
Industrial	202	Fans - Controls	2.50	$335

D. Supply-Curve Adjusted Energy Efficiency Measure Results

Energy Supply Curve				
Sector	Measure Number	Measure	Measure GWH Savings	Marginal Energy Cost $/kWH
Industrial	552	Optimization Refrigeration	5.60	$0.04
Industrial	214	Optimize drying process	1.05	$0.04
Industrial	408	Optimization control PM	1.36	$0.04
Industrial	509	Efficient Curing ovens	4.33	$0.04
Industrial	203	Fans - System Optimization	7.78	$0.04
Industrial	805	Occupancy Sensor	7.40	$0.04
Industrial	502	Drying (UV/IR)	0.15	$0.04
Industrial	901	Replace V-belts	0.04	$0.04
Industrial	410	Efficient Printing press (fewer cylinders)	1.86	$0.04
Industrial	802	CFL Hardwired, Modular 18W	6.41	$0.04
Industrial	420	Injection Moulding - Impulse Cooling	2.56	$0.04
Industrial	202	Fans - Controls	18.70	$0.04
Industrial	424	Process optimization	0.49	$0.05
Industrial	605	Process control	0.01	$0.05
Industrial	601	Other Process Controls (batch + site)	1.33	$0.05
Industrial	706	EMS Optimization - Chiller	1.10	$0.05
Industrial	703	EMS - Chiller	0.35	$0.05
Industrial	113	Comp Air - Motor practices-1 (100+ HP)	1.29	$0.05
Industrial	416	Process Drives - ASD	0.21	$0.05
Industrial	313	Pumps - Motor practices-1 (100+ HP)	2.10	$0.05
Industrial	110	Comp Air - Motor practices-1 (6-100 HP)	1.23	$0.05
Industrial	606	Power recovery	0.00	$0.05
Industrial	310	Pumps - Motor practices-1 (6-100 HP)	2.00	$0.06
Industrial	419	Direct drive Extruders	3.61	$0.06
Industrial	414	Clean Room - New Designs	1.02	$0.06
Industrial	704	Chiller Tune Up/Diagnostics	1.74	$0.06
Industrial	730	Roof Insulation	1.13	$0.06
Industrial	215	Power recovery	0.00	$0.06
Industrial	207	Fans - Motor practices-1 (1-5 HP)	0.40	$0.07
Industrial	724	DX Tune Up/ Advanced Diagnostics	1.37	$0.07
Industrial	421	Injection Moulding - Direct drive	2.23	$0.07
Industrial	114	Power recovery	0.00	$0.07
Industrial	721	DX Packaged System, EER=10.9, 10 tons	7.79	$0.07
Industrial	314	Power recovery	0.01	$0.08
Industrial	729	Window Film (Standard)	1.71	$0.08
Industrial	503	Heat Pumps - Drying	0.32	$0.08
Industrial	107	Comp Air - Motor practices-1 (1-5 HP)	0.33	$0.08
Industrial	307	Pumps - Motor practices-1 (1-5 HP)	0.53	$0.09
Industrial	211	Fans - Replace 100+ HP motor	1.24	$0.09
Industrial	415	Drives - Process Controls (batch + site)	2.36	$0.10
Industrial	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	8.46	$0.10
Industrial	111	Comp Air - Replace 100+ HP motor	1.01	$0.10
Industrial	710	Roof Insulation - Chiller	0.74	$0.10
Industrial	311	Pumps - Replace 100+ HP motor	1.65	$0.11
Industrial	422	Efficient grinding	3.63	$0.11
Industrial	731	Cool Roof - DX	6.77	$0.11
Industrial	709	Window Film (Standard) - Chiller	1.24	$0.12

Summer Peak Capacity Supply Curve				
End Use	Measure Number	Measure	Measure MW Savings	Marginal Capacity Cost $/kW
Industrial	413	Clean Room - Controls	0.20	$338
Industrial	113	Comp Air - Motor practices-1 (100+ HP)	0.19	$347
Industrial	408	Optimization control PM	0.16	$354
Industrial	110	Comp Air - Motor practices-1 (6-100 HP)	0.18	$365
Industrial	315	Refinery Controls	0.01	$367
Industrial	605	Process control	0.00	$371
Industrial	724	DX Tune Up/ Advanced Diagnostics	0.25	$395
Industrial	419	Direct drive Extruders	0.50	$401
Industrial	424	Process optimization	0.06	$403
Industrial	115	Refinery Controls	0.00	$405
Industrial	313	Pumps - Motor practices-1 (100+ HP)	0.27	$411
Industrial	729	Window Film (Standard)	0.31	$422
Industrial	310	Pumps - Motor practices-1 (6-100 HP)	0.26	$432
Industrial	503	Heat Pumps - Drying	0.05	$456
Industrial	109	Comp Air - ASD (6-100 hp)	0.06	$496
Industrial	421	Injection Moulding - Direct drive	0.31	$510
Industrial	601	Other Process Controls (batch + site)	0.12	$520
Industrial	207	Fans - Motor practices-1 (1-5 HP)	0.05	$521
Industrial	416	Process Drives - ASD	0.02	$526
Industrial	209	Fans - ASD (6-100 hp)	0.06	$540
Industrial	107	Comp Air - Motor practices-1 (1-5 HP)	0.05	$562
Industrial	309	Pumps - ASD (6-100 hp)	0.09	$564
Industrial	710	Roof Insulation - Chiller	0.14	$567
Industrial	606	Power recovery	0.00	$614
Industrial	731	Cool Roof - DX	1.23	$625
Industrial	414	Clean Room - New Designs	0.09	$637
Industrial	709	Window Film (Standard) - Chiller	0.23	$644
Industrial	211	Fans - Replace 100+ HP motor	0.17	$650
Industrial	203	Fans - System Optimization	0.49	$665
Industrial	307	Pumps - Motor practices-1 (1-5 HP)	0.07	$666
Industrial	705	VSD for Chiller Pumps and Towers	0.11	$667
Industrial	215	Power recovery	0.00	$690
Industrial	111	Comp Air - Replace 100+ HP motor	0.15	$701
Industrial	506	Intelligent extruder (DOE)	0.00	$781
Industrial	721	DX Packaged System, EER=10.9, 10 tons	0.70	$817
Industrial	114	Power recovery	0.00	$819
Industrial	311	Pumps - Replace 100+ HP motor	0.21	$831
Industrial	314	Power recovery	0.00	$851
Industrial	411	Light cylinders	0.11	$868
Industrial	511	Heating - Scheduling	0.01	$917
Industrial	415	Drives - Process Controls (batch + site)	0.24	$962
Industrial	422	Efficient grinding	0.42	$978
Industrial	428	Drives - Scheduling	0.03	$1,037
Industrial	711	Cool Roof - Chiller	0.84	$1,066
Industrial	208	Fans - Replace 6-100 HP motor	0.18	$1,313
Industrial	703	EMS - Chiller	0.01	$1,355
Industrial	108	Comp Air - Replace 6-100 HP motor	0.16	$1,417