



Colorado DSM Market Potential Assessment

Volume II - Appendices

Final Report to
XCEL ENERGY
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VOLUME I

SECTION E	EXECUTIVE SUMMARY	E-1
E.1	Scope and Approach	E-1
E.2	Results.....	E-2
E.2.1	Aggregate Results	E-2
E.2.2	Results by Sector.....	E-7
E.3	Recommendations for Future Study	E-10
SECTION 1	INTRODUCTION	1-1
1.1	Overview.....	1-1
1.2	Study Approach	1-1
1.3	Layout of the Report.....	1-2
SECTION 2	METHODS AND SCENARIOS.....	2-1
2.1	Characterizing the Energy Efficiency Resource.....	2-1
2.1.1	Defining Energy Efficiency Potential.....	2-1
2.2	Summary of Analytical Steps Used in this Study.....	2-3
2.3	Scenario Analysis.....	2-5
SECTION 3	BASELINE RESULTS.....	3-1
3.1	Overview.....	3-1
3.2	Residential.....	3-2
3.3	Commercial.....	3-9
3.4	Industrial	3-16
SECTION 4	DSM POTENTIAL RESULTS.....	4-1
4.1	Technical and Economic Potential.....	4-1
4.1.1	Overall Technical and Economic Potential.....	4-1
4.1.2	Technical and Economic Potential Detail.....	4-2
4.1.3	Energy Efficiency Supply Curves.....	4-6
4.2	Achievable (Program) Potential – Base Case 1	4-7
4.2.1	Breakdown of Achievable Potential	4-10
4.3	Program Sensitivity Analyses.....	4-20
4.3.1	Sensitivity Analysis One: Removing Incentive Constraints.....	4-20
4.3.2	Sensitivity Analysis Two: Inclusion of Natural Gas Benefits in the Residential Cost Effectiveness Screening.....	4-24
4.4	Achievable Potential – Base Case 2.....	4-27

VOLUME 2

APPENDIX A DETAILED METHODOLOGY AND MODEL DESCRIPTION A-1

- A.1 Overview of DSM Forecasting Method..... A-1
 - A.1.1 Estimate Technical Potential and Develop Energy-Efficiency Supply Curves..... A-2
 - A.1.2 Estimation of Economic Potential A-6
 - A.1.3 Estimation of Program and Naturally occurring Potentials A-10
 - A.1.4 Scenario Analyses..... A-16
 - A.1.5 Measure “Bundles” for Complex End Uses..... A-17
- A.2 DSM ASSYST™ Model Description..... A-18
 - A.2.1 Basic Module A-19
 - A.2.2 Supply Module..... A-21
 - A.2.3 Penetration Module..... A-21

APPENDIX B MEASURE DESCRIPTIONS B-1

- B.1 Residential Measures B-1
 - B.1.1 HVAC Equipment..... B-1
- B.2 Commercial Measures B-5
 - B.2.1 Lighting..... B-5
 - B.2.2 Space Cooling..... B-7
 - B.2.3 Ventilation..... B-10
 - B.2.4 Refrigeration B-10
 - B.2.5 Office Equipment..... B-12
- B.3 Industrial Measures..... B-12
 - B.3.1 Cross-Cutting Electricity Efficiency Measures B-12
 - B.3.2 Sector-Specific Efficiency Measures (Electricity)..... B-16

APPENDIX C ECONOMIC INPUTS..... C-1

APPENDIX D BUILDING AND TOU FACTOR INPUTS D-1

APPENDIX E MEASURE INPUTS..... E-1

APPENDIX F NON-ADDITIVE MEASURE LEVEL RESULTS..... F-1

APPENDIX G SUPPLY CURVE DATA..... G-1

APPENDIX H ACHIEVABLE PROGRAM POTENTIAL H-1

LIST OF TABLES

Table E-1	Summary of Achievable Potential Results—2006–2013	E-6
Table 3-1	Residential End Use Saturation and Unit Consumption.....	3-3
Table 3-2	Residential Lamp Counts per Home	3-8
Table 3-3	Commercial Baseline Consumption Summary.....	3-10
Table 2-1	Scenario Average Spending During 2006–2013 Forecast Period (\$1000s) Base Case 1	2-7
Table 2-2	Scenario Average Spending During 2006–2013 Forecast Period (\$1000s) Base Case 2.....	2-8
Table 4-1	Summary of Achievable Potential Results—2006–2013, Base Case 1	4-10
Table 4-2	Measure Specific Residential Results (Cumulative to 2013), Base Case 1	4-13
Table 4-3	Measure Specific Commercial Results (Cumulative to 2013), Base Case 1	4-17
Table 4-4	Measure Specific Industrial Results (Cumulative to 2013), Base Case 1	4-21
Table 4-5	Summary of Achievable Potential Results—2006–2013 No- Incentive-Cap Sensitivity Analysis.....	4-24
Table 4-6	Electric Benefits Share of Measures Saving Electricity and Natural Gas	4-25
Table 4-7	Measure Cost Effectiveness Screen with and without Gas Benefits	4-25
Table 4-8	Summary of Achievable Potential Results—2006–2013 Residential Gas Benefits Sensitivity Analysis.....	4-27
Table 4-9	Measure Specific Residential Results (Cumulative to 2013), Base Case 2.....	4-30
Table 4-10	Summary of Achievable Potential Results—2006–2013, Base Case 2.....	4-31
Table A-1	Example of Technical Potential Calculation—Replace 4-Lamp 4-Foot Standard T-8s with 4-Lamp 4-Foot Premium T-8s in the Office Segment of a Utility Service Territory (<i>Note: Data are illustrative only</i>).....	A-4
Table A-2	Sample Technical Potential Supply Curve Calculation for Commercial Lighting (<i>Note: Data are illustrative only</i>)	A-6
Table A-3	Summary of Benefits and Costs of California Standard Practice Manual Tests.....	A-8
Table A-4	Sample Use of Supply Curve Framework to Estimate Economic Potential (<i>Note: Data are illustrative only</i>).....	A-10
Table A-5	Summary Description of Market Barriers from Eto, Prahl, Schlegel 1997.....	A-15

Table A-6	Example Format of DSM ASSYST Achievable Potential Outputs.....	A-17
Table A-7	Example of Industrial Efficiency Levels Developed for a Recent California Potential Study.....	A-19

LIST OF FIGURES

Figure E-1	Estimated Energy Saving Potential, 2006-2013	E-3
Figure E-2	Estimated Peak Demand Saving Potential, 2006-2013, Base Case.....	E-3
Figure E-3	Achievable Energy Savings: All Sectors	E-4
Figure E-4	Achievable Peak-Demand Savings: All Sectors, Base Case	E-4
Figure E-5	Benefits and Costs of Energy Efficiency Savings—2006–2013* -Base Case 1.....	E-5
Figure E-6	Benefits and Costs of Energy Efficiency Savings—2006–2013* -Base Case 2.....	E-6
Figure E-7	Net Achievable Energy Savings (2013) by Sector—GWh/Year	E-7
Figure E-8	Net Achievable Peak Demand Savings (2013) by Sector—MW	E-7
Figure E-9	Base Residential Net Energy Savings Potential End Use Shares (2013) –50% Incentives	E-8
Figure E-10	Base Residential Net Peak Savings Potential End Use Shares (2013) – 50% Incentives	E-9
Figure E-11	Commercial Savings Potential – End Use Shares (2013) – 50% Incentives	E-9
Figure E-12	Industrial Savings Potential – End Use Shares (2013) – 50% Incentives	E-10
Figure 3-1	Energy Usage Breakdown – Xcel Energy Colorado Service Territory	3-2
Figure 3-2	Residential Energy Usage by End Use	3-3
Figure 3-3	Residential Peak Demand by End Use.....	3-4
Figure 3-4	Ceiling Insulation in Single Family Homes with Air Conditioning	3-5
Figure 3-5	Ceiling Insulation in New Homes.....	3-5
Figure 3-6	Wall Insulation Levels in Existing Homes	3-6
Figure 3-7	Wall Insulation in New Homes.....	3-6
Figure 3-8	Windows in New Homes	3-7
Figure 3-9	Distribution of Lamp Types in Colorado Homes	3-7
Figure 3-10	Clothes Washer Types in Residences	3-8
Figure 3-11	Commercial Electricity Usage by Building Type.....	3-11
Figure 3-12	Commercial Electricity Usage by End Use	3-11
Figure 3-13	Commercial Indoor Lighting Technologies.....	3-12
Figure 3-14	Lighting Efficiency in Commercial Fluorescent Fixtures	3-13
Figure 3-15	T8 Saturations by Building Size	3-13
Figure 3-16	Delamping Opportunities in Commercial Fluorescent Lighting	3-14

Figure 3-17	CFL Saturation and Feasibility	3-14
Figure 3-18	Distribution of Commercial Cooling Technologies.....	3-15
Figure 3-19	Saturation of Commercial Cooling Measures.....	3-15
Figure 3-20	Industrial Electricity Usage by Industry Type.....	3-16
Figure 3-21	Industrial Electricity Usage by End Use.....	3-17
Figure 2-1	Conceptual Framework for Estimates of Fossil Fuel Resources	2-2
Figure 2-2	Conceptual Relationship Among Energy Efficiency Potential Definitions.....	2-2
Figure 2-3	Conceptual Overview of Study Process.....	2-3
Figure 4-1	Estimated Electric Technical and Economic Potential, 2013 Xcel Energy Colorado Service Territory	4-2
Figure 4-2	Technical and Economic Potential (2013) Energy Savings by Sector—GWh per Year.....	4-3
Figure 4-3	Technical and Economic Potential (2013) Demand Savings by Sector—MW	4-3
Figure 4-4	Technical and Economic Potential (2013) Percentage of Base Energy Use.....	4-3
Figure 4-5	Technical and Economic Potential (2013) Percentage of Base Peak Demand	4-3
Figure 4-6	Residential Economic Energy Savings Potential by End Use (2013).....	4-4
Figure 4-7	Residential Economic Demand Savings Potential by End Use (2013).....	4-4
Figure 4-8	Commercial Economic Energy Savings Potential by End Use (2014).....	4-5
Figure 4-9	Commercial Economic Demand Savings Potential by End Use (2014).....	4-5
Figure 4-10	Industrial Economic Energy Savings Potential by End Use (2013).....	4-5
Figure 4-11	Industrial Economic Demand Savings Potential by End Use (2013).....	4-5
Figure 4-12	Energy Supply Curve*	4-6
Figure 4-13	Peak Demand Supply Curve*	4-7
Figure 4-14	Achievable Energy Savings: All Sectors, Base Case 1.....	4-8
Figure 4-15	Achievable Peak-Demand Savings: All Sectors, Base Case 1	4-8
Figure 4-16	Benefits and Costs of Energy Efficiency Savings—2006– 2013*, Base Case 1	4-9
Figure 4-17	Net Achievable Energy Savings (2013) by Sector—GWh per Year Base Case 1	4-10
Figure 4-18	Net Achievable Peak Demand Savings (2013) by Sector—MW Base Case 1	4-10
Figure 4-19	Achievable Energy Savings: Residential Sector, Base Case 1	4-11
Figure 4-20	Achievable Peak Demand Savings: Residential Sector, Base Case 1.....	4-11

Figure 4-21	Residential Net Energy Savings Potential End Use Shares (2013) – 50% Incentives Base Case 1.....	4-12
Figure 4-22	Residential Net Peak Savings Potential End Use Shares (2013) – 50% Incentives Base Case 1.....	4-12
Figure 4-23	Residential Net Energy Savings Potential by End Use (2013) – Across Scenarios Base Case 1.....	4-13
Figure 4-24	Residential Net Peak Savings Potential by End Use (2013) – Across Scenarios Base Case 1.....	4-13
Figure 4-25	Achievable Energy Savings: Commercial Sector, Base Case 1.....	4-15
Figure 4-26	Achievable Peak Demand Savings: Commercial Sector, Base Case 1.....	4-15
Figure 4-27	Commercial Net Energy Savings Potential End Use Shares (2013) – 50% Incentives Base Case 1.....	4-16
Figure 4-28	Commercial Net Peak Savings Potential End Use Shares (2013) – 50% Incentives Base Case 1.....	4-16
Figure 4-29	Commercial Net Energy Savings Potential by End Use (2013) – Across Scenarios Base Case 1.....	4-16
Figure 4-30	Commercial Net Peak Savings Potential by End Use (2013) – Across Scenarios Base Case 1.....	4-16
Figure 4-31	Achievable Energy Savings: Industrial Sector, Base Case 1.....	4-18
Figure 4-32	Achievable Peak Demand Savings: Industrial Sector, Base Case 1.....	4-18
Figure 4-33	Industrial Net Energy Savings Potential End Use Shares (2013) – 50% Incentives Base Case 1.....	4-19
Figure 4-34	Industrial Net Peak Savings Potential End Use Shares (2013) – 50% Incentives Base Case 1.....	4-19
Figure 4-35	Industrial Net Energy Savings Potential by End Use (2013) – Across Scenarios Base Case 1.....	4-20
Figure 4-36	Industrial Net Peak Savings Potential by End Use (2013) – Across Scenarios Base Case 1.....	4-20
Figure 4-37	Base Case 1 and No-Incentive-Cap Net Energy Savings Potential (2013).....	4-22
Figure 4-38	Base Case 1 and No-Incentive-Cap Net Peak Savings Potential (2013).....	4-22
Figure 4-39	Base Case 1 and No-Incentive-Cap Net Energy Savings Potential by Sector (2013) 75% Incentive Scenario.....	4-23
Figure 4-40	Base Case 1 and No-Incentive-Cap Net Peak Savings Potential by Sector (2013) 75% Incentive Scenario.....	4-23
Figure 4-41	Base Case 1 and Gas-Benefit Analysis Net Energy Savings Potential (2013) Residential Sector.....	4-26
Figure 4-42	Base Case 1 and Gas-Benefit Analysis Net Peak Savings Potential (2013) Residential Sector.....	4-26
Figure 4-43	Base Case 1 and Base Case 2 Net Energy Savings Potential (2013).....	4-28

Figure 4-44	Base Case 1 and Base Case 2 Net Peak Savings Potential (2013).....	4-28
Figure 4-45	Base Case 1 and Base Case 2 Net Energy Savings Potential by Sector (2013) 75% Incentive Scenario	4-28
Figure 4-46	Base Case 1 and Base Case 2 Net Peak Demand Savings Potential by Sector (2013) 75% Incentive Scenario	4-28
Figure 4-47	Base Case 1 and Base Case 2 Net Energy Savings Potential (2013) Residential Sector.....	4-29
Figure 4-48	Base Case 1 and Base Case 2 Net Peak Demand Savings Potential (2013) Residential Sector	4-29
Figure 4-49	Benefits and Costs of Energy Efficiency Savings—2006–2013*, Base Case 2	4-31
Figure A-1	Simplified Conceptual Overview of Modeling Process.....	A-1
Figure A-2	Generic Illustration of EE Supply Curve	A-5
Figure A-3	Primary Measure Implementation Curves Used in Adoption Model	A-14
Figure A-4	Illustration of Effect of Incentives on Adoption Level as Characterized in Implementation Curves.....	A-16
Figure A-5	Example of DSM Scenario Outputs.....	A-17
Figure A-6	DSM ASSYST Analytic Flow	A-20

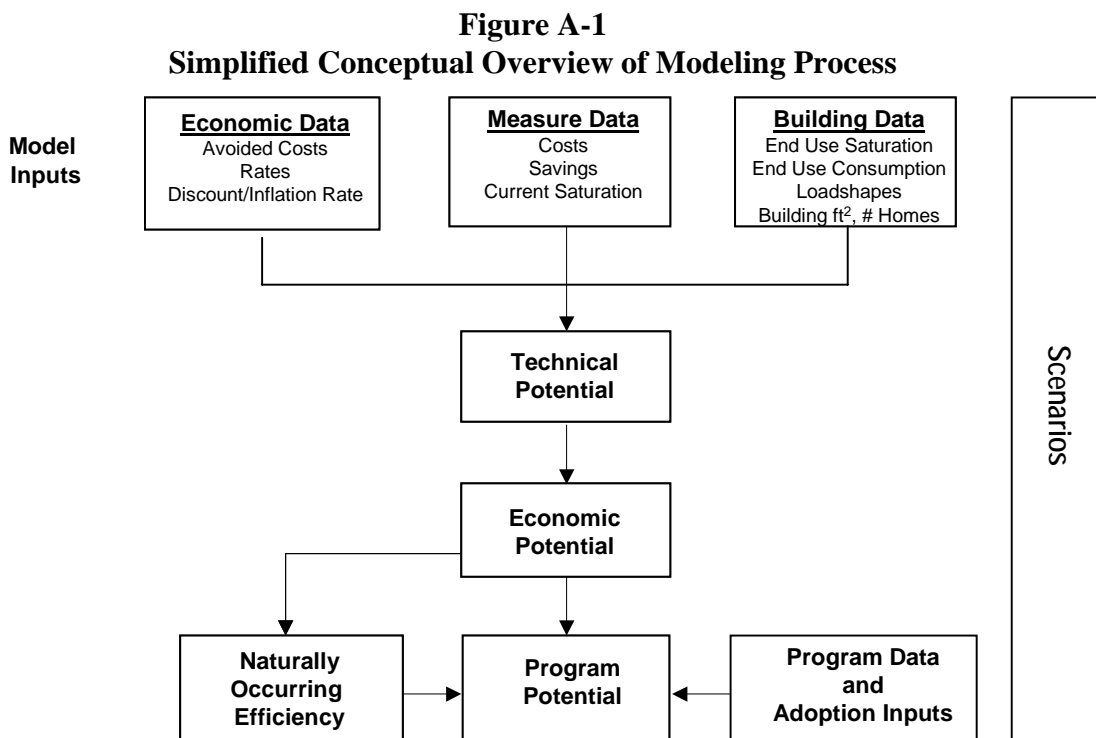
A

DETAILED METHODOLOGY AND MODEL DESCRIPTION

In this appendix we present and discuss our basic methodology for conducting market potential studies. We also present an overview of DSM ASSYST™, our model used to develop market potential estimates. Information presented here has been extracted from several recent energy efficiency potential reports.

A.1 OVERVIEW OF DSM FORECASTING METHOD

The crux of any DSM forecasting process involves carrying out a number of systematic analytical steps that are necessary to produce accurate estimates of energy efficiency (EE) effects on system load. A simplified overview of these basic analytical steps is shown in Figure A-1.



Developing a DSM forecast is viewed by KEMA as a five-step process. The steps include:

Step 1: Develop Initial Input Data

- Develop list of EE measure opportunities to include in scope
- Gather and develop technical data (costs and savings) on efficient measure opportunities
- Gather, analyze, and develop information on building characteristics, including total square footage and households, electricity consumption and intensity by end use, end-use

consumption load patterns by time of day and year (i.e., load shapes), market shares of key electric consuming equipment, and market shares of EE technologies and practices.

Step 2: Estimate Technical Potential and Develop Supply Curves

- Match and integrate data on efficient measures to data on existing building characteristics to produce estimates of technical potential and EE supply curves.

Step 3: Estimate Economic Potential

- Gather economic input data such as current and forecasted retail electric prices and current and forecasted costs of electricity generation, along with estimates of other potential benefits of reducing supply, such as the value of reducing environmental impacts associated with electricity production
- Match and integrate measure and building data with economic assumptions to produce indicators of costs from different viewpoints (e.g., utility, societal, and consumer)
- Estimate total economic potential using supply curve approach

Step 4: Estimate Achievable Program and Naturally Occurring Potentials

- Gather and develop estimates of program costs (e.g., for administration and marketing) and historic program savings
- Develop estimates of customer adoption of EE measures as a function of the economic attractiveness of the measures, barriers to their adoption, and the effects of program intervention
- Estimate achievable program and naturally occurring potentials; calibrate achievable and naturally occurring potential to recent program and market data
- Develop alternative economic estimates associated with alternative future scenarios

Step 5: Scenario Analyses and Resource Planning Inputs

- Recalculate potentials under alternate economic scenarios and deliver data in format required for resource planning.

Provided below is additional discussion of KEMA's modeling approaches for technical, economic, and achievable DSM forecasts.

A.1.1 Estimate Technical Potential and Develop Energy-Efficiency Supply Curves

Technical potential refers to the amount of energy savings or peak demand reduction that would occur with the *complete* penetration of all measures analyzed in applications where they were deemed *technically* feasible from an *engineering* perspective. 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.).

Core Equation

The core equation used to calculate the energy technical potential for each individual efficiency measure, by market segment, is shown below (using a commercial example):¹

$$\begin{array}{cccccccc} \text{Technical} & & \text{Total} & & \text{Base} & & \text{Not} & & \\ \text{Potential of} & = & \text{Square} & \times & \text{Case} & \times & \text{Complete} & \times & \text{Savings} \\ \text{Efficient} & & \text{Feet} & & \text{Equipment} & & \text{Factor} & & \text{Factor} \\ \text{Measure} & & & & \text{EUI} & & & & \text{Factor} \end{array}$$

where:

- **Square feet** is the total floor space for all buildings in the market segment. For the residential analysis, the **number of dwelling units** is substituted for square feet.
- **Base-case equipment EUI** is the energy used per square foot by each base-case technology in each market segment. This is the consumption of the energy-using equipment that the efficient technology replaces or affects. 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, unit energy consumption (UECs), energy used per dwelling, are substituted for EUIs.
- **Applicability factor** is the fraction of the floor space (or dwelling units) that is applicable for the efficient technology in a given market segment; for the example above, the percentage of floor space lit by incandescent bulbs.
- **Not complete factor** is the fraction of applicable floor space (or dwelling units) that has not yet been converted to the efficient measure; that is, (1 minus the fraction of floor space that already has the EE measure installed).
- **Feasibility factor** is the fraction of the applicable floor space (or dwelling units) that is technically feasible for conversion to the efficient technology from an *engineering* perspective.
- **Savings factor** is the reduction in energy consumption resulting from application of the efficient technology.

Technical potential for peak demand reduction is calculated analogously.

An example of the core equation is shown in Table A-1 for the case of a prototypical 4-lamp 4-foot standard T-8 lighting fixture, which is replaced by a 4-lamp 4-foot premium T-8 fixture in the office segment of a large utility service territory.

¹ Note that stock turnover is not accounted for in our estimates of technical and economic potential, stock turnover is *accounted for* in our estimates of achievable potential. Our definition of technical potential assumes instantaneous replacement of standard-efficiency with high-efficiency measures.

Table A-1
Example of Technical Potential Calculation—Replace 4-Lamp 4-Foot Standard T-8s with 4-Lamp 4-Foot Premium T-8s in the Office Segment of a Utility Service Territory
(Note: Data are illustrative only)

Technical Potential of Efficient Measure	=	Total square feet	×	Base Case Equipment UEC	×	Applicability Factor	×	Not Complete Factor	×	Feasibility Factor	×	Savings Factor
57 million kWh		195 million		5.74		0.34		0.95		1.00		0.16

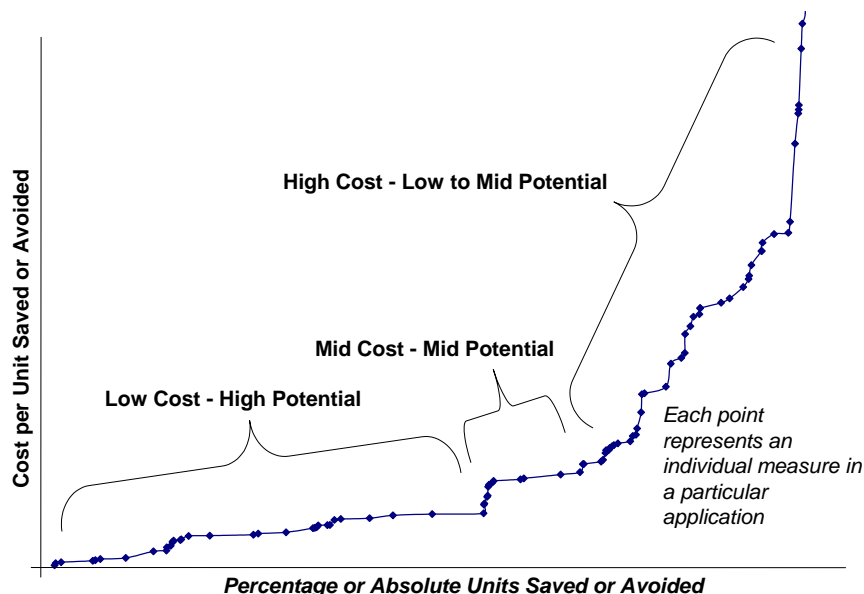
Technical EE potential is calculated in two steps. In the first step, all measures are treated *independently*; that is, the savings of each measure are not marginalized or otherwise adjusted for overlap between competing or synergistic measures. By treating measures independently, their relative economics are analyzed without making assumptions about the order or combinations in which they might be implemented in customer buildings. However, the total technical potential across measures cannot be estimated by summing the individual measure potentials directly. The cumulative savings cannot be estimated by adding the savings from the individual savings estimates because 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 affect 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.

Use of Supply Curves

In the second step, cumulative technical potential is estimated using an EE supply curve approach.² This method eliminates the double-counting problem. In Figure A-2, we present a generic example of a supply curve. As shown in the figure, a supply curve typically consists of two axes—one that captures the cost per unit of saving a resource or mitigating an impact (e.g., \$/kWh saved or \$/ton of carbon avoided) and the other that shows the amount of savings or mitigation that could be achieved at each level of cost. The curve is typically built up across individual measures that are applied to specific base-case practices or technologies by market segment. Savings or mitigation measures are sorted on a least-cost basis, and total savings or impacts mitigated are calculated incrementally with respect to measures that precede them. Supply curves typically, but not always, end up reflecting diminishing returns, i.e., as costs increase rapidly and savings decrease significantly at the end of the curve.

² This section describes conservation supply curves as they have been defined and implemented in numerous studies. Readers should note that Stoft 1995 describes several technical errors in the definition and implementation of conservation supply curves in the original and subsequent conservation supply curve studies. Stoft concludes that conservation supply curves are not “true” supply curves in the standard economic sense but can still be useful (albeit with his recommended improvements) for their intended purpose (demonstration of cost-effective conservation opportunities).

Figure A-2
Generic Illustration of EE Supply Curve



As noted above, the cost dimension of most EE supply curves is usually represented in dollars per unit of energy savings. Costs are usually annualized (often referred to as “levelized”) in supply curves. For example, EE supply curves usually present levelized costs per kWh or kW saved by multiplying the initial investment in an efficient technology or program by the "capital recovery rate" (CRR):

$$\text{CRR} = \frac{d}{1 - (1 + d)^{-n}}$$

where d is the real discount rate and n is the number of years over which the investment is written off (i.e., amortized).

Thus,

$$\text{Levelized Cost per kWh Saved} = \text{Initial Cost} \times \text{CRR} / \text{Annual Energy Savings}$$

$$\text{Levelized Cost per kW Saved} = \text{Initial Cost} \times \text{CRR} / \text{Peak Demand Savings}$$

The levelized cost per kWh and kW saved are useful because they allow simple comparison of the characteristics of EE with the characteristics of energy supply technologies. However, the levelized cost per kW saved is a biased indicator of cost-effectiveness because all of the efficiency measure costs are arbitrarily allocated to peak savings.

Returning to the issue of EE supply curves, Table A-2 shows a simplified numeric example of a supply curve calculation for several EE measures applied to commercial lighting for a hypothetical population of buildings. What is important to note is that in an EE supply curve, the measures are sorted by relative cost—from least to most expensive. In addition, the energy consumption of the system being affected by the efficiency measures goes down as each measure is applied. As a result, the savings attributable to each subsequent measure decrease if the measures are interactive. For example, the occupancy sensor measure shown in Table 1-2 would save more at less cost per unit saved if it were applied to the base-case consumption before the T8 lamp and electronic ballast combination. Because the T8 electronic ballast combination is more cost-effective, however, it is applied first, reducing the energy savings potential for the occupancy sensor. Thus, in a typical EE supply curve, the base-case end-use consumption is reduced with each unit of EE that is acquired. Notice in Table 1-2 that 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 A-2 shows an example that would represent measures for one base-case technology in one market segment. These calculations are performed for all of the base-case technologies, market segments, and measure combinations in the scope of a study. The results are then ordered by levelized cost and the individual measure savings are summed to produce the EE potential for the entire sector.

In the next subsection, we discuss how economic potential is estimated as a subset of the technical potential.

Table A-2
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	Savings %	GWh Savings	Levelized Cost (\$/kWh saved)
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	\$0.04
2. Occupancy Sensors	336	40,000	3.4	10%	13	\$0.11
3. Perimeter Dimming	322	10,000	3.2	45%	14	\$0.25
With all measures	309		3.1	27%	116	

A.1.2 Estimation of Economic Potential

Economic potential is typically used to refer to the *technical potential* of those energy conservation measures that are cost effective when compared to either supply-side alternatives or the price of energy. Economic potential takes into account the fact that many EE measures cost more to purchase initially than do their standard-efficiency counterparts. The incremental costs

of each efficiency measure are compared to the savings delivered by the measure to produce estimates of energy savings per unit of additional cost. These estimates of EE resource costs can then be compared to estimates of other resources such as building and operating new power plants.

Cost Effectiveness Tests

To estimate economic potential, it is necessary to develop a method by which it can be determined that a measure or program is *economic*. There is a large body of literature that debates the merits of different approaches to calculating whether a public purpose investment in EE is cost effective (Chamberlin and Herman 1993, RER 2000, Ruff 1988, Stoft 1995, and Sutherland 2000). We usually utilize the total resource cost (TRC) test to assess cost effectiveness. The TRC is a form of societal benefit-cost test. Other tests that have been used in analyses of program cost-effectiveness by EE analysts include the utility cost, ratepayer impact measure (RIM), and participant tests. These tests are discussed in detail the CASPM.

Before discussing the TRC test and how it is often used in our DSM forecasts, we present below a brief introduction to the basic tests as described in the CASPM:³

- **Total Resource Cost Test**—The TRC test measures the net costs of a demand-side management program as a resource option based on the total costs of the program, including both the participants' and the utility's costs. The test is applicable to conservation, load management, and fuel substitution programs. For fuel substitution programs, the test measures the net effect of the impacts from the fuel not chosen versus the impacts from the fuel that is chosen as a result of the program. TRC test results for fuel substitution programs should be viewed as a measure of the economic efficiency implications of the total energy supply system (gas and electric). A variant on the TRC test is the societal test. The societal test differs from the TRC test in that it includes the effects of externalities (e.g. environmental, national security), excludes tax credit benefits, and uses a different (societal) discount rate.
- **Participant Test**—The participant test is the measure of the quantifiable benefits and costs to the customer due to participation in a program. Since many customers do not base their decision to participate in a program entirely on quantifiable variables, this test cannot be a complete measure of the benefits and costs of a program to a customer.
- **Utility (Program Administrator) Test**—The program administrator cost test measures the net costs of a demand-side management program as a resource option based on the costs incurred by the program administrator (including incentive costs) and excluding any net costs incurred by the participant. The benefits are similar to the TRC benefits. Costs are defined more narrowly.
- **Ratepayer Impact Measure Test**—The ratepayer impact measure (RIM) test measures what happens to customer bills or rates due to changes in utility revenues

³ These definitions are direct excerpts from the California Standard Practice Manual, October 2001.

and operating costs caused by the program. Rates will go down if the change in revenues from the program is greater than the change in utility costs. Conversely, rates or bills will go up if revenues collected after program implementation are less than the total costs incurred by the utility in implementing the program. This test indicates the direction and magnitude of the expected change in customer bills or rate levels.

The key benefits and costs of the various cost-effectiveness tests are summarized in Table A-3.

Table A-3
Summary of Benefits and Costs of California Standard Practice Manual Tests

Test	Benefits	Costs
TRC Test	Generation, transmission and distribution savings Participants avoided equipment costs (fuel switching only)	Generation costs Program costs paid by the administrator Participant measure costs
Participant Test	Bill reductions Incentives Participants avoided equipment costs (fuel switching only)	Bill increases Participant measure costs
Utility (Program Administrator) Test	Generation, transmission and distribution savings	Generation costs Program costs paid by the administrator Incentives
Ratepayer Impact Measure Test	Generation, transmission and distribution savings Revenue gain	Generation costs Revenue loss Program costs paid by the administrator Incentives

Generation, transmission and distribution savings (hereafter, energy benefits) are defined as the economic value of the energy and demand savings stimulated by the interventions being assessed. These benefits are typically measured as induced changes in energy consumption, valued using some mix of avoided costs. Statewide values of avoided costs are prescribed for use in implementing the test. Electricity benefits are valued using three types of avoided electricity costs: avoided distribution costs, avoided transmission costs, and avoided electricity generation costs.

Participant costs are comprised primarily of incremental measure costs. Incremental measure costs are essentially the costs of obtaining EE. In the case of an add-on device (say, an adjustable-speed drive or ceiling insulation), the incremental cost is simply the installed cost of the measure itself. In the case of equipment that is available in various levels of efficiency (e.g., a central air conditioner), the incremental cost is the excess of the cost of the high-efficiency unit over the cost of the base (reference) unit.

Administrative costs encompass the real resource costs of program administration, including the costs of administrative personnel, program promotions, overhead, measurement and evaluation, and shareholder incentives. In this context, administrative costs are not defined to include the costs of various incentives (e.g., customer rebates and salesperson incentives) that may be offered to encourage certain types of behavior. The exclusion of these incentive costs reflects the fact that they are essentially transfer payments. That is, from a societal perspective they involve offsetting costs (to the program administrator) and benefits (to the recipient).

Use of the Total Resource Cost to Estimate Economic Potential

We often use the TRC test in two ways in our model. First, we develop an estimate of economic potential by calculating the TRC of individual measures and applying the methodology described below. Second, we develop estimates of whether different program scenarios are cost effective.

Economic potential can be defined either inclusively or exclusively of the costs of programs that are designed to increase the adoption rate of EE measures. *In many of our projects, we define economic potential to exclude program costs.* We do so primarily because program costs are dependent on a number of factors that vary significantly as a function of program delivery strategy. There is no single estimate of program costs that would accurately represent such costs across the wide range of program types and funding levels possible. Once an assumption is made about program costs, one must also link those assumptions to expectations about market response to the types of interventions assumed. Because of this, we believe it is more appropriate to factor program costs into our analysis of *program potential*. Thus, our definition of *economic potential* is that portion of the technical potential that passes our economic screening test (described below) exclusive of program costs. Economic potential, like technical potential, is a theoretical quantity that will exceed the amount of potential we estimate to be achievable through current or more aggressive program activities.

As implied in Table A-3 and defined in the CASPM 2001, the TRC focuses on resource savings and counts benefits as utility-avoided supply costs and costs as participant costs and utility program costs. It ignores any impact on rates. It also treats financial incentives and rebates as transfer payments; i.e., the TRC is not affected by incentives. The somewhat simplified benefit and cost formulas for the TRC are presented in Equations A-1 and A-2 below.

$$\text{Benefits} = \sum_{t=1}^N \frac{\text{Avoided Costs of Supply}_{p,t}}{(1+d)^{t-1}} \quad \text{Equation A-1}$$

$$\text{Costs} = \sum_{t=1}^N \frac{\text{Program Cost}_t + \text{Participant Cost}_t}{(1+d)^{t-1}} \quad \text{Equation A-2}$$

where

d = the discount rate

p = the costing period

t = time (in years)

n = 20 years

A nominal discount rate is typically used in the analysis, as inflation is taken into account separately. We use a *normalized* measure life of 20 years to capture the benefit of long-lived measures. Measures with measure lives shorter than 20 years are “re-installed” in our analysis as many times as necessary to reach the normalized 20-year life of the analysis.

The avoided costs of supply are calculated by multiplying measure energy savings and peak demand impacts by per-unit avoided costs by costing period. Energy savings are allocated to costing periods and peak impacts estimated using load shape factors.

As noted previously, in the *measure-level* TRC calculation used to estimate economic potential, program costs are excluded from Equation A-2. Using the supply curve methodology discussed previously, measures are ordered by TRC (highest to lowest) and then the *economic* potential is calculated by summing the energy savings for all of the technologies for which the marginal TRC test is greater than 1.0. In the example in Table A-4, the economic potential would include the savings for measures 1 and 2, but exclude saving for measure 3 because the TRC is less than 1.0 for measure 3. The supply curve methodology, when combined with estimates of the TRC for individual measures, produces estimates of the economic potential of efficiency improvements. By definition and intent, this estimate of economic potential is a theoretical quantity that will exceed the amount of potential we estimate to be achievable through program activities in the final steps of our analyses.

Table A-4
Sample Use of Supply Curve Framework to Estimate Economic Potential
(Note: Data are illustrative only)

Measure	Total End Use Consumption of Population (GWh)	Applicable, Not Complete and Feasible Sq.Feet (000s)	Average kWh/ft ² of population	Savings %	GWh Savings	Total Resource Cost Test	Savings Included in Economic Potential?
Base Case: T12 lamps with Magnetic Ballast	425	100,000	4.3	N/A	N/A	N/A	N/A
1. T8 w. Elec. Ballast	425	100,000	4.3	21%	89	2.5	Yes
2. Occupancy Sensors	336	40,000	3.4	10%	13	1.3	Yes
3. Perimeter Dimming	322	10,000	3.2	45%	14	0.8	No
Technical Potential with all measures				27%	116		
Economic Potential with measures for which TRC Ratio > 1.0				24%	102		

A.1.3 Estimation of Program and Naturally occurring Potentials

In this section we present the method we employ to estimate the fraction of the market that adopts each EE measure in the presence and absence of EE programs. We define:

- **Program potential** as the amount of savings that would occur in response to one or more specific market interventions
- **Naturally occurring potential** as the amount of savings estimated to occur as a result of normal market forces, that is, in the absence of any utility or governmental intervention.

Our estimates of program potential are typically the most important results of the modeling process. Estimating technical and economic potentials are necessary steps in the process from which important information can be obtained; however, the end goal of the process is better understanding how much of the remaining potential can be captured in programs, whether it would be cost-effective to increase program spending, and how program costs may be expected to change in response to measure adoption over time.

Adoption Method Overview

We use a method of estimating adoption of EE measures that applies equally to be our program and naturally occurring analyses. Whether as a result of natural market forces or aided by a program intervention, the rate at which measures are adopted is modeled in our method as a function of the following factors:

- The availability of the adoption opportunity as a function of capital equipment turnover rates and changes in building stock over time
- Customer awareness of the efficiency measure
- The cost-effectiveness of the efficiency measure
- Market barriers associated with the efficiency measure.

The method we employ is executed in the measure penetration module of KEMA's DSM ASSYST™ model.

In many of our projects, only measures that pass the measure-level TRC test are put into the penetration module for estimation of customer adoption.

Availability

A crucial part of the model is a stock accounting algorithm that handles capital turnover and stock decay over a period of up to 20 years. In the first step of our achievable potential method, we calculate the number of customers for whom each measure will apply. The input to this calculation is the total floor space available for the measure from the technical potential analysis, i.e., the total floor space multiplied by the applicability, not complete, and feasibility factors described previously. We call this the *eligible* stock. The stock algorithm keeps track of the amount of floor space available for each efficiency measure in each year based on the total eligible stock and whether the application is new construction, retrofit, or replace-on-burnout.⁴

⁴ Replace-on-burnout measures are defined as the efficiency opportunities that are available only when the base equipment turns over at the end of its service life. For example, a high-efficiency chiller measure is usually only

Retrofit measures are available for implementation by the entire eligible stock. The eligible stock is reduced over time as a function of adoptions⁵ and building decay.⁶ Replace-on-burnout measures are available only on an annual basis, approximated as equal to the inverse of the service life.⁷ The annual portion of the eligible market that does not accept the replace-on-burnout measure does not have an opportunity again until the end of the service life.

New construction applications are available for implementation in the first year. Those customers that do not accept the measure are given subsequent opportunities corresponding to whether the measure is a replacement or retrofit-type measure.

Awareness

In our modeling framework, customers cannot adopt an efficient measure merely because there is stock available for conversion. Before they can make the adoption choice, they must be aware and informed about the efficiency measure. Thus, in the second stage of the process, the model calculates the portion of the available market that is *informed*. An initial user-specified parameter sets the initial level of awareness for all measures. Incremental awareness occurs in the model as a function of the amount of money spent on awareness/information building and how well those information-building resources are directed to target markets. User-defined program characteristics determine how well information-building money is targeted. Well-targeted programs are those for which most of the money is spent informing only those customers that are in a position to implement a particular group of measures. Untargeted programs are those in which advertising cannot be well focused on the portion of the market that is available to implement particular measures. The penetration module in DSM ASSYST has a target effectiveness parameter that is used to adjust for differences in program advertising efficiency associated with alternative program types.

The model also controls for information retention. An information decay parameter in the model is used to control for the percentage of customers that will retain program information from one year to the next. Information retention is based on the characteristics of the target audience and the temporal effectiveness of the marketing techniques employed.

Adoption

The portion of the total market this is available and informed can now face the choice of whether or not to adopt a particular measure. Only those customers for whom a measure is available for

considered at the end of the life of an existing chiller. By contrast, retrofit measures are defined to be constantly available, for example, application of a window film to existing glazing.

⁵ That is, each square foot that adopts the retrofit measure is removed from the eligible stock for retrofit in the subsequent year.

⁶ Buildings do not last forever. An input to the model is the rate of decay of the existing floor space. Floor space typically decays at a very slow rate.

⁷ For example, a base-case technology with a service life of 15 years is only available for replacement to a high-efficiency alternative each year at the rate of 1/15 times the total eligible stock. For example, the fraction of the market that does not adopt the high-efficiency measure in year t will not be available to adopt the efficient alternative again until year $t + 15$.

implementation (stage 1) and, of those customers, only those who have been informed about the program/measure (stage 2), are in a position to make the implementation decision.

In the third stage of our penetration process, the model calculates the fraction of the market that adopts each efficiency measure as a function of the participant test. The participant test is a benefit-cost ratio that is generally calculated as follows:

$$\text{Benefits} = \sum_{t=1}^N \frac{\text{Customer Bill Savings (\$)}_t}{(1+d)^{t-1}} \quad \text{Eqn. A-3}$$

$$\text{Costs} = \sum_{t=1}^N \frac{\text{Participant Costs (\$)}_t}{(1+d)^{t-1}} \quad \text{Eqn. A-4}$$

where

- d = the discount rate
- t = time (in years)
- n = 20 years

We use a *normalized* measure life of 20 years in order to capture the benefits associated with long-lived measures. Measures with lives shorter than 20 years are “re-installed” in our analysis as many times as necessary to reach the normalized 20-year life of the analysis.

The bill reductions are calculated by multiplying measure energy savings and customer peak demand impacts by retail energy and demand rates.

The model uses measure implementation curves to estimate the percentage of the informed market that will accept each measure based on the participant’s benefit-cost ratio. The model provides enough flexibility so that each measure in each market segment can have a separate implementation rate curve. The functional form used for the implementation curves is:

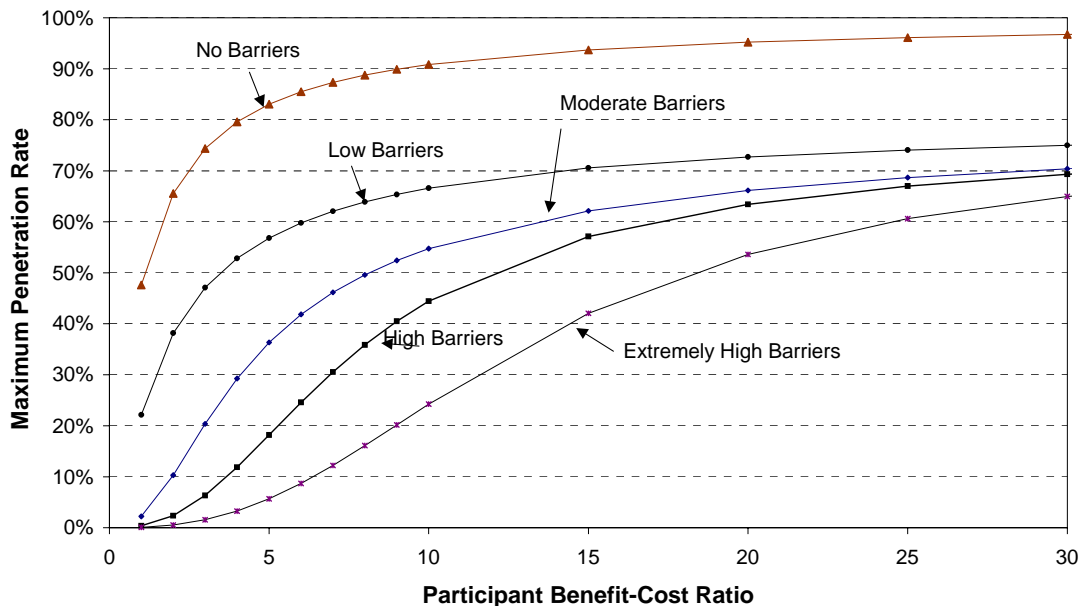
$$y = \frac{a}{\left(1 + e^{-\frac{\ln x}{4}}\right) \times \left(1 + e^{-c \ln(bx)}\right)}$$

where:

- y = the fraction of the market that installs a measure in a given year from the pool of informed applicable customers;
- x = the customer’s benefit-cost ratio for the measure;
- a = the maximum annual acceptance rate for the technology;
- b = the inflection point of the curve. It is generally 1 over the benefit-cost ratio that will give a value of 1/2 the maximum value; and
- c = the parameter that determines the general shape (slope) of the curve.

The primary curves utilized in our model are shown in Figure A-3. These curves produce base year program results that are calibrated to actual measure implementation results associated with major IOU commercial efficiency programs over the past several years. Different curves are used to reflect different levels of market barriers for different efficiency measures. A list of market barriers is shown in Table A-5. It is the existence of these barriers that necessitates program interventions to increase the adoption of EE measures.

Figure A-3
Primary Measure Implementation Curves Used in Adoption Model



Note that for the moderate, high barrier, and extremely high curves, the participant benefit-cost ratios have to be very high before significant adoption occurs. This is because the participant benefit-cost ratios are based on a 15-percent discount rate. This discount rate reflects likely adoption if there were no market barriers or market failures, as reflected in the no-barriers curve in the figure. Experience has shown, however, that actual adoption behavior correlates with implicit discount rates several times those that would be expected in a perfect market.⁸

The model estimates adoption under both naturally occurring and program intervention situations. There are only two differences between the naturally occurring and program analyses. First, in any program intervention case in which measure incentives are provided, the participant benefit-cost ratios are adjusted based on the incentives. Thus, if an incentive that pays 50 percent

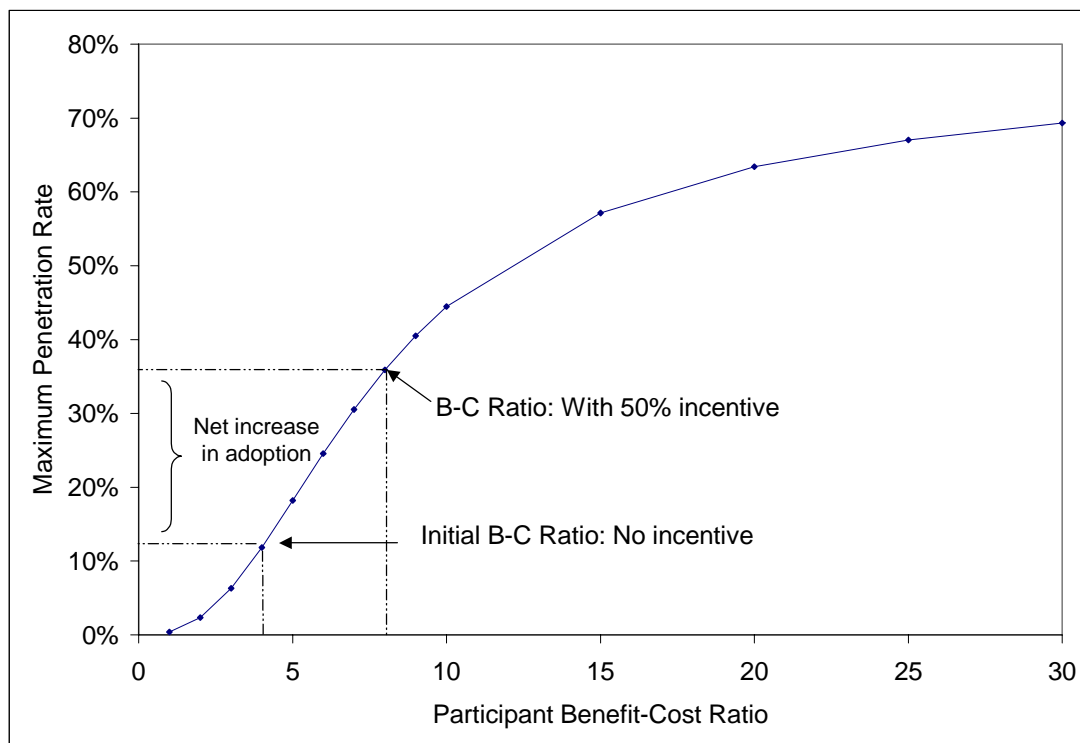
⁸ For some, it is easier to consider adoption as a function of simple payback. However, the relationship between payback and the participant benefit-cost ratio varies depending on measure life and discount rate. For a long-lived measure of 15 years with a 15-percent discount rate, the equivalent payback at which half of the market would adopt a measure is roughly 6 months, based on the high barrier curve in Figure 2-3. At a 1-year payback, one-quarter of the market would adopt the measure. Adoption reaches near its maximum at a 3-month payback. The curves reflect the real-world observation that implicit discount rates can average up to 100 percent.

Table A-5
Summary Description of Market Barriers from Eto, Prahl, Schlegel 1997

Barrier	Description
Information or Search Costs	The costs of identifying energy-efficient products or services or of learning about energy-efficient practices, including the value of time spent finding out about or locating a product or service or hiring someone else to do so.
Performance Uncertainties	The difficulties consumers face in evaluating claims about future benefits. Closely related to high search costs, in that acquiring the information needed to evaluate claims regarding future performance is rarely costless.
Asymmetric Information and Opportunism	The tendency of sellers of energy-efficient products or services to have more and better information about their offerings than do consumers, which, combined with potential incentives to mislead, can lead to sub-optimal purchasing behavior.
Hassle or Transaction Costs	The indirect costs of acquiring EE, including the time, materials and labor involved in obtaining or contracting for an energy-efficient product or service. (Distinct from search costs in that it refers to what happens once a product has been located.)
Hidden Costs	Unexpected costs associated with reliance on or operation of energy-efficient products or services - for example, extra operating and maintenance costs.
Access to Financing	The difficulties associated with the lending industry's historic inability to account for the unique features of loans for energy savings products (i.e., that future reductions in utility bills increase the borrower's ability to repay a loan) in underwriting procedures.
Bounded Rationality	The behavior of an individual during the decision-making process that either seems or actually is inconsistent with the individual's goals.
Organization Practices or Customs	Organizational behavior or systems of practice that discourage or inhibit cost-effective EE decisions, for example, procurement rules that make it difficult to act on EE decisions based on economic merit.
Misplaced or Split incentives	Cases in which the incentives of an agent charged with purchasing EE are not aligned with those of the persons who would benefit from the purchase.
Product or Service Unavailability	The failure of manufacturers, distributors or vendors to make a product or service available in a given area or market. May result from collusion, bounded rationality, or supply constraints.
Externalities	Costs that are associated with transactions, but which are not reflected in the price paid in the transaction.
Non-externality Pricing	Factors other than externalities that move prices away from marginal cost. An example arises when utility commodity prices are set using ratemaking practices based on average (rather than marginal) costs.
Inseparability of Product Features	The difficulties consumers sometimes face in acquiring desirable EE features in products without also acquiring (and paying for) additional undesired features that increase the total cost of the product beyond what the consumer is willing to pay.
Irreversibility	The difficulty of reversing a purchase decision in light of new information that may become available, which may deter the initial purchase, for example, if energy prices decline, one cannot resell insulation that has been blown into a wall.

of the incremental measure cost is applied in the program analysis, the participant benefit-cost ratio for that measure will double (since the costs have been halved). The effect on the amount of adoption estimated will depend on where the pre- and post-incentive benefit-cost ratios fall on the curve. This effect is illustrated in Figure A-4.

Figure A-4
Illustration of Effect of Incentives on Adoption Level
as Characterized in Implementation Curves



In many of our projects achievable potential EE forecasts are developed for several scenarios, ranging from base levels of program intervention, through moderate levels, up to an aggressive EE acquisition scenario. Uncertainty in rates and avoided costs are often characterized in alternate scenarios. The final results produced are annual streams of achievable program impacts (energy and demand by time-of-use period) and all societal and participant costs (program costs plus end-user costs).

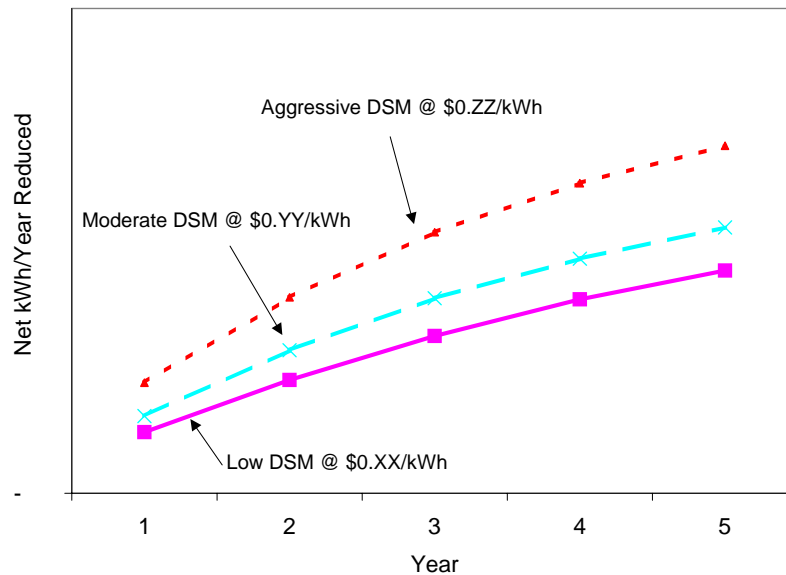
A.1.4 Scenario Analyses

Achievable potential forecasts can be developed for multiple scenarios. For example, program savings can be modeled under low levels of program intervention, through moderate levels, up to an aggressive DSM acquisition scenario. Uncertainty in rates and avoided costs can be characterized in alternate scenarios as well. The final results produced will be annual streams of achievable DSM program impacts (energy and demand by time-of-use period) and all societal and participant costs. An example of the types of outputs that have been produced for similar studies in the past is shown in Table A-6 and Figure A-5.

Table A-6
Example Format of DSM ASSYST Achievable Potential Outputs

DSM ASSYST Program Output	2006	2007	2008	etc.
Annual Energy Savings (kWh)				
Summer Period Energy Savings (kWh)				
Non Summer Period Energy Savings (kWh)				
Net Annual Energy Savings (kWh)				
Summer Period Net Energy Savings (kWh)				
Non Summer Period Net Energy Savings (kWh)				
Peak Demand Savings (kW)				
Net Peak Demand Savings (kW)				
Annual Program Costs				
Supplemental Customer Costs				

Figure A-5
Example of DSM Scenario Outputs



A.1.5 Measure “Bundles” for Complex End Uses

Although potential can be estimated through measure-specific analyses for many sectors and end uses, there are some cases where the measure-specific approach becomes problematic because of the complexity or heterogeneity of the base-case energy systems being addressed. Two key examples are industrial processes and some aspects of residential and commercial new construction.

In the industrial case, there may be dozens or even hundreds of individual measures that can be applied to industrial processes throughout the population of industrial facilities in a service territory; however, analyzing each of these opportunities, though possible, is impractical within a resource and time-constrained study such as this one.

In the case of new construction, the problem is sometimes that an equipment substitution paradigm does not fit the real-world circumstances in which efficiency levels are improved. For example, in commercial lighting, virtually all new buildings tend to have electronic ballasts and T-8 lamps, as well as CFLs, and other high-efficiency components. These high-efficiency components are generally needed to meet Title 24 efficiency requirements; however, the overall lighting system efficiency can often be increased by using these same components in smarter designs configurations or by combining with other features such as daylighting.

For both of these situations, our approach on recent related work has been to bundle multiple individual efficiency measures into somewhat simplified efficiency levels. For example, lighting levels for commercial new construction might be set at 10- and 20-percent improvement over Title 24 standards (as they are often specified in the Savings by Design program planning documents). Similarly, for industrial compressed air systems, we have bundled savings opportunities into three levels where both savings and costs increase with each level. We then estimate an incremental cost for achieving each of the efficiency levels. An example of these results developed in a recent study for industrial motors, compressed air, and processes in California is shown in Table A-7.

Once the levels efficiency are specified in terms of costs and savings, they are run through the modeling system as if they were individual measures. Thus, cost-effectiveness indicators are calculated for each level, those that pass the TRC are included in the achievable potential forecasting, and adoption is modeled using the same process as described above. Although we recommend using this approach for complex end uses in the proposed study because it creates a manageable forecasting process, care must be taken in developing the levels and recognizing that this approach results in some aggregation bias.

A.2 DSM ASSYST™ MODEL DESCRIPTION

DSM ASSYST™ (Demand-Side Management Technology Assessment System) is a tool developed to assess the technical, economic and market potential of DSM technologies in the residential, commercial and industrial sectors. Based on user-specified information about base technologies, conservation technologies, load shapes, utility avoided costs, utility service rates, and economic parameters, DSM ASSYST yields numeric data for a variety of criteria. The user can then evaluate and compare technologies. DSM ASSYST allows the user to analyze each DSM technology in multiple combinations of building types, market segments, end uses, and vintages both individually and compared to other DSM technology options.

Table A-7

Example of Industrial Efficiency Levels Developed for a Recent California Potential Study

DSM ASSYST ADDITIVE SUPPLY ANALYSIS			Year		2011			
End Use	Measure Number	Measure	GWH Savings	MW Savings	Levelized Cost per	Levelized Cost per	Total Resource	
					KWh Saved	KW Saved		Cost Test
Vintage: Existing Sector: Industrial Scenario: Base					\$/kWh	\$/kW	TRC	
Motors	101	Replace 1-5 HP Motor	248.7	34.1	\$0.10	\$698	0.8	
Motors	102	Add 1-5 HP VSD	447.1	61.3	\$0.14	\$1,019	0.6	
Motors	103	Motor Practices Level 1	607.0	83.2	\$0.06	\$440	1.3	
Motors	104	Motor Practices Level 2	539.1	73.9	\$0.24	\$1,764	0.3	
Motors	121	Replace 21-50 HP Motor	78.1	10.7	\$0.09	\$661	0.9	
Motors	122	Add 21-50 HP VSD	319.0	43.7	\$0.04	\$278	2.1	
Motors	123	Motor Practices Level 1	404.3	55.4	\$0.03	\$211	2.7	
Motors	124	Motor Practices Level 2	361.9	49.6	\$0.12	\$840	0.7	
Motors	151	Replace 201-500 HP Motor	143.5	19.7	\$0.03	\$201	2.8	
Motors	152	Add 201-500 HP VSD	516.6	70.8	\$0.01	\$106	5.4	
Motors	153	Motor Practices Level 1	598.6	82.0	\$0.02	\$152	3.7	
Motors	154	Motor Practices Level 2	554.9	76.0	\$0.08	\$586	1.0	
Compressed Air	202	CAS Level 1	433.9	59.5	\$0.02	\$168	3.4	
Compressed Air	203	CAS Level 2	453.6	62.2	\$0.05	\$362	1.6	
Compressed Air	204	CAS Level 3	325.5	44.6	\$0.13	\$936	0.6	
Other Process	301	Process Level 1	1,031.8	141.4	\$0.03	\$190	3.0	
Other Process	302	Process Level 2	1,219.7	167.1	\$0.05	\$345	1.7	
Other Process	303	Process Level 3	767.3	105.1	\$0.25	\$1,831	0.3	

The current version of DSM ASSYST uses a combination of Microsoft Excel spreadsheets and Visual Basic (VB) programming software. All input and output data are stored in spreadsheets. The VB modules read input data from various spreadsheets, perform the various analyses, and store output results into spreadsheets.

There are three major VB analysis modules: Basic, Supply, and Penetration. Figure A-6 provides an overview of the model process and key inputs. Each module is briefly described below.

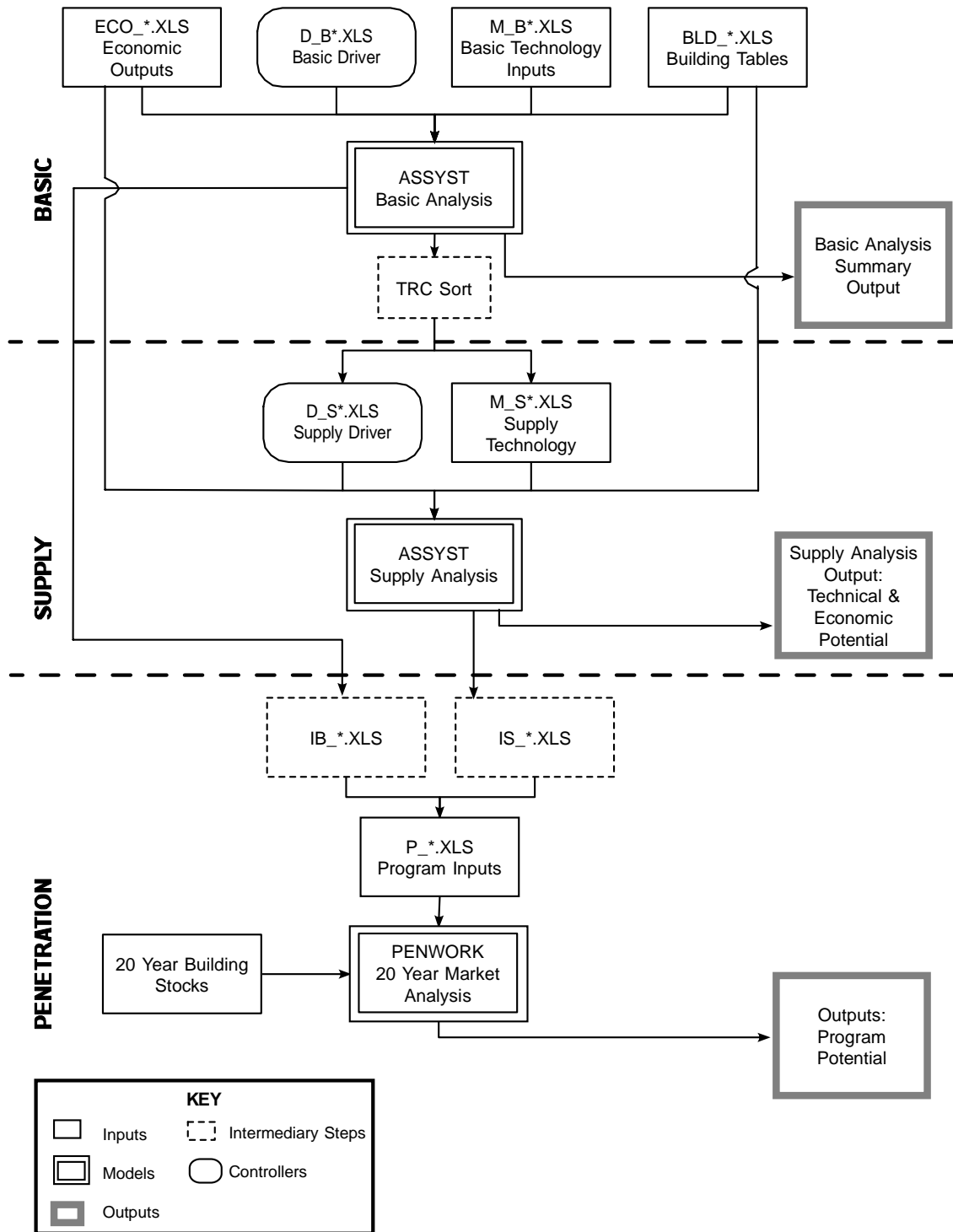
A.2.1 Basic Module

In the Basic module, each technology is assessed individually by comparing it to a base case. Comparisons are made at a high degree of segmentation. The segmentation may include, but is not limited to sector, building type, end use, vintage and geographic area.

The Basic module reads four types of information, contained within four spreadsheet files. These files include:

- **Economic:** containing utility rates paid by customers, discount rates, avoided costs, and other utility-specific economic parameters
- **Building:** containing square footage or number of households and load shape data
- **Measure:** containing technology based inputs for the Basic Analysis
- **Driver:** containing information that drives the analysis process.

Figure A-6
DSM ASSYST Analytic Flow



The output files produced by the Basic module include a Summary Basic Output file that contains an assessment of how much energy and demand each technology will save relative to the base case within each segment. In addition, the summary contains cost data, savings fractions, before and after EUIs or UECs, service life, the levelized costs of implementing the technology, and results of economic tests including the TRC test, participant test, and customer payback.

This module also produces a second file that contains all the measures that were assessed in the Basic Analysis sorted in the highest to lowest TRC order within each market segment and end use. This file serves as an input file for the Supply module.

A.2.2 Supply Module

In the Supply Module each technology, within each market segment, is stacked, or implemented, such that all energy savings are realized from preceding technologies prior to the implementation of all subsequent technologies. The stacking order generally follows the TRC sort order, highest to lowest, resulting from the Basic module.

The Supply module requires two input files: a Driver file and a modified output file from the Basic module. As in the Basic module, the Driver file contains instructions for the analysis process. The output file from the basic analysis must be modified in Excel to address overlapping measures, such as different SEER levels or measures that are direct substitutes for each other.

Output from the Supply module contains the technical and economic potential plus energy and demand supply curves. The Supply module produces measure-level information that can be incorporated into the input file for the Penetration module

A.2.3 Penetration Module

The Penetration (or Program Potential) module of ASSYST is designed to calculate the costs and net energy and demand savings from DSM programs under a variety of marketing scenarios. This module estimates the net impact and cost of a program over time by forecasting the naturally occurring penetration of each measure as well as the penetration of each measure given the program activities (i.e., incentives and awareness building).

Using a stock accounting algorithm over a period of 20 years, this module first calculates the number of customers for whom the measure will apply. Second, the model calculates the number of informed customers based on the amount of money spent on advertising. Third, the model calculates the number of customers who will implement the technology based on their benefit/cost ratio. Finally, the model compares the number of customers that implement the technology due to the program with those who would take the technology anyway (naturally occurring). Per-unit energy and demand savings are applied to the net number of customers (total minus naturally occurring) over the 20-year period. After completing the analysis, the results are automatically summed across measures to provide program-level costs and savings for 20 years, and formatted for input into Integrated Resource Planning models.

A program input file is used to define a program and provide the building stock forecast. The program characterization variables include:

- Incentive Levels
- Incentive Budget Constraints
- Yearly Incentive Adjuster
- Technology Acceptance Curve Parameters
- Administration Budgets
- Advertising Budgets
- Awareness Decay Rate
- Target Effectiveness
- Advertising Effective Ratio.

B

MEASURE DESCRIPTIONS

This appendix describes the energy efficiency measures used in the study.

B.1 RESIDENTIAL MEASURES

This subsection provides brief descriptions of the residential measures included in this study. Measures are grouped by end use.

B.1.1 HVAC Equipment

Central Air Conditioner Upgrade: Air conditioner equipment includes 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 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 measures involve the upgrade of a standard efficiency unit (13 SEER) to a higher efficiency unit (14 SEER or higher).

Whole House Fans: Whole house fans keep a home cool during the cooling months instead of running the air conditioner. These fans typically consume 0.22kW (1/3 hp), about one-third the consumption of a central air conditioner. These fans pull cool air from the outside, move air through the house, and/or remove hot air through the attic.

Attic Venting: Attic venting reduces heat gain in the summer and prevents condensation (humidity) in the winter. This measure involves a motor-driven, thermostat-controlled fan.

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

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 SEER) to a higher efficiency unit (10.5 SEER).

Evaporative Cooler: An evaporative cooler produces effective cooling by combining a natural process - water evaporation - with a simple, reliable air-moving system. Fresh outside air is pulled through moist pads where it is cooled by evaporation and circulated through a house or building by a large blower. As this happens, the temperature of the outside air can be lowered as much as 30 degrees. Evaporative coolers are generally less expensive than air conditioning and use much less energy.

Heat Pump (for space heating): Heat pumps consist of a refrigeration system using a direct expansion cycle. Equipment includes a compressor, an air-cooled or evaporatively-cooled condenser (located outdoors), an expansion valve, an evaporator coil (located in the supply air duct near the supply fan) and a reversing valve to change the DX cycle from cooling to heating when required. The cooling and heating efficiencies vary based on the quality of the materials used, the size of equipment, the condenser type and the configuration of the system. 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).

Variable Speed Furnace/AC Fans: Air handler models with the lowest electrical use ratings employ electronically commutated motors (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 fairly 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.

Building Envelope

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.

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 un-insulated ducts with an R-4 insulating material.

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 the building.

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

Ceiling and Floor 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.

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.

Infiltration Reduction: Infiltration reduction 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.

Lighting

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.

Compact Fluorescent Torchieres: These are torchiere fixtures that come equipped with compact fluorescent lighting in place of halogen or incandescent lighting. Multi-stage and dimmable models are available.

Water Heat

Heat Pump Water Heater: (Emerging Technology) 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.

High Efficiency Water Heater: Higher efficiency water heaters have greater insulation to reduce standby heat loss.

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.

Tankless Water Heater: Also known as "instant" or "on-demand" water heaters, tankless units function only when a hot water faucet is turned on. There is no energy required to maintain the temperature of the water in a tank, which results in significant energy savings.

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).

Appliances

Energy Star Efficiency Refrigerator: ENERGY STAR® refrigerators must exceed the stringent new July 1, 2001 minimum federal standards for refrigerator energy consumption by at least 10 percent. As specified for this study, the average efficiency improvement is 15 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.

Refrigerator/Freezer Recycling: For this measure we assume replacement of an older refrigerator (10 years old or more) with a new standard-efficiency refrigerator. The early replacement assumes that the same new refrigerator would have been bought, only six years later. Savings for this measure result for six years because the newer refrigerators, given the stringent efficiency standards implemented in 2001, use much less energy than older units.

High Efficiency Freezer: Stand-alone freezers include either upright or chest models. Efficient freezers should exceed standard efficiencies by 10 percent or more. As specified for this study, the average efficiency improvement is 15 percent.

Energy Star Dishwasher: ENERGY STAR labeled 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.

Energy Star and High Efficiency 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.

B.2 COMMERCIAL MEASURES

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

B.2.1 Lighting

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.

Induction Lamps: Induction lamps take typically take the place of HID lamps. Their advantage is both long life and quick start, which unlike HID lamps, allows them to be turned off and on with the demand. Although induction lamps have a longer service life than other lamp technology they are also more expensive and the light intensity tends to degrade over time. They are most often used in places where the lamps are difficult to reach and replace.

Metal Halide Lamps: Metal halide lamps are HID lamps, which are approximately four times more efficacious than incandescent lamps. Metal halide (MH) lamps are a form of high intensity discharge (HID) lighting with good lighting efficiency and excellent color rendition.

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.

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.

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: (Emerging Technology) 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.

10% More Efficient Design (Lighting): This scenario represents a 10 percent reduction in lighting power densities and associated energy usage below current practice. This decrease would be achieved through modest design changes that focus on better optimization of fixture layout and product choices, but would not require aggressive use of controls and daylighting.

20% More Efficient Design (Lighting): (Emerging Technology) This scenario incorporates all of the savings associated with the 10% Improvement case and adds savings associated with advanced lighting controls and daylighting. This represents a 20 percent reduction in energy usage below current practice. Note that summer peak demand savings would be higher under this scenario due to the coincidence of available daylight with this period.

B.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.

Oversized Cooling Towers: Oversized cooling towers require custom manufacturing, so they cost more initially. However, oversized cooling towers save energy by providing a larger interface area between the water and air, thereby decreasing the fan horsepower required for a given tonnage. Installing oversized evaporators and condensers saves energy by reducing internal pressure losses and altering the temperature lift in the chiller. For instance, lowering condenser water entering temperature to 75 deg. F by using an oversized cooling tower can be cost effective within five years.

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.

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.

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.

DX Packaged System Efficiency Upgrade: 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) as compared to a base case unit with EER=10.3.

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.

Low-e Windows: Low-e (short for low-emissivity) windows, have thin metal coatings that permit the entry of short-wave radiation but block the exit of the majority of the long-wave thermal energy. The energy savings from these measures are due to the reduced load placed on the primary cooling equipment.

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.

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.

Evaporative Pre-cooler: (Emerging Technology) Evaporative pre-cooler pre-cools outdoor air through an air-to-water heat exchanger so that the outdoor supply air is sensibly cooled and humidity is not raised. This process is designed to reduce the need for mechanical cooling by providing a cooler than ambient source of supply outdoor air. The effectiveness of this measure is highly dependent on the characteristics of the outdoor and the cooling requirements of the building.

Programmable Thermostat: Setback programmable thermostats are appropriate controls for HVAC equipment that serve spaces with regular occupied and unoccupied periods, resulting in long periods of time when heating and cooling setpoints can be adjusted.

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.

Installation of Air-Side Economizers: Air-side economizers reduce the energy consumption associated with cooling by providing access to outside air – when temperatures permit – in lieu of using mechanical cooling of recirculated indoor air.

10% More Efficient Design (Cooling and Ventilation): This scenario represents a 10 percent reduction in cooling and ventilation power densities and associated energy usage below current practice. This decrease would be achieved through modest design changes that focus on better optimization of cooling and ventilation design and product choices.

30% More Efficient Design (Cooling and Ventilation): (Emerging Technology) This scenario incorporates all of the savings associated with the 10% improvement case and adds savings associated with more advanced design practices.

B.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.

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.

Installation of Automated Building Ventilation Control (via Occupancy Sensors, CO2 Sensors, Etc.): 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.

B.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.

B.2.5 Office Equipment

Power Management Enabling: This measure can be applied to PCs, PC monitors, 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.

LCD Monitors: LCDs are becoming more attractive options in terms of quality. However, because they cost five times more than a comparable CRT, until prices drop, using them purely as an energy saving measure will not be an option for most desktop users.

External Hardware Controls: Occupancy sensors have been used for years to conserve energy in office lighting applications. The application has expanded to include other office equipment as “plug-load sensors” incorporate an occupancy sensor with a relay that is able to turn equipment that is plugged into it on or off. The plug-load sensors range from devices that control a single electrical outlet or piece of equipment, to devices that control multiple outlets and can work together with other sensors.

Printer Nighttime Shutdown: The simplest action to save printer energy is to shut the machine off at night. While this recommendation is particularly important for conventional printers without power management, it is important to turn off ENERGY STAR printers as well, as they can draw up to 30-45 watts when in low power mode.

B.3 INDUSTRIAL MEASURES

This subsection provides brief descriptions of the industrial measures included in this study. First measure that cut across industries are described, followed by descriptions of industry-specific measures.

B.3.1 Cross-Cutting Electricity Efficiency 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.

B.3.2 Sector-Specific Efficiency Measures (Electricity)

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 22: Textile Mill Products

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 24: Lumber and Wood Products

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.

SIC 29: Petroleum and Coal Products

Controls: See discussion for SIC 28.

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 Miscellaneous Plastic 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.

Process controls: See discussion for SIC 28.

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

Process controls: See discussion for SIC 28.

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 34: Fabricated Metal Products**SIC 35: Industrial Machinery and Equipment****SIC 37: Transportation Equipmen****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

Scheduling: See previous subsection.

Efficient curing ovens: See previous subsection.

Machinery: See previous subsection.

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).

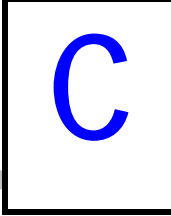
SIC 39: Miscellaneous Manufacturing Industries

Scheduling: See discussion for SIC 34.

Efficient Machinery: See discussion for SIC 34.

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.

Process controls: See discussion for SIC 28.



ECONOMIC INPUTS

This appendix presents economic data used for the Colorado DSM Market Potential Study. These data include discount rates, inflation rates, loss rates, avoided cost forecasts, and customer rate forecasts. The avoided cost forecasts are provided by time-of-use (TOU) period. The following TOU period definitions are used.

Summer	June 1 - September 30
On Peak	1 pm - 5 pm
Partial Peak	10 am-12 pm and 6 pm-10 pm
Off Peak	11 pm - 9 am
Winter	October 1 - May 31
On Peak	5 pm-9 pm
Partial Peak	9 am-4 pm and 10 pm-11 pm
Off Peak	11 pm - 8 am

APPENDIX C

ECONOMIC INPUTS

ECONOMIC PARAMETERS

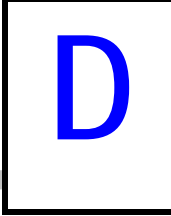
Utility Name	Xcel Energy	
Sector	All	
Batch #	1	
Utility Discount Rate	7.4%	
Customer Discount Rate	15.0%	
General Inflation Rate	2.4%	
Base Year	2006	
Start Year	2006	
Difference	0	
Utility Line Loss Rate	10.0%	Res
Utility Line Loss Rate	8.0%	Non Res

RATE/TIME PERIODS

Name	1	2	3	4	5	6	Annual
	Summer On-Peak	Summer Partial-Peak	Summer Off-Peak	Winter On-Peak	Winter Partial-Peak	Winter Off-Peak	
Abbreviation	SOP	SPP	SOFF	WOP	WPP	WOFF	TOTAL
Hours	610	976	1,342	1,215	2,187	2,430	8,760

ENERGY COSTS AND RATES

Year	Avoided Energy Costs By Time Period						Avoided Demand Costs By Time Period						Electricity Rates		
	SOP \$/KWh	SPP \$/KWh	SOFF \$/KWh	WOP \$/KWh	WPP \$/KWh	WOFF \$/KWh	SOP \$/KW	SPP \$/KW	SOFF \$/KW	WOP \$/KW	WPP \$/KW	WOFF \$/KW	Residential \$/kWh	Commercial \$/kWh	Industrial \$/kWh
2006	0.050	0.045	0.032	0.083	0.056	0.041	70.00	0.00	0.00	20.00	0.00	0.00	0.086	0.074	0.051
2007	0.050	0.045	0.031	0.060	0.055	0.037	71.65	0.00	0.00	20.47	0.00	0.00	0.082	0.069	0.046
2008	0.051	0.046	0.031	0.060	0.056	0.039	73.34	0.00	0.00	20.96	0.00	0.00	0.084	0.071	0.047
2009	0.045	0.042	0.028	0.052	0.047	0.028	75.07	0.00	0.00	21.45	0.00	0.00	0.077	0.064	0.040
2010	0.041	0.036	0.022	0.048	0.043	0.027	76.85	0.00	0.00	21.96	0.00	0.00	0.074	0.060	0.036
2011	0.047	0.042	0.028	0.052	0.047	0.032	78.66	0.00	0.00	22.47	0.00	0.00	0.080	0.066	0.041
2012	0.054	0.048	0.031	0.057	0.053	0.036	80.52	0.00	0.00	23.00	0.00	0.00	0.086	0.071	0.046
2013	0.044	0.039	0.026	0.050	0.044	0.029	82.42	0.00	0.00	23.55	0.00	0.00	0.079	0.064	0.038
2014	0.042	0.036	0.024	0.047	0.039	0.025	84.36	0.00	0.00	24.10	0.00	0.00	0.077	0.061	0.035
2015	0.048	0.040	0.025	0.051	0.043	0.027	86.35	0.00	0.00	24.67	0.00	0.00	0.081	0.065	0.038
2016	0.047	0.039	0.024	0.046	0.037	0.023	88.39	0.00	0.00	25.25	0.00	0.00	0.078	0.062	0.034
2017	0.051	0.043	0.026	0.054	0.044	0.028	90.48	0.00	0.00	25.85	0.00	0.00	0.085	0.068	0.040
2018	0.049	0.040	0.024	0.050	0.039	0.024	92.61	0.00	0.00	26.46	0.00	0.00	0.082	0.065	0.036
2019	0.052	0.043	0.025	0.053	0.042	0.025	94.80	0.00	0.00	27.08	0.00	0.00	0.086	0.068	0.038
2020	0.056	0.046	0.027	0.058	0.046	0.028	97.03	0.00	0.00	27.72	0.00	0.00	0.090	0.073	0.042
2021	0.060	0.050	0.030	0.062	0.050	0.030	99.32	0.00	0.00	28.38	0.00	0.00	0.095	0.077	0.045
2022	0.064	0.054	0.032	0.066	0.054	0.032	101.67	0.00	0.00	29.05	0.00	0.00	0.099	0.080	0.048
2023	0.067	0.058	0.034	0.073	0.060	0.037	104.07	0.00	0.00	29.73	0.00	0.00	0.105	0.086	0.053
2024	0.067	0.058	0.036	0.072	0.061	0.038	106.52	0.00	0.00	30.44	0.00	0.00	0.107	0.087	0.054
2025	0.069	0.060	0.038	0.073	0.064	0.042	109.04	0.00	0.00	31.15	0.00	0.00	0.111	0.091	0.056
2026	0.072	0.063	0.040	0.077	0.069	0.046	111.61	0.00	0.00	31.89	0.00	0.00	0.116	0.095	0.060
2027	0.071	0.062	0.040	0.076	0.069	0.047	114.24	0.00	0.00	32.64	0.00	0.00	0.117	0.096	0.060
2028	0.074	0.066	0.042	0.079	0.071	0.046	116.94	0.00	0.00	33.41	0.00	0.00	0.120	0.099	0.062
2029	0.073	0.067	0.043	0.081	0.073	0.052	119.70	0.00	0.00	34.20	0.00	0.00	0.124	0.102	0.064
2030	0.077	0.069	0.046	0.084	0.077	0.053	122.52	0.00	0.00	35.01	0.00	0.00	0.128	0.106	0.067



BUILDING AND TOU FACTOR INPUTS

This appendix presents building and TOU (time of use) data used for the Colorado DSM Market Potential Study. Data are shown by sector: residential, commercial, and industrial.

Residential Building Stock Table

Units: Number of Dwellings		
Segment	Sngl Fam	Mult Fam
Existing	804,413	297,522
New Construction	18,547	6,860

(per year)

End Use Definition	
End Use	End Use Definition
1	Space Cooling
2	Lighting
3	Refrigeration
4	Freezer
5	Water Heating
6	Clothes Washer
7	Clothes Dryer
8	Dishwashers
9	Space Heating
10	Cooking
11	Miscellaneous
12	Cooling and Heating

End Use Load Shape Table

Fraction of Annual Use in Cost Period

Building Type	End Use 1						End Use 2						End Use 3						End Use 4					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SF	0.390	0.140	0.470	0.000	0.000	0.000	0.061	0.149	0.094	0.227	0.280	0.188	0.075	0.127	0.161	0.148	0.232	0.257	0.081	0.124	0.157	0.141	0.246	0.251
MF	0.390	0.140	0.470	0.000	0.000	0.000	0.061	0.149	0.094	0.227	0.280	0.188	0.075	0.127	0.161	0.148	0.232	0.257	0.081	0.124	0.157	0.141	0.246	0.251

Building Type	End Use 5						End Use 6						End Use 7						End Use 8					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SF	0.054	0.112	0.105	0.180	0.341	0.208	0.087	0.129	0.101	0.143	0.366	0.174	0.111	0.153	0.059	0.180	0.400	0.098	0.064	0.179	0.057	0.255	0.413	0.032
MF	0.054	0.112	0.105	0.180	0.341	0.208	0.087	0.129	0.101	0.143	0.366	0.174	0.111	0.153	0.059	0.180	0.400	0.098	0.064	0.179	0.057	0.255	0.413	0.032

Building Type	End Use 9						End Use 10						End Use 11						End Use 12					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SF	0.001	0.005	0.010	0.239	0.319	0.425	0.089	0.159	0.053	0.356	0.264	0.079	0.051	0.115	0.126	0.256	0.196	0.257	0.180	0.064	0.216	0.130	0.175	0.235
MF	0.001	0.005	0.010	0.239	0.319	0.425	0.089	0.159	0.053	0.356	0.264	0.079	0.051	0.115	0.126	0.256	0.196	0.257	0.180	0.064	0.216	0.130	0.175	0.235

Peak To Energy Relationship Table (Utility Coincidence)

Peak = Average kW * Factor

Building Type	End Use 1						End Use 2						End Use 3						End Use 4					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SF	2.144	2.972	5.534	1.000	1.000	1.000	0.996	0.692	1.242	0.909	2.025	1.146	1.018	1.045	0.996	1.027	1.117	0.992	1.015	1.045	1.010	1.000	0.987	0.987
MF	2.144	2.972	5.534	1.000	1.000	1.000	0.996	0.692	1.242	0.909	2.025	1.146	1.018	1.045	0.996	1.027	1.117	0.992	1.015	1.045	1.010	1.000	0.987	0.987

Building Type	End Use 5						End Use 6						End Use 7						End Use 8					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SF	0.920	1.080	1.928	1.009	0.920	1.400	0.979	1.041	2.252	1.021	0.461	2.566	0.937	1.032	2.468	0.983	0.704	2.256	0.697	1.221	3.103	1.125	0.427	2.929
MF	0.920	1.080	1.928	1.009	0.920	1.400	0.979	1.041	2.252	1.021	0.461	2.566	0.937	1.032	2.468	0.983	0.704	2.256	0.697	1.221	3.103	1.125	0.427	2.929

Building Type	End Use 9						End Use 10						End Use 11						End Use 12					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SF	0.842	0.837	1.222	1.105	1.183	1.083	0.984	2.449	2.633	1.153	0.465	4.266	0.930	1.156	0.716	1.124	2.505	1.033	2.144	2.972	5.534	1.105	1.183	1.083
MF	0.842	0.837	1.222	1.105	1.183	1.083	0.984	2.449	2.633	1.153	0.465	4.266	0.930	1.156	0.716	1.124	2.505	1.033	2.144	2.972	5.534	1.105	1.183	1.083

APPENDIX D

COMMERCIAL

BUILDING AND TOU FACTOR INPUTS

Commercial Building Stock Table

Units: Square Feet										
Segment	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Health	Hotel	Misc.
Existing	194,788,451	27,281,752	174,220,715	21,903,690	96,782,704	54,729,749	29,395,472	26,939,573	27,097,280	266,972,549
New	6,983,474	978,094	6,246,088	785,282	3,469,813	1,962,148	1,053,874	965,826	971,480	9,571,388

(per year)

End Use Definition	
End Use	End Use Definition
1	Indoor Lighting
2	Outdoor Lighting
3	Cooling
4	Ventilation
5	Refrigeration
6	Office Equipment
7	Cooking
8	Water Heating
9	Miscellaneous
10	Heating

End Use Load Shape Table

Fraction of Annual Use in Cost Period

Building Type	End Use 1						End Use 2						End Use 3						
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	
Office	0.105	0.120	0.109	0.123	0.369	0.175	0.040	0.126	0.169	0.126	0.206	0.138	0.322	0.188	0.218	0.198	0.078	0.204	0.114
Restaurant	0.099	0.128	0.106	0.146	0.347	0.174	0.029	0.136	0.171	0.224	0.111	0.329	0.234	0.274	0.191	0.070	0.154	0.076	0.076
Retail	0.099	0.128	0.106	0.146	0.347	0.174	0.029	0.136	0.171	0.224	0.111	0.329	0.234	0.274	0.191	0.070	0.154	0.076	0.076
FoodStore	0.099	0.128	0.106	0.146	0.347	0.174	0.029	0.136	0.171	0.224	0.111	0.329	0.234	0.274	0.191	0.070	0.154	0.076	0.076
Warehouse	0.099	0.128	0.106	0.146	0.347	0.174	0.029	0.136	0.171	0.224	0.111	0.329	0.234	0.274	0.191	0.070	0.154	0.076	0.076
School	0.099	0.128	0.106	0.146	0.347	0.174	0.029	0.136	0.171	0.224	0.111	0.329	0.234	0.274	0.191	0.070	0.154	0.076	0.076
College	0.099	0.128	0.106	0.146	0.347	0.174	0.029	0.136	0.171	0.224	0.111	0.329	0.234	0.274	0.191	0.070	0.154	0.076	0.076
Health	0.099	0.128	0.106	0.146	0.347	0.174	0.029	0.136	0.171	0.224	0.111	0.329	0.234	0.274	0.191	0.070	0.154	0.076	0.076
Hotel	0.099	0.128	0.106	0.146	0.347	0.174	0.029	0.136	0.171	0.224	0.111	0.329	0.234	0.274	0.191	0.070	0.154	0.076	0.076
Miscellaneous	0.099	0.128	0.106	0.146	0.347	0.174	0.029	0.136	0.171	0.224	0.111	0.329	0.234	0.274	0.191	0.070	0.154	0.076	0.076

Building Type	End Use 4						End Use 5						End Use 6						
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	
Office	0.089	0.108	0.127	0.121	0.319	0.236	0.074	0.115	0.144	0.143	0.266	0.257	0.086	0.113	0.134	0.127	0.309	0.231	0.231
Restaurant	0.081	0.112	0.122	0.142	0.302	0.240	0.072	0.116	0.145	0.149	0.258	0.260	0.092	0.117	0.124	0.125	0.333	0.209	0.209
Retail	0.081	0.112	0.122	0.142	0.302	0.240	0.072	0.116	0.145	0.149	0.258	0.260	0.092	0.117	0.124	0.125	0.333	0.209	0.209
FoodStore	0.081	0.112	0.122	0.142	0.302	0.240	0.072	0.116	0.145	0.149	0.258	0.260	0.092	0.117	0.124	0.125	0.333	0.209	0.209
Warehouse	0.081	0.112	0.122	0.142	0.302	0.240	0.072	0.116	0.145	0.149	0.258	0.260	0.092	0.117	0.124	0.125	0.333	0.209	0.209
School	0.081	0.112	0.122	0.142	0.302	0.240	0.072	0.116	0.145	0.149	0.258	0.260	0.092	0.117	0.124	0.125	0.333	0.209	0.209
College	0.081	0.112	0.122	0.142	0.302	0.240	0.072	0.116	0.145	0.149	0.258	0.260	0.092	0.117	0.124	0.125	0.333	0.209	0.209
Health	0.081	0.112	0.122	0.142	0.302	0.240	0.072	0.116	0.145	0.149	0.258	0.260	0.092	0.117	0.124	0.125	0.333	0.209	0.209
Hotel	0.081	0.112	0.122	0.142	0.302	0.240	0.072	0.116	0.145	0.149	0.258	0.260	0.092	0.117	0.124	0.125	0.333	0.209	0.209
Miscellaneous	0.081	0.112	0.122	0.142	0.302	0.240	0.072	0.116	0.145	0.149	0.258	0.260	0.092	0.117	0.124	0.125	0.333	0.209	0.209

Building Type	End Use 7						End Use 8						End Use 9						
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	
Office	0.101	0.111	0.121	0.082	0.392	0.193	0.078	0.115	0.141	0.132	0.288	0.247	0.098	0.111	0.124	0.111	0.348	0.207	0.207
Restaurant	0.094	0.131	0.107	0.160	0.326	0.181	0.076	0.120	0.138	0.152	0.269	0.245	0.098	0.121	0.114	0.136	0.341	0.190	0.190
Retail	0.094	0.131	0.107	0.160	0.326	0.181	0.076	0.120	0.138	0.152	0.269	0.245	0.098	0.121	0.114	0.136	0.341	0.190	0.190
FoodStore	0.094	0.131	0.107	0.160	0.326	0.181	0.076	0.120	0.138	0.152	0.269	0.245	0.098	0.121	0.114	0.136	0.341	0.190	0.190
Warehouse	0.094	0.131	0.107	0.160	0.326	0.181	0.076	0.120	0.138	0.152	0.269	0.245	0.098	0.121	0.114	0.136	0.341	0.190	0.190
School	0.094	0.131	0.107	0.160	0.326	0.181	0.076	0.120	0.138	0.152	0.269	0.245	0.098	0.121	0.114	0.136	0.341	0.190	0.190
College	0.094	0.131	0.107	0.160	0.326	0.181	0.076	0.120	0.138	0.152	0.269	0.245	0.098	0.121	0.114	0.136	0.341	0.190	0.190
Health	0.094	0.131	0.107	0.160	0.326	0.181	0.076	0.120	0.138	0.152	0.269	0.245	0.098	0.121	0.114	0.136	0.341	0.190	0.190
Hotel	0.094	0.131	0.107	0.160	0.326	0.181	0.076	0.120	0.138	0.152	0.269	0.245	0.098	0.121	0.114	0.136	0.341	0.190	0.190
Miscellaneous	0.094	0.131	0.107	0.160	0.326	0.181	0.076	0.120	0.138	0.152	0.269	0.245	0.098	0.121	0.114	0.136	0.341	0.190	0.190

Building Type	End Use 10					
	SP	SPP	SOP	WP	WPP	WOP
Office	0.005	0.010	0.018	0.154	0.461	0.352
Restaurant	0.005	0.009	0.018	0.167	0.389	0.411
Retail	0.005	0.009	0.018	0.167	0.389	0.411
FoodStore	0.005	0.009	0.018	0.167	0.389	0.411
Warehouse	0.005	0.009	0.018	0.167	0.389	0.411
School	0.005	0.009	0.018	0.167	0.389	0.411
College	0.005	0.009	0.018	0.167	0.389	0.411
Health	0.005	0.009	0.018	0.167	0.389	0.411
Hotel	0.005	0.009	0.018	0.167	0.389	0.411
Miscellaneous	0.005	0.009	0.018	0.167	0.389	0.411

APPENDIX D

COMMERCIAL

BUILDING AND TOU FACTOR INPUTS

Peak To Energy Relationship Table (Utility Coincidence)

Peak = Average kW * Factor

Building Type	End Use 1						End Use 2						End Use 3					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
Office	0.986	0.978	2.144	0.924	0.371	2.115	1.149	1.250	0.316	1.079	2.999	0.302	1.780	1.342	2.609	1.946	0.930	4.002
Restaurant	0.988	1.016	1.948	0.981	0.513	1.879	1.050	1.217	0.187	1.130	4.263	0.206	1.817	1.554	2.835	3.038	1.300	4.354
Retail	0.988	1.016	1.948	0.981	0.513	1.879	1.050	1.217	0.187	1.130	4.263	0.206	1.817	1.554	2.835	3.038	1.300	4.354
FoodStore	0.988	1.016	1.948	0.981	0.513	1.879	1.050	1.217	0.187	1.130	4.263	0.206	1.817	1.554	2.835	3.038	1.300	4.354
Warehouse	0.988	1.016	1.948	0.981	0.513	1.879	1.050	1.217	0.187	1.130	4.263	0.206	1.817	1.554	2.835	3.038	1.300	4.354
School	0.988	1.016	1.948	0.981	0.513	1.879	1.050	1.217	0.187	1.130	4.263	0.206	1.817	1.554	2.835	3.038	1.300	4.354
College	0.988	1.016	1.948	0.981	0.513	1.879	1.050	1.217	0.187	1.130	4.263	0.206	1.817	1.554	2.835	3.038	1.300	4.354
Health	0.988	1.016	1.948	0.981	0.513	1.879	1.050	1.217	0.187	1.130	4.263	0.206	1.817	1.554	2.835	3.038	1.300	4.354
Hotel	0.988	1.016	1.948	0.981	0.513	1.879	1.050	1.217	0.187	1.130	4.263	0.206	1.817	1.554	2.835	3.038	1.300	4.354
Miscellaneous	0.988	1.016	1.948	0.981	0.513	1.879	1.050	1.217	0.187	1.130	4.263	0.206	1.817	1.554	2.835	3.038	1.300	4.354

Building Type	End Use 4						End Use 5						End Use 6					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
Office	1.067	0.806	1.542	0.907	0.570	1.466	1.014	0.995	1.039	0.985	0.955	1.012	1.000	0.934	1.398	0.934	0.668	1.346
Restaurant	1.013	0.971	1.424	0.977	0.733	1.285	1.013	1.023	0.994	0.992	1.021	0.974	0.993	0.898	1.640	0.931	0.566	1.575
Retail	1.013	0.971	1.424	0.977	0.733	1.285	1.013	1.023	0.994	0.992	1.021	0.974	0.993	0.898	1.640	0.931	0.566	1.575
FoodStore	1.013	0.971	1.424	0.977	0.733	1.285	1.013	1.023	0.994	0.992	1.021	0.974	0.993	0.898	1.640	0.931	0.566	1.575
Warehouse	1.013	0.971	1.424	0.977	0.733	1.285	1.013	1.023	0.994	0.992	1.021	0.974	0.993	0.898	1.640	0.931	0.566	1.575
School	1.013	0.971	1.424	0.977	0.733	1.285	1.013	1.023	0.994	0.992	1.021	0.974	0.993	0.898	1.640	0.931	0.566	1.575
College	1.013	0.971	1.424	0.977	0.733	1.285	1.013	1.023	0.994	0.992	1.021	0.974	0.993	0.898	1.640	0.931	0.566	1.575
Health	1.013	0.971	1.424	0.977	0.733	1.285	1.013	1.023	0.994	0.992	1.021	0.974	0.993	0.898	1.640	0.931	0.566	1.575
Hotel	1.013	0.971	1.424	0.977	0.733	1.285	1.013	1.023	0.994	0.992	1.021	0.974	0.993	0.898	1.640	0.931	0.566	1.575
Miscellaneous	1.013	0.971	1.424	0.977	0.733	1.285	1.013	1.023	0.994	0.992	1.021	0.974	0.993	0.898	1.640	0.931	0.566	1.575

Building Type	End Use 7						End Use 8						End Use 9					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
Office	0.918	0.704	2.257	0.859	0.225	2.241	0.956	0.917	1.205	0.969	0.802	1.153	1.038	0.859	1.743	0.845	0.471	1.733
Restaurant	0.981	1.062	1.676	0.988	0.661	1.598	0.992	1.055	1.073	1.002	0.927	1.028	1.014	0.980	1.776	0.929	0.538	1.708
Retail	0.981	1.062	1.676	0.988	0.661	1.598	0.992	1.055	1.073	1.002	0.927	1.028	1.014	0.980	1.776	0.929	0.538	1.708
FoodStore	0.981	1.062	1.676	0.988	0.661	1.598	0.992	1.055	1.073	1.002	0.927	1.028	1.014	0.980	1.776	0.929	0.538	1.708
Warehouse	0.981	1.062	1.676	0.988	0.661	1.598	0.992	1.055	1.073	1.002	0.927	1.028	1.014	0.980	1.776	0.929	0.538	1.708
School	0.981	1.062	1.676	0.988	0.661	1.598	0.992	1.055	1.073	1.002	0.927	1.028	1.014	0.980	1.776	0.929	0.538	1.708
College	0.981	1.062	1.676	0.988	0.661	1.598	0.992	1.055	1.073	1.002	0.927	1.028	1.014	0.980	1.776	0.929	0.538	1.708
Health	0.981	1.062	1.676	0.988	0.661	1.598	0.992	1.055	1.073	1.002	0.927	1.028	1.014	0.980	1.776	0.929	0.538	1.708
Hotel	0.981	1.062	1.676	0.988	0.661	1.598	0.992	1.055	1.073	1.002	0.927	1.028	1.014	0.980	1.776	0.929	0.538	1.708
Miscellaneous	0.981	1.062	1.676	0.988	0.661	1.598	0.992	1.055	1.073	1.002	0.927	1.028	1.014	0.980	1.776	0.929	0.538	1.708

Building Type	End Use 10					
	SP	SPP	SOP	WP	WPP	WOP
Office	0.851	0.481	1.886	0.909	0.497	1.745
Restaurant	0.914	0.692	1.299	0.976	0.797	1.254
Retail	0.914	0.692	1.299	0.976	0.797	1.254
FoodStore	0.914	0.692	1.299	0.976	0.797	1.254
Warehouse	0.914	0.692	1.299	0.976	0.797	1.254
School	0.914	0.692	1.299	0.976	0.797	1.254
College	0.914	0.692	1.299	0.976	0.797	1.254
Health	0.914	0.692	1.299	0.976	0.797	1.254
Hotel	0.914	0.692	1.299	0.976	0.797	1.254
Miscellaneous	0.914	0.692	1.299	0.976	0.797	1.254

APPENDIX D

INDUSTRIAL

BUILDING AND TOU FACTOR INPUTS

Industrial Building Stock Table

Units: Base kWh																		
Segment	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
All	381,009,336	23,409,245	57,318,651	68,314,057	161,369,466	166,112,589	228,785,330	96,790,857	294,221,523	826,731,730	182,395,673	409,581,356	155,280,284	25,420,081	281,068,466	31,278,602	298,825,476	181,240,597

End Use Load Shape Table

(Fraction of annual energy)

SIC Group	End Use 1 - Motors						End Use 2 - Compressed Air						End Use 3 - Process Other					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SIC20	0.078	0.123	0.156	0.134	0.261	0.248	0.081	0.118	0.136	0.135	0.293	0.236	0.078	0.123	0.156	0.134	0.261	0.248
SIC22/23	0.078	0.123	0.156	0.134	0.261	0.248	0.081	0.118	0.136	0.135	0.293	0.236	0.078	0.123	0.156	0.134	0.261	0.248
SIC24/25	0.078	0.123	0.156	0.134	0.261	0.248	0.081	0.118	0.136	0.135	0.293	0.236	0.078	0.123	0.156	0.134	0.261	0.248
SIC26	0.078	0.123	0.156	0.134	0.261	0.248	0.081	0.118	0.136	0.135	0.293	0.236	0.078	0.123	0.156	0.134	0.261	0.248
SIC27	0.078	0.123	0.156	0.134	0.261	0.248	0.081	0.118	0.136	0.135	0.293	0.236	0.078	0.123	0.156	0.134	0.261	0.248
SIC28	0.073	0.116	0.155	0.137	0.253	0.266	0.081	0.118	0.136	0.135	0.293	0.236	0.073	0.116	0.155	0.137	0.253	0.266
SIC29	0.073	0.116	0.155	0.137	0.253	0.266	0.081	0.118	0.136	0.135	0.293	0.236	0.073	0.116	0.155	0.137	0.253	0.266
SIC30	0.073	0.116	0.155	0.137	0.253	0.266	0.081	0.118	0.136	0.135	0.293	0.236	0.073	0.116	0.155	0.137	0.253	0.266
SIC32	0.072	0.115	0.155	0.133	0.262	0.264	0.081	0.118	0.136	0.135	0.293	0.236	0.072	0.115	0.155	0.133	0.262	0.264
SIC33	0.072	0.115	0.155	0.133	0.262	0.264	0.081	0.118	0.136	0.135	0.293	0.236	0.072	0.115	0.155	0.133	0.262	0.264
SIC34	0.084	0.121	0.143	0.134	0.279	0.238	0.081	0.118	0.136	0.135	0.293	0.236	0.084	0.121	0.143	0.134	0.279	0.238
SIC35	0.084	0.121	0.143	0.134	0.279	0.238	0.081	0.118	0.136	0.135	0.293	0.236	0.084	0.121	0.143	0.134	0.279	0.238
SIC36	0.084	0.121	0.143	0.134	0.279	0.238	0.081	0.118	0.136	0.135	0.293	0.236	0.084	0.121	0.143	0.134	0.279	0.238
SIC37	0.084	0.121	0.143	0.134	0.279	0.238	0.081	0.118	0.136	0.135	0.293	0.236	0.084	0.121	0.143	0.134	0.279	0.238
SIC38	0.084	0.121	0.143	0.134	0.279	0.238	0.081	0.118	0.136	0.135	0.293	0.236	0.084	0.121	0.143	0.134	0.279	0.238
SIC39/21/31	0.078	0.123	0.156	0.134	0.261	0.248	0.081	0.118	0.136	0.135	0.293	0.236	0.078	0.123	0.156	0.134	0.261	0.248
Mining	0.072	0.115	0.155	0.133	0.262	0.264	0.081	0.118	0.136	0.135	0.293	0.236	0.072	0.115	0.155	0.133	0.262	0.264
Water/WW	0.078	0.123	0.156	0.134	0.261	0.248	0.081	0.118	0.136	0.135	0.293	0.236	0.078	0.123	0.156	0.134	0.261	0.248

SIC Group	End Use 4 -Lighting						End Use 5 - Cooling					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SIC20	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC22/23	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC24/25	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC26	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC27	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC28	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC29	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC30	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC32	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC33	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC34	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC35	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC36	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC37	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC38	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
SIC39/21/31	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
Mining	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076
Water/WW	0.091	0.118	0.126	0.126	0.327	0.212	0.228	0.276	0.223	0.061	0.137	0.076

APPENDIX D

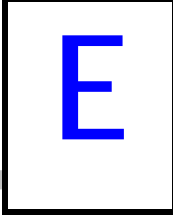
INDUSTRIAL

BUILDING AND TOU FACTOR INPUTS

Peak To Energy Relationship Table (Utility Coincidence)
 (Ratio of peak kW to average kW)

SIC Group	End Use 1 - Motors						End Use 2 - Compressed Air						End Use 3 - Process Other					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SIC20	0.991	0.941	1.140	0.989	0.899	1.193	0.983	0.939	1.311	0.962	0.791	1.314	0.991	0.941	1.140	0.989	0.899	1.193
SIC22/23	0.991	0.941	1.140	0.989	0.899	1.193	0.983	0.939	1.311	0.962	0.791	1.314	0.991	0.941	1.140	0.989	0.899	1.193
SIC24/25	0.991	0.941	1.140	0.989	0.899	1.193	0.983	0.939	1.311	0.962	0.791	1.314	0.991	0.941	1.140	0.989	0.899	1.193
SIC26	0.991	0.941	1.140	0.989	0.899	1.193	0.983	0.939	1.311	0.962	0.791	1.314	0.991	0.941	1.140	0.989	0.899	1.193
SIC27	0.991	0.941	1.140	0.989	0.899	1.193	0.983	0.939	1.311	0.962	0.791	1.314	0.991	0.941	1.140	0.989	0.899	1.193
SIC28	0.994	0.980	1.053	0.998	0.963	1.042	0.983	0.939	1.311	0.962	0.791	1.314	0.994	0.980	1.053	0.998	0.963	1.042
SIC29	0.994	0.980	1.053	0.998	0.963	1.042	0.983	0.939	1.311	0.962	0.791	1.314	0.994	0.980	1.053	0.998	0.963	1.042
SIC30	0.994	0.980	1.053	0.998	0.963	1.042	0.983	0.939	1.311	0.962	0.791	1.314	0.994	0.980	1.053	0.998	0.963	1.042
SIC32	0.980	0.938	1.130	0.998	0.897	1.135	0.983	0.939	1.311	0.962	0.791	1.314	0.980	0.938	1.130	0.998	0.897	1.135
SIC33	0.980	0.938	1.130	0.998	0.897	1.135	0.983	0.939	1.311	0.962	0.791	1.314	0.980	0.938	1.130	0.998	0.897	1.135
SIC34	0.985	0.995	1.256	0.990	0.782	1.272	0.983	0.939	1.311	0.962	0.791	1.314	0.985	0.995	1.256	0.990	0.782	1.272
SIC35	0.985	0.995	1.256	0.990	0.782	1.272	0.983	0.939	1.311	0.962	0.791	1.314	0.985	0.995	1.256	0.990	0.782	1.272
SIC36	0.985	0.995	1.256	0.990	0.782	1.272	0.983	0.939	1.311	0.962	0.791	1.314	0.985	0.995	1.256	0.990	0.782	1.272
SIC37	0.985	0.995	1.256	0.990	0.782	1.272	0.983	0.939	1.311	0.962	0.791	1.314	0.985	0.995	1.256	0.990	0.782	1.272
SIC38	0.985	0.995	1.256	0.990	0.782	1.272	0.983	0.939	1.311	0.962	0.791	1.314	0.985	0.995	1.256	0.990	0.782	1.272
SIC39/21/31	0.991	0.941	1.140	0.989	0.899	1.193	0.983	0.939	1.311	0.962	0.791	1.314	0.991	0.941	1.140	0.989	0.899	1.193
Mining	0.980	0.938	1.130	0.998	0.897	1.135	0.983	0.939	1.311	0.962	0.791	1.314	0.980	0.938	1.130	0.998	0.897	1.135
Water/WW	0.991	0.941	1.140	0.989	0.899	1.193	0.983	0.939	1.311	0.962	0.791	1.314	0.991	0.941	1.140	0.989	0.899	1.193

SIC Group	End Use 4 - Lighting						End Use 5 - Cooling					
	SP	SPP	SOP	WP	WPP	WOP	SP	SPP	SOP	WP	WPP	WOP
SIC20	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC22/23	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC24/25	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC26	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC27	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC28	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC29	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC30	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC32	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC33	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC34	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC35	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC36	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC37	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC38	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126
SIC39/21/31	0.986	0.893	1.610	0.928	0.627	1.600	1.810	1.513	2.658	3.474	1.938	5.126



MEASURE INPUTS

This appendix presents measure data used for the Colorado DSM Market Potential Study. Data are shown by sector: residential, commercial, and industrial.

DSM TECHNOLOGY INPUT TABLES

UTILITY:	Xcel Energy	BATCH:	1
SECTOR:	Residential	ANALYSIS:	Basic
SEGMENT:	All Electric	VINTAGE:	All

APPENDIX E

RESIDENTIAL

MEASURE INPUT DATA

MEASURE COSTS			NPV of										Full = 1					Implementation				
Segment	Measure #	Measure Description	Savings Units	Cost Units	Unit Equipment Cost	Unit Labor Cost	Lifetime O & M Cost	Implementation Cost Factor	Cost per Unit	Service Life	Incr. = 0		Full Unit Cost	Relative Energy Reduction Factors					End Use	Type 1=1 time 2=ROB		
											Initial Cost	Replace Cost		SP	SPP	SOP	WP	WPP			WOP	
Existing	501	Heat Pump Water Heater (EF=2.9)	unit	unit	\$1,539.13	\$0.00		\$1,539.13	1	10	0	0	\$1,539.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2
Existing	502	HE Water Heater (EF=0.93)	unit	unit	\$267.73	\$0.00		\$267.73	1	15	0	0	\$267.73	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2
Existing	503	Solar Water Heat	unit	unit	\$3,850.00	\$0.00		\$3,850.00	1	20	1	1	\$3,850.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2
Existing	504	Tankless Water Heater	unit	unit	\$789.30	\$0.00		\$789.30	1	20	1	1	\$789.30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2
Existing	505	Low Flow Showerhead	unit	unit	\$22.95	\$0.00		\$22.95	1	10	1	1	\$22.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	1
Existing	506	Faucet Aerators	unit	unit	\$7.12	\$0.00		\$7.12	1	9	1	1	\$7.12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	1
Existing	507	Pipe Wrap	unit	linear foot	\$0.36	\$2.44		\$2.80	1	15	1	1	\$2.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	1
Existing	600	Base Clotheswasher (MEF=1.04)	unit	unit	\$588.39	\$0.00		\$588.39	1	14	1	1	\$588.39	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6	2
Existing	601	Energy Star CW (MEF=1.42)	unit	unit	\$769.17	\$0.00		\$769.17	1	14	0	0	\$769.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6	2
Existing	602	Energy Star CW (MEF=1.6)	unit	unit	\$1,137.38	\$0.00		\$1,137.38	1	14	0	0	\$1,137.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6	2
Existing	603	Ultra High Efficiency CW (MEF=1.8)	unit	unit	\$1,181.16	\$0.00		\$1,181.16	1	14	0	0	\$1,181.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6	2
Existing	700	Base Dishwasher (EF=0.46)	unit	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	1.00	8	2
Existing	701	Energy Star DW (EF=0.58)	unit	unit	\$426.30	\$0.00		\$426.30	1	13	0	0	\$426.30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	8	2
New	130	Base Cooling System	home	Unit	\$0.00	\$0.00		\$0.00	1	18	1	1	\$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1	1
New	131	New Constr Cooling Package	home	Unit	\$1,209.00	\$0.00		\$1,209.00	1	18	1	1	\$1,209.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1	1
New	135	Base Cooling System - Oversized	home	Unit	\$0.00	\$0.00		\$0.00	1	18	1	1	\$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1	1
New	136	New Const Cooling Package w/ Downsizing	home	Unit	\$887.00	\$0.00		\$887.00	1	18	1	1	\$887.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1	1
New	160	Base Furnace-AC Fan	home	Unit	\$0.00	\$0.00		\$0.00	1	18	1	1	\$0.00	1.13	0.85	1.00	1.00	1.00	1.00	1.00	13	1
New	161	Variable Speed Furnace-AC Fan	home	Unit	\$175.00	\$0.00		\$175.00	1	18	1	1	\$175.00	0.60	0.60	0.60	1.00	1.00	1.00	1.00	13	2
New	190	Base Electric Heating and Cooling	home	Unit	\$0.00	\$0.00		\$0.00	1	18	1	1	\$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	13	1
New	191	Ground-Source Heat Pump	home	square foot	\$5,684.00	\$0.00		\$5,684.00	1	20	1	1	\$5,684.00	0.10	0.10	0.10	1.00	1.00	1.00	1.00	13	1
New	200	Base Incandescent Bulb	lamp	lamp	\$0.00	\$0.00		\$0.00	1	1000	1	1	\$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
New	201	CFL - 15w	lamp	lamp	\$3.00	\$0.00		\$5.01	1	8000	1	1	\$5.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
New	210	Base Torchiere	lamp	lamp	\$0.00	\$0.00		\$0.00	1	9	1	1	\$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
New	211	CFL Torchiere - 55w	lamp	lamp	\$59.39	\$0.00		\$59.39	1	9	1	1	\$59.39	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
New	220	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	fixture	fixture	\$12.00	\$40.00		\$52.00	1	45,000	1	1	\$52.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
New	221	ROB 2L4'T8, 1EB	fixture	fixture	\$20.00	\$40.00		\$60.00	1	70,000	0	0	\$60.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2	2
New	222	RET 2L4'T8, 1EB	fixture	fixture	\$20.00	\$40.00		\$60.00	1	70,000	1	1	\$60.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2	1
New	300	Base Refrigerator	unit	unit	\$537.75	\$0.00		\$537.75	1	18	1	1	\$537.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3	2
New	301	HE Refrigerator - Energy Star	unit	unit	\$698.67	\$0.00		\$698.67	1	18	0	0	\$698.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3	2
New	400	Base Freezer	unit	unit	\$329.00	\$0.00		\$329.00	1	11	1	1	\$329.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4	2
New	401	HE Freezer	unit	unit	\$362.00	\$0.00		\$362.00	1	11	0	0	\$362.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4	2
New	500	Base 40 gal. Water Heating (EF=0.88)	unit	unit	\$195.43	\$0.00		\$195.43	1	15	1	1	\$195.43	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2
New	501	Heat Pump Water Heater (EF=2.9)	unit	unit	\$1,539.13	\$0.00		\$1,539.13	1	10	0	0	\$1,539.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2
New	502	HE Water Heater (EF=0.93)	unit	unit	\$267.73	\$0.00		\$267.73	1	15	0	0	\$267.73	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2
New	503	Solar Water Heat	unit	unit	\$3,850.00	\$0.00		\$3,850.00	1	20	1	1	\$3,850.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2
New	504	Tankless Water Heater	unit	unit	\$789.30	\$0.00		\$789.30	1	20	1	1	\$789.30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2
New	507	Pipe Wrap	unit	linear foot	\$0.36	\$2.44		\$2.80	1	15	1	1	\$2.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	1
New	600	Base Clotheswasher (MEF=1.04)	unit	unit	\$588.39	\$0.00		\$588.39	1	14	1	1	\$588.39	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6	2
New	601	Energy Star CW (MEF=1.42)	unit	unit	\$769.17	\$0.00		\$769.17	1	14	0	0	\$769.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6	2
New	602	Energy Star CW (MEF=1.6)	unit	unit	\$1,137.38	\$0.00		\$1,137.38	1	14	0	0	\$1,137.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6	2
New	603	Ultra High Efficiency CW (MEF=1.8)	unit	unit	\$1,181.16	\$0.00		\$1,181.16	1	14	0	0	\$1,181.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6	2
New	700	Base Dishwasher (EF=0.46)	unit	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	1.00	8	2
New	701	Energy Star DW (EF=0.58)	unit	unit	\$426.30	\$0.00		\$426.30	1	13	0	0	\$426.30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	8	2

BASE TECHNOLOGY UECs (kWh/home)				
Base				
Segment	Measure #	Measure Description	Single Family	Multi-Family
Existing	100	Base, 10 SEER Split-System Air Conditioner	1,837	1,747
Existing	140	Base Room Air Conditioner	919	873
Existing	160	Base Furnace-AC Fan	900	720
Existing	180	Base Resistance Space Heating	9,500	5,900
Existing	200	Base Lighting	1,307	873
Existing	210	Base Torchierre	412	332
Existing	220	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	226	126
Existing	300	Base Refrigerator	862	590
Existing	310	Base Refrigerator - Recycling	1,474	1,092
Existing	400	Base Freezer	510	418
Existing	410	Base Freezer - Recycling	672	550
Existing	500	Base Water Heater	2,560	1,815
Existing	600	Base Clotheswasher (EF=1.18)	674	519
Existing	700	Base Dishwasher (EF=0.46)	613	464
New	130	Base Cooling System	1,837	1,747
New	135	Base Cooling System	1,837	1,747
New	160	Base Furnace-AC Fan	900	720
New	190	Base Electric Heating and Cooling	11,337	7,647
New	200	Base Lighting	1,307	873
New	210	Base Torchierre	412	332
New	220	Base Fluorescent Fixture, 2L4'T12, 40W, 1EEMAG	226	126
New	300	Base Refrigerator	862	590
New	400	Base Freezer	510	418
New	500	Base Water Heater	2,560	1,815
New	600	Base Clotheswasher (EF=1.18)	674	519
New	700	Base Dishwasher (EF=0.46)	613	464

APPENDIX E

RESIDENTIAL

MEASURE INPUT DATA

Segment	Measure #	Measure Description	Applicability Factor (percent)		Incomplete Factor (percent)		Feasibility Factor (percent)		Energy Savings (percent)		UEC Adjustment (percent)		Technology Saturation (Units per home)		Lighting Adjustment (Hours/year)	
			Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family
Existing	100	Base, 13 SEER Split-System Air Conditioner	41%	47%	100%	100%	100%	100%	0%	0%	100%	100%	3	2		
Existing	101	14 SEER Split-System Air Conditioner	41%	47%	100%	100%	100%	50%	7%	7%	69%	69%	3	2		
Existing	102	15 SEER Split-System Air Conditioner	41%	47%	100%	100%	100%	100%	13%	13%	69%	69%	3	2		
Existing	103	16 SEER Split-System Air Conditioner	41%	47%	100%	100%	100%	100%	19%	19%	69%	69%	3	2		
Existing	104	17 SEER Split-System Air Conditioner	41%	47%	100%	100%	100%	100%	24%	24%	69%	69%	3	2		
Existing	105	18 SEER Split-System Air Conditioner	41%	47%	100%	100%	100%	100%	28%	28%	69%	69%	3	2		
Existing	106	Evaporative Cooler	41%	47%	95%	96%	50%	50%	58%	58%	100%	100%	1	1		
Existing	107	Whole House Fans	41%	47%	79%	96%	75%	25%	20%	20%	100%	100%	1	1		
Existing	108	Attic Venting	41%	47%	89%	100%	74%	32%	10%	10%	100%	100%	1	1		
Existing	109	Typical Refrigerant Charge Adjustment	41%	47%	40%	40%	100%	100%	10%	10%	100%	100%	3	2		
Existing	110	High Refrigerant Charge Adjustment	41%	47%	10%	10%	100%	100%	19%	19%	100%	100%	3	2		
Existing	111	Duct Insulation	41%	47%	13%	3%	100%	100%	4%	4%	100%	100%	80	70		
Existing	112	Duct Sealing - from 24% AHU to 12%	41%	47%	25%	25%	100%	100%	5%	1%	100%	100%	3	2		
Existing	113	Duct Sealing - from 40% AHU to 12%	41%	47%	60%	60%	100%	100%	15%	5%	100%	100%	3	2		
Existing	114	Window Film	41%	47%	100%	100%	12%	21%	40%	34%	100%	100%	273	89		
Existing	115	Default Window With Sunscreen	41%	47%	90%	94%	100%	100%	30%	26%	100%	100%	273	89		
Existing	118	Ceiling R-0 to R-38 Insulation - Batts	3%	23%	100%	100%	33%	8%	26%	26%	100%	100%	1,555	642		
Existing	119	Ceiling R-11 to R-38 Insulation - Batts	6%	3%	100%	100%	50%	8%	6%	6%	100%	100%	1,555	642		
Existing	120	Ceiling R-19 to R-38 Insulation - Batts	22%	19%	100%	100%	83%	73%	3%	3%	100%	100%	1,555	642		
Existing	121	Wall Blow-in R-0 to R-13 Insulation	41%	47%	12%	33%	100%	100%	15%	3%	100%	100%	1,983	579		
Existing	140	Base Room Air Conditioner - EER 9.8	4%	9%	100%	100%	100%	100%	0%	0%	100%	100%	1.2	1.0		
Existing	141	Energy Star Room Air Conditioner - EER 10.8	4%	9%	100%	100%	100%	100%	10%	10%	92%	92%	1.2	1.0		
Existing	142	Evaporative Cooler	4%	9%	95%	96%	50%	50%	58%	58%	100%	100%	1	1		
Existing	143	Whole House Fans	4%	9%	79%	96%	75%	25%	20%	20%	100%	100%	1	1		
Existing	144	Attic Venting	4%	9%	40%	79%	74%	32%	10%	10%	100%	100%	1	1		
Existing	145	Window Film	4%	9%	100%	100%	12%	21%	40%	34%	100%	100%	273	89		
Existing	146	Default Window With Sunscreen	4%	9%	90%	94%	100%	100%	30%	26%	100%	100%	273	89		
Existing	148	Ceiling R-0 to R-38 Insulation - Batts	0%	4%	100%	100%	33%	8%	51%	51%	100%	100%	1,555	642		
Existing	149	Ceiling R-11 to R-38 Insulation - Batts	1%	1%	100%	100%	50%	8%	16%	16%	100%	100%	1,555	642		
Existing	150	Ceiling R-19 to R-38 Insulation - Batts	2%	4%	100%	100%	83%	73%	9%	9%	100%	100%	1,555	642		
Existing	151	Wall Blow-in R-0 to R-13 Insulation	4%	9%	12%	33%	45%	77%	15%	3%	100%	100%	1,983	579		
Existing	160	Base Furnace-AC Fan	76%	64%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
Existing	161	Variable Speed Furnace-AC Fan	76%	64%	95%	95%	75%	75%	50%	50%	100%	100%	1	1		
Existing	180	Base Resistance Space Heating	7%	12%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
Existing	182	Ceiling R-0 to R-38 Insulation - Batts	0%	12%	100%	100%	33%	8%	40%	32%	100%	100%	1,555	642		
Existing	183	Ceiling R-11 to R-38 Insulation - Batts	1%	6%	100%	100%	50%	8%	8%	8%	100%	100%	1,555	642		
Existing	184	Ceiling R-19 to R-38 Insulation - Batts	4%	1%	100%	100%	83%	73%	8%	8%	100%	100%	1,555	642		
Existing	185	Wall Blow-in R-0 to R-13 Insulation	7%	5%	12%	33%	45%	77%	27%	21%	100%	100%	1,983	579		
Existing	186	Infiltration Reduction (0.4)	7%	12%	40%	40%	100%	100%	6%	8%	100%	100%	1	1		
Existing	187	Floor R-0 to R-19 Insulation-Batts	7%	12%	55%	49%	13%	17%	10%	10%	100%	100%	1,432	1,432		
Existing	200	Base Incandescent Bulb	100%	100%	100%	100%	100%	100%	0%	0%	100%	100%	31	20	840	840
Existing	201	CFL - 15w	100%	100%	95%	96%	38%	41%	75%	75%	100%	100%	31	20	840	840
Existing	210	Base Torchiere	26%	23%	100%	100%	100%	100%	0%	0%	100%	100%	1.8	1.4	840	840
Existing	211	CFL Torchiere - 55w	26%	23%	89%	93%	50%	50%	82%	82%	100%	100%	1.8	1.4	840	840
Existing	220	Base Fluorescent Fixture, 2L4T12, 40W, 1EEMAG	60%	60%	100%	100%	100%	100%	0%	0%	100%	100%	1.8	1.0	1,460	1,460
Existing	221	ROB 2L4T8, 1EB	60%	60%	95%	95%	100%	100%	28%	28%	100%	100%	1.8	1.0	1,460	1,460
Existing	222	RET 2L4T8, 1EB	60%	60%	95%	95%	100%	100%	28%	28%	100%	100%	1.8	1.0	1,460	1,460
Existing	300	Base Refrigerator	99%	80%	100%	100%	100%	100%	0%	0%	100%	100%	1.0	0.8		
Existing	301	HE Refrigerator - Energy Star	99%	80%	90%	90%	100%	100%	15%	15%	74%	74%	1.0	0.8		

APPENDIX E

RESIDENTIAL

MEASURE INPUT DATA

Segment	Measure #	Measure Description	Applicability Factor (percent)		Incomplete Factor (percent)		Feasibility Factor (percent)		Energy Savings (percent)		UEC Adjustment (percent)		Technology Saturation (Units per home)		Lighting Adjustment (Hours/year)	
			Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family
Existing	310	Base Refrigerator - Recycling	30%	30%	100%	100%	100%	100%	0%	0%	100%	100%	1.0	0.8		
Existing	311	Refrigerator Recycling	30%	30%	100%	100%	100%	100%	61%	61%	100%	100%	1.0	0.8		
Existing	400	Base Freezer	24%	8%	100%	100%	100%	100%	0%	0%	100%	100%	1.0	0.8		
Existing	401	HE Freezer	24%	8%	100%	100%	100%	100%	15%	15%	80%	80%	1.0	0.8		
Existing	410	Base Freezer - Recycling	27%	9%	100%	100%	100%	100%	0%	0%	100%	100%	1.0	0.8		
Existing	411	Freezer Recycling	27%	9%	100%	100%	100%	100%	61%	61%	100%	100%	1.0	0.8		
Existing	500	Base 40 gal. Water Heating (EF=0.88)	6%	12%	100%	100%	100%	100%	0%	0%	97%	97%	1.0	1.0		
Existing	501	Heat Pump Water Heater (EF=2.9)	6%	12%	100%	100%	50%	50%	70%	70%	100%	100%	1.0	1.0		
Existing	502	HE Water Heater (EF=0.93)	6%	12%	100%	100%	100%	100%	3%	3%	100%	100%	1.0	1.0		
Existing	503	Solar Water Heat	6%	12%	100%	100%	50%	25%	50%	50%	100%	100%	1.0	1.0		
Existing	504	Tankless Water Heater	6%	12%	100%	100%	75%	75%	20%	20%	100%	100%	1.0	1.0		
Existing	505	Low Flow Showerhead	6%	12%	38%	40%	80%	80%	8%	8%	100%	100%	2.1	1.5		
Existing	506	Faucet Aerators	6%	12%	55%	61%	90%	90%	3%	3%	100%	100%	3.2	1.8		
Existing	507	Pipe Wrap	6%	12%	86%	87%	80%	70%	4%	4%	100%	100%	10	10		
Existing	600	Base Clotheswasher (MEF=1.04)	6%	8%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
Existing	601	Energy Star CW (MEF=1.42)	6%	8%	84%	87%	100%	100%	71%	71%	100%	100%	1	1		
Existing	602	Energy Star CW (MEF=1.6)	6%	8%	84%	87%	100%	100%	78%	78%	100%	100%	1	1		
Existing	603	Ultra High Efficiency CW (MEF=1.8)	6%	8%	84%	87%	100%	100%	90%	90%	100%	100%	1	1		
Existing	700	Base Dishwasher (EF=0.46)	2%	6%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
Existing	701	Energy Star DW (EF=0.58)	2%	6%	18%	29%	100%	100%	21%	21%	100%	100%	1	1		
New	130	Base Cooling System	67%	73%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
New	131	New Constr Cooling Package	67%	73%	50%	50%	50%	50%	27%	21%	100%	100%	1.0	0.5		
New	135	Base Cooling System - Oversized	67%	73%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
New	136	New Const Cooling Package w/ Downsizing	67%	73%	50%	50%	50%	50%	27%	21%	100%	100%	1.0	0.5		
New	160	Base Furnace-AC Fan	76%	64%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
New	161	Variable Speed Furnace-AC Fan	76%	64%	95%	95%	75%	75%	50%	50%	100%	100%	1	1		
New	190	Base Electric Heating and Cooling	7%	12%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
New	191	Ground-Source Heat Pump	7%	12%	100%	100%	10%	0%	70%	70%	100%	100%	1	1		
New	200	Base Incandescent Bulb	100%	100%	100%	100%	100%	100%	0%	0%	100%	100%	30.7	20.3	840	840
New	201	CFL - 15w	100%	100%	95%	96%	38%	41%	75%	75%	100%	100%	30.7	20.3	840	840
New	210	Base Torchiere	26%	23%	100%	100%	100%	100%	0%	0%	100%	100%	1.8	1.4	840	840
New	211	CFL Torchiere - 55w	26%	23%	89%	93%	50%	50%	82%	82%	100%	100%	1.8	1.4	840	840
New	220	Base Fluorescent Fixture, 2L4T12, 40W, 1EEMAG	60%	60%	100%	100%	100%	100%	0%	0%	100%	100%	1.8	1.0	1,460	1,460
New	221	ROB 2L4T8, 1EB	60%	60%	95%	95%	100%	100%	28%	28%	100%	100%	1.8	1.0	1,460	1,460
New	222	RET 2L4T8, 1EB	60%	60%	95%	95%	100%	100%	28%	28%	100%	100%	1.8	1.0	1,460	1,460
New	300	Base Refrigerator	100%	100%	100%	100%	100%	100%	0%	0%	100%	100%	1.2	1.1		
New	301	HE Refrigerator - Energy Star	100%	100%	90%	90%	100%	100%	15%	15%	74%	74%	1.2	1.1		
New	400	Base Freezer	38%	13%	100%	100%	100%	100%	0%	0%	100%	100%	1.0	0.8		
New	401	HE Freezer	38%	13%	100%	100%	100%	100%	15%	15%	80%	80%	1.0	0.8		
New	500	Base 40 gal. Water Heating (EF=0.88)	6%	12%	100%	100%	100%	100%	0%	0%	97%	97%	1	1		
New	501	Heat Pump Water Heater (EF=2.9)	6%	12%	100%	100%	50%	50%	70%	70%	100%	100%	1	1		
New	502	HE Water Heater (EF=0.93)	6%	12%	100%	100%	100%	100%	3%	3%	100%	100%	1	1		
New	503	Solar Water Heat	6%	12%	100%	100%	50%	25%	50%	50%	100%	100%	1	1		
New	504	Tankless Water Heater	6%	12%	100%	100%	75%	75%	20%	20%	100%	100%	1	1		
New	507	Pipe Wrap	6%	12%	86%	87%	80%	70%	4%	4%	100%	100%	10	10		
New	600	Base Clotheswasher (MEF=1.04)	6%	8%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
New	601	Energy Star CW (MEF=1.42)	6%	8%	84%	87%	100%	100%	71%	71%	100%	100%	1	1		
New	602	Energy Star CW (MEF=1.6)	6%	8%	84%	87%	100%	100%	78%	78%	100%	100%	1	1		
New	603	Ultra High Efficiency CW (MEF=1.8)	6%	8%	84%	87%	100%	100%	90%	90%	100%	100%	1	1		
New	700	Base Dishwasher (EF=0.46)	2%	6%	100%	100%	100%	100%	0%	0%	100%	100%	1	1		
New	701	Energy Star DW (EF=0.58)	2%	6%	18%	29%	100%	100%	21%	21%	100%	100%	1	1		

DSM TECHNOLOGY INPUT TABLES

UTILITY:	Xcel Energy	BATCH:	1
SECTOR:	Commercial	ANALYSIS:	Basic
SEGMENT:	All Electric	VINTAGE:	All

APPENDIX E

COMMERCIAL

MEASURE INPUT DATA

MEASURE COSTS			NPV of										Full = 1					Implementation				
Segment	Measure #	Measure Description	Savings	Cost	Unit	Unit	Lifetime	Implementation	Cost	Units	Service	Initial	Replace	Full	Relative Energy Reduction Factors					End	Type	
			Units	Units	Equipment Cost	Labor Cost	O & M Cost	Cost	per Savings Unit	Life	Cost	Cost	Cost	SP	SPP	SOP	WP	WPP	WOP	Use	1=1 time 2=ROB	
Existing	420	Base Fan Motor, 40hp, 1800rpm, 93.0%	HP	HP	\$37.00		\$0.00		\$37.00	1	15	1	1	\$37.00	1.00	1.00	1.00	1.00	1.00	1.00	4	2
Existing	421	Fan Motor, 40hp, 1800rpm, 94.1%	HP	HP	\$47.00		\$0.00		\$47.00	1	15	0	0	\$47.00	1.00	1.00	1.00	1.00	1.00	1.00	4	2
Existing	422	Variable Speed Drive Control, 40 HP	HP	HP	\$120.00	\$37.00	\$0.00		\$157.00	1	15	1	1	\$157.00	0.25	1.00	1.00	1.00	1.00	1.00	4	1
Existing	423	Air Handler Optimization, 40 HP	sqft	sqft	\$0.00		\$0.03		\$0.03	1	8	1	1	\$0.03	0.25	1.00	1.00	1.00	1.00	1.00	4	1
Existing	500	Base Refrigeration System	40,000 sqft store	40,000 sqft store	\$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
Existing	501	High-efficiency fan motors	40,000 sqft store	40,000 sqft store	\$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
Existing	502	Strip curtains for walk-ins	40,000 sqft store	40,000 sqft store	\$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
Existing	503	Night covers for display cases	linear ft. display	linear ft. display	\$9.25	\$0.00	\$0.00		\$9.25	1	4.8	1	1	\$9.25	0.00	1.00	1.00	1.00	1.00	1.00	5	1
Existing	504	Evaporator fan controller for MT walk-ins	controller	controller	\$300.00	\$0.00	\$0.00		\$300.00	1	5	1	1	\$300.00	0.00	1.00	1.00	1.00	1.00	1.00	5	1
Existing	505	Efficient compressor motor	40,000 sqft store	40,000 sqft store	\$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
Existing	506	Compressor VSD retrofit	40,000 sqft store	40,000 sqft store	\$16,200.00	\$0.00	\$0.00		\$16,200.00	1	10	1	1	\$16,200.00	0.50	1.00	1.00	1.00	1.00	1.00	5	1
Existing	507	Floating head pressure controls	40,000 sqft store	40,000 sqft store	\$4,995.00	\$0.00	\$0.00		\$4,995.00	1	14	1	1	\$4,995.00	0.00	1.00	1.00	1.00	1.00	1.00	5	1
Existing	508	Refrigeration Commissioning	Ton of Load	Ton of Load	\$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
Existing	509	Demand Hot Gas Defrost	HP	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
Existing	510	Demand Defrost Electric	HP	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
Existing	511	Anti-sweat (humidistat) controls	40,000 sqft store	40,000 sqft store	\$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
Existing	610	Base Desktop PC	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	6	1
Existing	611	PC Manual Power Management Enabling	PC	PC	\$0.00	\$8.00	\$0.00		\$8.00	1	4	1	1	\$8.00	0.66	0.94	1.32	1.00	0.81	1.32	6	1
Existing	612	PC Network Power Management Enabling	PC	PC	\$0.00	\$4.00	\$0.00		\$4.00	1	4	1	1	\$4.00	0.66	0.94	1.32	1.00	0.81	1.32	6	1
Existing	620	Base Monitor, CRT	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	6	1
Existing	621	Energy Star or Better Monitor	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	6	1
Existing	622	Monitor Power Management Enabling	PC	PC	\$0.00	\$8.00	\$0.00		\$8.00	1	4	1	1	\$8.00	0.66	0.94	1.32	1.00	0.81	1.32	6	1
Existing	630	Base Monitor, LCD	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	6	1
Existing	631	Energy Star or Better Monitor	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	6	1
Existing	632	Monitor Power Management Enabling	Monitor	Monitor	\$0.00	\$8.00	\$0.00		\$8.00	1	4	1	1	\$8.00	0.66	0.94	1.32	1.00	0.81	1.32	6	1
Existing	640	Base Copier	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	6	1
Existing	641	Energy Star or Better Copier	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	6	1
Existing	642	Copier Power Management Enabling	Copier	Copier	\$0.00	\$45.00	\$0.00		\$45.00	1	6	1	1	\$45.00	0.66	0.94	1.32	1.00	0.81	1.32	6	1
Existing	650	Base Laser Printer	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	6	1
Existing	651	Printer Power Management Enabling	Printer	Printer	\$0.00	\$45.00	\$0.00		\$45.00	1	5	1	1	\$45.00	0.66	0.94	1.32	1.00	0.81	1.32	6	1
Existing	800	Base Water Heating	kBtu/hr	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	8	1
Existing	801	Demand controlled circulating systems	kBtu/hr	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	8	1
Existing	803	High Efficiency Water Heater (electric)	kBtu/hr	kBtu/hr	\$1.31	\$0.00	\$0.00		\$1.31	1	15	1	1	\$1.31	1.00	1.00	1.00	1.00	1.00	1.00	8	2
Existing	804	Hot Water Pipe Insulation	kBtu/hr	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	8	1
Existing	805	Tankless Water Heater	kBtu/hr	kBtu/hr	\$6.73	\$4.54	\$0.00		\$11.27	1	20	1	1	\$11.27	1.00	1.00	1.00	1.00	1.00	1.00	8	1
Existing	910	Base Vending Machines	machine	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	1
Existing	911	Vending Misers (cooled machines only)	machine	machine	\$180.00	\$35.50	\$0.00		\$215.50	1	10	1	1	\$215.50	0.66	0.94	1.32	1.00	0.81	1.32	9	1
New	100	Base Lighting	fixture	fixture	\$0.00	\$0.00	\$0.00		\$0.00	1	70000	1	1	\$0.00	1.00	1.00	1.00	1.00	1.00	1.00	1	2
New	101	Lighting 15% More Efficient Design	sqft	sqft	\$0.10	\$0.00	\$0.00		\$0.10	1	20	1	1	\$0.10	1.00	1.00	1.00	1.00	1.00	1.00	1	2
New	102	Lighting 25% More Efficient Design	sqft	sqft	\$0.25	\$0.00	\$0.00		\$0.25	1	20	1	1	\$0.25	1.00	1.00	1.00	1.00	1.00	1.00	1	2
New	300	Base Cooling and Ventilation	ton	ton	\$0.00	\$0.00	\$0.00		\$0.00	1	20	1	1	\$0.00	1.00	1.00	1.00	1.00	1.00	1.00	3	2
New	301	Cooling & Ventilation 10% More Efficient Design	sqft	sqft	\$0.10	\$0.00	\$0.00		\$0.10	1	20	1	1	\$0.10	1.00	1.00	1.00	1.00	1.00	1.00	3	2
New	302	Cooling & Ventilation 30% More Efficient Design	sqft	sqft	\$0.50	\$0.00	\$0.00		\$0.50	1	20	1	1	\$0.50	1.00	1.00	1.00	1.00	1.00	1.00	3	2
New	500	Base Refrigeration System	sqft	sqft	\$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
New	501	Refrigeration 10% More Efficient Design	sqft	sqft	\$0.50	\$0.00	\$0.00		\$0.50	1	10	1	1	\$0.50	1.00	1.00	1.00	1.00	1.00	1.00	5	2
New	502	Refrigeration 20% More Efficient Design	sqft	sqft	\$1.50	\$0.00	\$0.00		\$1.50	1	10	1	1	\$1.50	1.00	1.00	1.00	1.00	1.00	1.00	5	2

APPENDIX E

COMMERCIAL

MEASURE INPUT DATA

TECHNOLOGY SATURATION (units/square foot)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAG	0.01334	0.00717	0.01117	0.01324	0.00639	0.01507	0.00850	0.01026	0.00747	0.01047
Existing	114	RET 4L4' Premium T8, 1EB	0.01334	0.00717	0.01117	0.01324	0.00639	0.01507	0.00850	0.01026	0.00747	0.01047
Existing	115	RET 2L4' Premium T8, 1EB, Reflector	0.01334	0.00717	0.01117	0.01324	0.00639	0.01507	0.00850	0.01026	0.00747	0.01047
Existing	117	Occupancy Sensor, 4L4' Fluorescent Fixtures	0.01334	0.00717	0.01117	0.01324	0.00639	0.01507	0.00850	0.01026	0.00747	0.01047
Existing	118	Continuous Dimming, 5L4' Fluorescent Fixtures	0.01334	0.00717	0.01117	0.01324	0.00639	0.01507	0.00850	0.01026	0.00747	0.01047
Existing	120	Lighting Control Tuneup	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAG	0.02669	0.01435	0.02234	0.02649	0.01279	0.03015	0.01700	0.02052	0.01494	0.02094
Existing	133	RET 4L4' Premium T8, 1EB	0.02669	0.01435	0.02234	0.02649	0.01279	0.03015	0.01700	0.02052	0.01494	0.02094
Existing	134	RET 1L4' Premium T8, 1EB, Reflector OEM	0.02669	0.01435	0.02234	0.02649	0.01279	0.03015	0.01700	0.02052	0.01494	0.02094
Existing	136	Occupancy Sensor, 8L4' Fluorescent Fixtures	0.02669	0.01435	0.02234	0.02649	0.01279	0.03015	0.01700	0.02052	0.01494	0.02094
Existing	137	Continuous Dimming, 10L4' Fluorescent Fixtures	0.02669	0.01435	0.02234	0.02649	0.01279	0.03015	0.01700	0.02052	0.01494	0.02094
Existing	139	Lighting Control Tuneup	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAG	0.01562	0.00840	0.01307	0.01550	0.00748	0.01765	0.00995	0.01201	0.00874	0.01226
Existing	152	RET 2 - 2L4' Premium T8, 1EB	0.01562	0.00840	0.01307	0.01550	0.00748	0.01765	0.00995	0.01201	0.00874	0.01226
Existing	153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	0.01562	0.00840	0.01307	0.01550	0.00748	0.01765	0.00995	0.01201	0.00874	0.01226
Existing	155	Occupancy Sensor, 4L8' Fluorescent Fixtures	0.01562	0.00840	0.01307	0.01550	0.00748	0.01765	0.00995	0.01201	0.00874	0.01226
Existing	156	Continuous Dimming, 5L8' Fluorescent Fixtures	0.01562	0.00840	0.01307	0.01550	0.00748	0.01765	0.00995	0.01201	0.00874	0.01226
Existing	160	Base Incandescent Flood, 75W to Screw-in CFL	0.08492	0.04565	0.07107	0.08428	0.04068	0.09593	0.05411	0.06530	0.04753	0.06663
Existing	161	CFL Screw-in 18W	0.08492	0.04565	0.07107	0.08428	0.04068	0.09593	0.05411	0.06530	0.04753	0.06663
Existing	165	Base Incandescent Flood, 75W to Hardwired CFL	0.08492	0.04565	0.07107	0.08428	0.04068	0.09593	0.05411	0.06530	0.04753	0.06663
Existing	166	CFL Hardwired, Modular 18W	0.08492	0.04565	0.07107	0.08428	0.04068	0.09593	0.05411	0.06530	0.04753	0.06663
Existing	175	Base High Bay Metal Halide, 400W	0.00494	0.00266	0.00413	0.00490	0.00237	0.00558	0.00315	0.00380	0.00276	0.00388
Existing	176	High Bay T5	0.00494	0.00266	0.00413	0.00490	0.00237	0.00558	0.00315	0.00380	0.00276	0.00388
Existing	180	Base 4L4'T8, 1EB	0.01841	0.00990	0.01541	0.01828	0.00882	0.02080	0.01173	0.01416	0.01031	0.01445
Existing	181	ROB 4L4' Premium T8, 1EB	0.01841	0.00990	0.01541	0.01828	0.00882	0.02080	0.01173	0.01416	0.01031	0.01445
Existing	182	Occupancy Sensor, 4L4' Fluorescent Fixtures	0.01841	0.00990	0.01541	0.01828	0.00882	0.02080	0.01173	0.01416	0.01031	0.01445
Existing	183	Lighting Control Tuneup	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	185	Base 2L4'T8, 1EB	0.02302	0.01237	0.01926	0.02284	0.01103	0.02600	0.01467	0.01770	0.01288	0.01806
Existing	186	ROB 2L4' Premium T8, 1EB	0.02302	0.01237	0.01926	0.02284	0.01103	0.02600	0.01467	0.01770	0.01288	0.01806
Existing	187	Occupancy Sensor, 8L4' Fluorescent Fixtures	0.02302	0.01237	0.01926	0.02284	0.01103	0.02600	0.01467	0.01770	0.01288	0.01806
Existing	188	Lighting Control Tuneup	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	190	Base Exit Sign	0.00035	0.00048	0.00016	0.00007	0.00003	0.00012	0.00018	0.00048	0.00027	0.00015
Existing	191	LED Exit Sign	0.00035	0.00048	0.00016	0.00007	0.00003	0.00012	0.00018	0.00048	0.00027	0.00015
Existing	220	Base Outdoor Mercury Vapor 400W Lamp	0.00105	0.00265	0.00085	0.00136	0.00014	0.00083	0.00016	0.00025	0.00043	0.00074
Existing	221	High Pressure Sodium 250W Lamp	0.00105	0.00265	0.00085	0.00136	0.00014	0.00083	0.00016	0.00025	0.00043	0.00074
Existing	222	Outdoor Lighting Controls (Photocell/Timeclock)	0.00026	0.00066	0.00021	0.00034	0.00004	0.00021	0.00004	0.00006	0.00011	0.00018
Existing	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	302	Window Film (Standard)	0.08770	0.02844	0.04090	0.04600	0.09450	0.02423	0.06252	0.01707	0.01707	0.02844
Existing	303	EMS - Chiller	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	304	Cool Roof - Chiller	0.50000	1.00000	1.00000	1.00000	0.83333	0.50000	0.43333	1.00000	1.00000	1.00000
Existing	305	Chiller Tune Up/Diagnostics	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	306	VSD for Chiller Pumps and Towers	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	307	EMS Optimization	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	308	Economizer	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	310	Base DX Packaged System, EER=10.3, 10 tons	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	311	DX Tune Up/ Advanced Diagnostics	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	312	DX Packaged System, EER=10.9, 10 tons	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	313	Window Film (Standard)	0.08770	0.02844	0.04090	0.04600	0.09450	0.02423	0.06252	0.01707	0.01707	0.02844
Existing	314	Evaporative Pre-Cooler	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	315	Prog. Thermostat - DX	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	316	Cool Roof - DX	0.50000	1.00000	1.00000	1.00000	0.83333	0.50000	0.43333	1.00000	1.00000	1.00000
Existing	317	Optimize Controls - DX	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	318	Economizer	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
Existing	400	Base Fan Motor, 5hp, 1800rpm, 87.5%	0.00123	0.00118	0.00061	0.00061	0.00060	0.00120	0.00092	0.00124	0.00120	0.00121

TECHNOLOGY SATURATION (units/square foot)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	401	Fan Motor, 5hp, 1800rpm, 89.5%	0.00123	0.00118	0.00061	0.00061	0.00060	0.00120	0.00092	0.00124	0.00120	0.00121
Existing	402	Variable Speed Drive Control, 5 HP	0.00123	0.00118	0.00061	0.00061	0.00060	0.00120	0.00092	0.00124	0.00120	0.00121
Existing	410	Base Fan Motor, 15hp, 1800rpm, 91.0%	0.00119	0.00114	0.00059	0.00059	0.00058	0.00116	0.00089	0.00120	0.00117	0.00117
Existing	411	Fan Motor, 15hp, 1800rpm, 92.4%	0.00119	0.00114	0.00059	0.00059	0.00058	0.00116	0.00089	0.00120	0.00117	0.00117
Existing	412	Variable Speed Drive Control, 15 HP	0.00119	0.00114	0.00059	0.00059	0.00058	0.00116	0.00089	0.00120	0.00117	0.00117
Existing	413	Air Handler Tuneups	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	420	Base Fan Motor, 40hp, 1800rpm, 93.0%	0.00120	0.00115	0.00059	0.00060	0.00058	0.00117	0.00090	0.00121	0.00117	0.00118
Existing	421	Fan Motor, 40hp, 1800rpm, 94.1%	0.00120	0.00115	0.00059	0.00060	0.00058	0.00117	0.00090	0.00121	0.00117	0.00118
Existing	422	Variable Speed Drive Control, 40 HP	0.00120	0.00115	0.00059	0.00060	0.00058	0.00117	0.00090	0.00121	0.00117	0.00118
Existing	423	Air Handler Tuneups	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Existing	500	Base Refrigeration System				0.00003						
Existing	501	High-efficiency fan motors				0.00003						
Existing	502	Strip curtains for walk-ins				0.00003						
Existing	503	Night covers for display cases				0.01230						
Existing	504	Evaporator fan controller for MT walk-ins				0.00015						
Existing	505	Efficient compressor motor retrofit				0.00003						
Existing	506	Compressor VSD retrofit				0.00003						
Existing	507	Floating head pressure controls				0.00003						
Existing	508	Refrigeration Commissioning				0.00155						
Existing	509	Demand Hot Gas Defrost				0.00130						
Existing	510	Demand Defrost Electric				0.00130						
Existing	511	Anti-sweat (humidistat) controls				0.00003						
Existing	610	Base Desktop PC	0.00183	0.00015	0.00030	0.00012	0.00099	0.00116	0.00031	0.00111	0.00010	0.00145
Existing	611	PC Manual Power Management Enabling	0.00183	0.00015	0.00030	0.00012	0.00099	0.00116	0.00031	0.00111	0.00010	0.00145
Existing	612	PC Network Power Management Enabling	0.00183	0.00015	0.00030	0.00012	0.00099	0.00116	0.00031	0.00111	0.00010	0.00145
Existing	620	Base Monitor, CRT	0.00173	0.00014	0.00029	0.00011	0.00094	0.00110	0.00030	0.00106	0.00009	0.00138
Existing	621	Energy Star or Better Monitor	0.00173	0.00014	0.00029	0.00011	0.00094	0.00110	0.00030	0.00106	0.00009	0.00138
Existing	622	Monitor Power Management Enabling	0.00173	0.00014	0.00029	0.00011	0.00094	0.00110	0.00030	0.00106	0.00009	0.00138
Existing	630	Base Monitor, LCD	0.00009	0.00001	0.00002	0.00001	0.00005	0.00006	0.00002	0.00006	0.00000	0.00007
Existing	631	Energy Star or Better Monitor	0.00009	0.00001	0.00002	0.00001	0.00005	0.00006	0.00002	0.00006	0.00000	0.00007
Existing	632	Monitor Power Management Enabling	0.00009	0.00001	0.00002	0.00001	0.00005	0.00006	0.00002	0.00006	0.00000	0.00007
Existing	640	Base Copier	0.00017	0.00003	0.00006	0.00006	0.00011	0.00007	0.00002	0.00020	0.00001	0.00021
Existing	641	Energy Star or Better Copier	0.00017	0.00003	0.00006	0.00006	0.00011	0.00007	0.00002	0.00020	0.00001	0.00021
Existing	642	Copier Power Management Enabling	0.00017	0.00003	0.00006	0.00006	0.00011	0.00007	0.00002	0.00020	0.00001	0.00021
Existing	650	Base Laser Printer	0.00052	0.00010	0.00018	0.00006	0.00031	0.00032	0.00009	0.00056	0.00005	0.00053
Existing	651	Printer Power Management Enabling	0.00052	0.00010	0.00018	0.00006	0.00031	0.00032	0.00009	0.00056	0.00005	0.00053
Existing	800	Base Water Heating	0.00146	0.00271	0.00131	0.00212	0.00074	0.00254	0.00254	0.00265	0.00378	0.00157
Existing	801	Demand controlled circulating systems	0.00010	0.00020	0.00005	0.00005	0.00002	0.00005	0.00002	0.00002	0.00005	0.00010
Existing	803	High Efficiency Water Heater (electric)	0.00146	0.00271	0.00131	0.00212	0.00074	0.00254	0.00254	0.00265	0.00378	0.00157
Existing	804	Hot Water Pipe Insulation	0.00112	0.00207	0.00100	0.00163	0.00057	0.00195	0.00195	0.00203	0.00290	0.00121
Existing	805	Tankless Water Heater	0.00146	0.00271	0.00131	0.00212	0.00074	0.00254	0.00254	0.00265	0.00378	0.00157
Existing	910	Base Vending Machines	0.00008	0.00011	0.00001	0.00002	0.00004	0.00005	0.00003	0.00002	0.00004	0.00002
Existing	911	Vending Misers	0.00008	0.00011	0.00001	0.00002	0.00004	0.00005	0.00003	0.00002	0.00004	0.00002
New	100	Base Lighting	0.01841	0.00990	0.01541	0.01828	0.00882	0.02080	0.01173	0.01416	0.01031	0.01445
New	101	Lighting 15% More Efficient Design	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
New	102	Lighting 25% More Efficient Design	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
New	300	Base Cooling and Ventilation	0.00237	0.00344	0.00206	0.00245	0.00176	0.00330	0.00265	0.00346	0.00278	0.00385
New	301	Cooling & Ventilation 10% More Efficient Design	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
New	302	Cooling & Ventilation 30% More Efficient Design	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
New	500	Base Refrigeration System				1.00000						
New	501	Refrigeration 10% More Efficient Design				1.00000						
New	502	Refrigeration 20% More Efficient Design				1.00000						

Hour Adjustment For Lighting (Hours/year)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAG	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	114	RET 4L4' Premium T8, 1EB	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	115	RET 2L4' Premium T8, 1EB, Reflector	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	117	Occupancy Sensor, 4L4' Fluorescent Fixtures	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	118	Continuous Dimming, 5L4' Fluorescent Fixtures	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	120	Lighting Control Tuneup	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAG	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	133	RET 2L4' Premium T8, 1EB	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	134	RET 1L4' Premium T8, 1EB, Reflector OEM	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	136	Occupancy Sensor, 8L4' Fluorescent Fixtures	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	137	Continuous Dimming, 10L4' Fluorescent Fixtures	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	139	Lighting Control Tuneup	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAG	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	152	RET 2 - 2L4' Premium T8, 1EB	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	155	Occupancy Sensor, 4L8' Fluorescent Fixtures	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	156	Continuous Dimming, 5L8' Fluorescent Fixtures	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	160	Base Incandescent Flood, 75W to Screw-in CFL	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	161	CFL Screw-in 18W	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	165	Base Incandescent Flood, 75W to Hardwired CFL	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	166	CFL Hardwired, Modular 18W	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	175	Base High Bay Metal Halide, 400W	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	176	High Bay T5	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	180	Base 4L4'T8, 1EB	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	181	ROB 4L4' Premium T8, 1EB	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	182	Occupancy Sensor, 4L4' Fluorescent Fixtures	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	183	Lighting Control Tuneup	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	185	Base 2L4'T8, 1EB	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	186	ROB 2L4' Premium T8, 1EB	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	187	Occupancy Sensor, 8L4' Fluorescent Fixtures	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	188	Lighting Control Tuneup	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
Existing	190	Base Exit Sign	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760
Existing	191	LED Exit Sign	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760
Existing	220	Base Outdoor Mercury Vapor 400W Lamp	4,380	4,380	4,380	4,380	4,380	4,380	4,380	4,380	4,380	4,380
Existing	221	High Pressure Sodium 250W Lamp	4,380	4,380	4,380	4,380	4,380	4,380	4,380	4,380	4,380	4,380
Existing	222	Outdoor Lighting Controls (Photocell/Timeclock)	4,380	4,380	4,380	4,380	4,380	4,380	4,380	4,380	4,380	4,380
Existing	210	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons										
Existing	211	RET 2L4'T8, 1EB										
Existing	212	Outdoor Lighting Controls (Photocell/Timeclock)										
Existing	220	Base Mercury Vapor 400W Lamp										
Existing	221	High Pressure Sodium 250W Lamp										
Existing	222	Outdoor Lighting Controls (Photocell/Timeclock)										
Existing	300	VSD for Chiller Pumps and Towers										
Existing	307	EMS Optimization										
Existing	308	Economizer										
Existing	301	Base DX Packaged System, EER=10.3, 10 tons										
Existing	302	Window Film (Standard)										
Existing	303	EMS - Chiller										
Existing	304	Cool Roof - Chiller										
Existing	305	Chiller Tune Up/Diagnostics										
Existing	306	Cooling Circ. Pumps - VSD										
Existing	310	DX Packaged System, EER=10.3, 10 tons										
Existing	317	Optimize Controls - DX										
Existing	318	Economizer										
Existing	311	DX Tune Up/ Advanced Diagnostics										

Hour Adjustment For Lighting (Hours/year)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	312	DX Packaged System, EER=10.9, 10 tons										
Existing	313	Window Film (Standard)										
Existing	314	Evaporative Pre-Cooler										
Existing	315	Prog. Thermostat - DX										
Existing	316	Cool Roof - DX										
Existing	413	Air Handler Tuneups										
Existing	400	Base Fan Motor, 5hp, 1800rpm, 87.5%										
Existing	401	Fan Motor, 5hp, 1800rpm, 89.5%										
Existing	402	Variable Speed Drive Control, 5 HP										
Existing	423	Air Handler Tuneups										
Existing	410	Base Fan Motor, 15hp, 1800rpm, 91.0%										
Existing	411	Fan Motor, 15hp, 1800rpm, 92.4%										
Existing	412	Variable Speed Drive Control, 15 HP										
Existing	420	Base Fan Motor, 40hp, 1800rpm, 93.0%										
Existing	421	Fan Motor, 40hp, 1800rpm, 94.1%										
Existing	422	Variable Speed Drive Control, 40 HP										
Existing	500	Base Refrigeration System										
Existing	501	High-efficiency fan motors										
Existing	502	Strip curtains for walk-ins										
Existing	503	Night covers for display cases										
Existing	504	Evaporator fan controller for MT walk-ins										
Existing	505	Efficient compressor motor retrofit										
Existing	506	Base Desktop PC										
Existing	611	PC Manual Power Management Enabling										
Existing	612	PC Network Power Management Enabling										
Existing	620	Base Monitor, CRT										
Existing	621	Energy Star or Better Monitor										
Existing	622	Monitor Power Management Enabling										
Existing	630	Base Monitor, LCD										
Existing	631	Energy Star or Better Monitor										
Existing	632	Monitor Power Management Enabling										
Existing	640	Base Copier										
Existing	641	Energy Star or Better Copier										
Existing	642	Copier Power Management Enabling										
Existing	650	Base Laser Printer										
Existing	651	Printer Power Management Enabling										
Existing	800	Base Water Heating										
Existing	801	Demand controlled circulating systems										
Existing	803	High Efficiency Water Heater (electric)										
Existing	804	Hot Water Pipe Insulation										
Existing	805	Tankless Water Heater										
Existing	910	Base Vending Machines										
Existing	911	Vending Misers										
New	100	Base Lighting	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
New	101	Lighting 15% More Efficient Design	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
New	102	Lighting 25% More Efficient Design	4,732	2,477	2,615	4,346	2,799	2,484	3,449	5,638	2,743	2,716
New	210	Base Cooling and Ventilation										
New	301	Cooling & Ventilation 10% More Efficient Design										
New	302	Cooling & Ventilation 30% More Efficient Design										
New	410	Base Fan Motor, 15hp, 1800rpm, 91.0%										
New	411	Refrigeration 10% More Efficient Design										
New	412	Refrigeration 20% More Efficient Design										

BASE TECHNOLOGY EUIs (kWh/square foot)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAG	9.1	2.6	4.2	8.3	2.6	5.4	4.2	8.3	3.0	4.1
Existing	130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAG	9.1	2.6	4.2	8.3	2.6	5.4	4.2	8.3	3.0	4.1
Existing	150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAG	9.1	2.6	4.2	8.3	2.6	5.4	4.2	8.3	3.0	4.1
Existing	160	Base Incandescent Flood, 75W to Screw-in CFL	30.1	8.5	13.9	27.5	8.5	17.9	14.0	27.6	9.8	13.6
Existing	165	Base Incandescent Flood, 75W to Hardwired CFL	30.1	8.5	13.9	27.5	8.5	17.9	14.0	27.6	9.8	13.6
Existing	175	Base High Bay Metal Halide, 400W	9.4	2.6	4.3	8.5	2.6	5.5	4.3	8.6	3.0	4.2
Existing	180	Base 4L4'T8, 1EB	5.2	1.5	2.4	4.8	1.5	3.1	2.4	4.8	1.7	2.4
Existing	185	Base 2L4'T8, 1EB	5.2	1.5	2.4	4.8	1.5	3.1	2.4	4.8	1.7	2.4
Existing	190	Base Exit Sign (13 w)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Existing	220	Base Mercury Vapor 400W Lamp	1.5	3.9	1.2	1.9	0.2	1.2	0.3	0.3	0.6	1.1
Existing	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	1.8	2.5	0.9	1.1	0.5	1.8	1.7	2.0	2.0	1.5
Existing	310	Base DX Packaged System, EER=10.3, 10 tons	3.1	4.3	1.5	1.9	0.9	3.1	3.0	3.5	3.5	2.6
Existing	400	Base Fan Motor, 5hp, 1800rpm, 87.5%	1.8	2.0	0.6	0.8	0.2	1.0	1.0	1.6	0.6	1.2
Existing	410	Base Fan Motor, 15hp, 1800rpm, 91.0%	1.7	1.9	0.5	0.7	0.2	0.9	1.0	1.5	0.6	1.1
Existing	420	Base Fan Motor, 40hp, 1800rpm, 93.0%	1.7	1.8	0.5	0.7	0.2	0.9	0.9	1.5	0.6	1.1
Existing	500	Base Refrigeration System				21.4						
Existing	610	Base Desktop PC	0.5	0.0	0.1	0.0	0.3	0.3	0.1	0.3	0.0	0.4
Existing	620	Base Monitor, 17" CRT	0.5	0.0	0.1	0.0	0.3	0.3	0.1	0.3	0.0	0.4
Existing	630	Base Monitor, 17" LCD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Existing	640	Base Copier	0.2	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.2
Existing	650	Base Laser Printer	0.3	0.1	0.1	0.0	0.2	0.2	0.1	0.4	0.0	0.4
Existing	800	Base Water Heating	0.3	1.4	0.2	1.5	0.1	1.8	1.8	1.8	2.6	0.4
Existing	910	Base Vending Machines	0.3	0.4	0.0	0.1	0.2	0.2	0.1	0.1	0.2	0.1
New	100	Base Lighting	5.2	1.5	2.4	4.8	1.5	3.1	2.4	4.8	1.7	2.4
New	300	Base Cooling and Ventilation	4.1	5.4	3.0	3.3	2.4	3.9	3.9	3.6	4.3	3.7
New	500	Base Refrigeration System				21.4						

Standards Adjustment Factor (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAG	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	114	RET 4L4' Premium T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	115	RET 2L4' Premium T8, 1EB, Reflector	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	117	Occupancy Sensor, 4L4' Fluorescent Fixtures	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	118	Continuous Dimming, 5L4' Fluorescent Fixtures	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	120	Lighting Control Tuneup	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAG	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	133	RET 2L4' Premium T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	134	RET 1L4' Premium T8, 1EB, Reflector OEM	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	136	Occupancy Sensor, 8L4' Fluorescent Fixtures	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	137	Continuous Dimming, 10L4' Fluorescent Fixtures	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	139	Lighting Control Tuneup	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAG	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	152	RET 2 - 2L4' Premium T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	155	Occupancy Sensor, 4L8' Fluorescent Fixtures	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	156	Continuous Dimming, 5L8' Fluorescent Fixtures	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	160	Base Incandescent Flood, 75W to Screw-in CFL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	161	CFL Screw-in 18W	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	165	Base Incandescent Flood, 75W to Hardwired CFL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	166	CFL Hardwired, Modular 18W	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	175	Base High Bay Metal Halide, 400W	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	176	High Bay T5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	180	Base 4L4'T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	181	ROB 4L4' Premium T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	182	Occupancy Sensor, 4L4' Fluorescent Fixtures	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	183	Lighting Control Tuneup	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	185	Base 2L4'T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	186	ROB 2L4' Premium T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	187	Occupancy Sensor, 8L4' Fluorescent Fixtures	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	188	Lighting Control Tuneup	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	190	Base Exit Sign	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	191	LED Exit Sign	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	220	Base Outdoor Mercury Vapor 400W Lamp	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	221	High Pressure Sodium 250W Lamp	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	222	Outdoor Lighting Controls (Photocell/Timeclock)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%
Existing	302	Window Film (Standard)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	303	EMS - Chiller	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	304	Cool Roof - Chiller	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	305	Chiller Tune Up/Diagnostics	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	306	VSD for Chiller Pumps and Towers	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	307	EMS Optimization	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	308	Economizer	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	310	Base DX Packaged System, EER=10.3, 10 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	311	DX Tune Up/ Advanced Diagnostics	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	312	DX Packaged System, EER=10.9, 10 tons	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%
Existing	313	Window Film (Standard)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	314	Evaporative Pre-Cooler	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	315	Prog. Thermostat - DX	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	316	Cool Roof - DX	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	317	Optimize Controls - DX	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	318	Economizer	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	400	Base Fan Motor, 5hp, 1800rpm, 87.5%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Standards Adjustment Factor (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	401	Fan Motor, 5hp, 1800rpm, 89.5%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	402	Variable Speed Drive Control, 5 HP	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	410	Base Fan Motor, 15hp, 1800rpm, 91.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	411	Fan Motor, 15hp, 1800rpm, 92.4%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	412	Variable Speed Drive Control, 15 HP	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	413	Air Handler Tuneups	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	420	Base Fan Motor, 40hp, 1800rpm, 93.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	421	Fan Motor, 40hp, 1800rpm, 94.1%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	422	Variable Speed Drive Control, 40 HP	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	423	Air Handler Tuneups	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	500	Base Refrigeration System				100%						
Existing	501	High-efficiency fan motors				100%						
Existing	502	Strip curtains for walk-ins				100%						
Existing	503	Night covers for display cases				100%						
Existing	504	Evaporator fan controller for MT walk-ins				100%						
Existing	505	Efficient compressor motor retrofit				100%						
Existing	506	Compressor VSD retrofit				100%						
Existing	507	Floating head pressure controls				100%						
Existing	508	Refrigeration Commissioning				100%						
Existing	509	Demand Hot Gas Defrost				100%						
Existing	510	Demand Defrost Electric				100%						
Existing	511	Anti-sweat (humidistat) controls				100%						
Existing	610	Base Desktop PC	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	611	PC Manual Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	612	PC Network Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	620	Base Monitor, CRT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	621	Energy Star or Better Monitor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	622	Monitor Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	630	Base Monitor, LCD	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	631	Energy Star or Better Monitor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	632	Monitor Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	640	Base Copier	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	641	Energy Star or Better Copier	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	642	Copier Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	650	Base Laser Printer	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	651	Printer Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	800	Base Water Heating	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	801	Demand controlled circulating systems	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	803	High Efficiency Water Heater (electric)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	804	Hot Water Pipe Insulation	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	805	Tankless Water Heater	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	910	Base Vending Machines	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	911	Vending Misers	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	100	Base Lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	101	Lighting 15% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	102	Lighting 25% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	300	Base Cooling and Ventilation	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	301	Cooling & Ventilation 10% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	302	Cooling & Ventilation 30% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	500	Base Refrigeration System				100%						
New	501	Refrigeration 10% More Efficient Design				100%						
New	502	Refrigeration 20% More Efficient Design				100%						

APPLICABILITY FACTOR (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	110	Base Fluorescent Fixture, 4L4T12, 34W, 2EEMAG	13%	49%	20%	8%	6%	22%	30%	19%	23%	56%
Existing	114	RET 4L4' Premium T8, 1EB	13%	49%	20%	8%	6%	22%	30%	19%	23%	56%
Existing	115	RET 2L4' Premium T8, 1EB, Reflector	13%	49%	20%	8%	6%	22%	30%	19%	23%	56%
Existing	117	Occupancy Sensor, 4L4' Fluorescent Fixtures	13%	49%	20%	8%	6%	22%	30%	19%	23%	56%
Existing	118	Continuous Dimming, 5L4' Fluorescent Fixtures	13%	49%	20%	8%	6%	22%	30%	19%	23%	56%
Existing	120	Lighting Control Tuneup	13%	49%	20%	8%	6%	22%	30%	19%	23%	56%
Existing	130	Base Fluorescent Fixture, 2L4T12, 34W, 1EEMAG	12%	13%	29%	6%	70%	11%	22%	30%	5%	10%
Existing	133	RET 2L4' Premium T8, 1EB	12%	13%	29%	6%	70%	11%	22%	30%	5%	10%
Existing	134	RET 1L4' Premium T8, 1EB, Reflector OEM	12%	13%	29%	6%	70%	11%	22%	30%	5%	10%
Existing	136	Occupancy Sensor, 8L4' Fluorescent Fixtures	12%	13%	29%	6%	70%	11%	22%	30%	5%	10%
Existing	137	Continuous Dimming, 10L4' Fluorescent Fixtures	12%	13%	29%	6%	70%	11%	22%	30%	5%	10%
Existing	139	Lighting Control Tuneup	12%	13%	29%	6%	70%	11%	22%	30%	5%	10%
Existing	150	Base Fluorescent Fixture, 2L8T12, 60W, 1EEMAG	1%	0%	3%	21%	6%	0%	0%	0%	0%	6%
Existing	152	RET 2 - 2L4' Premium T8, 1EB	1%	0%	3%	21%	6%	0%	0%	0%	0%	6%
Existing	153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	1%	0%	3%	21%	6%	0%	0%	0%	0%	6%
Existing	155	Occupancy Sensor, 4L8' Fluorescent Fixtures	1%	0%	3%	21%	6%	0%	0%	0%	0%	6%
Existing	156	Continuous Dimming, 5L8' Fluorescent Fixtures	1%	0%	3%	21%	6%	0%	0%	0%	0%	6%
Existing	160	Base Incandescent Flood, 75W to Screw-in CFL	2%	23%	10%	2%	4%	2%	11%	6%	44%	12%
Existing	161	CFL Screw-in 18W	1%	23%	8%	1%	4%	1%	10%	2%	17%	11%
Existing	165	Base Incandescent Flood, 75W to Hardwired CFL	1%	8%	3%	1%	4%	1%	4%	2%	15%	4%
Existing	166	CFL Hardwired, Modular 18W	0%	8%	3%	0%	1%	0%	3%	1%	6%	4%
Existing	175	Base High Bay Metal Halide, 400W	5%	0%	17%	0%	3%	3%	6%	0%	2%	5%
Existing	176	High Bay T5	5%	0%	17%	0%	3%	3%	6%	0%	2%	5%
Existing	180	Base 4L4T8, 1EB	34%	5%	5%	33%	1%	40%	11%	14%	2%	2%
Existing	181	ROB 4L4' Premium T8, 1EB	34%	5%	5%	33%	1%	40%	11%	14%	2%	2%
Existing	182	Occupancy Sensor, 4L4' Fluorescent Fixtures	34%	5%	5%	33%	1%	40%	11%	14%	2%	2%
Existing	183	Lighting Control Tuneup	34%	5%	5%	33%	1%	40%	11%	14%	2%	2%
Existing	185	Base 2L4T8, 1EB	32%	2%	13%	30%	8%	21%	15%	28%	9%	6%
Existing	186	ROB 2L4' Premium T8, 1EB	32%	2%	13%	30%	8%	21%	15%	28%	9%	6%
Existing	187	Occupancy Sensor, 8L4' Fluorescent Fixtures	32%	2%	13%	30%	8%	21%	15%	28%	9%	6%
Existing	188	Lighting Control Tuneup	32%	2%	13%	30%	8%	21%	15%	28%	9%	6%
Existing	190	Base Exit Sign	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	191	LED Exit Sign	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	220	Base Outdoor Mercury Vapor 400W Lamp	89%	7%	79%	88%	85%	94%	99%	79%	78%	14%
Existing	221	High Pressure Sodium 250W Lamp	89%	7%	79%	88%	85%	94%	99%	79%	78%	14%
Existing	222	Outdoor Lighting Controls (Photocell/Timeclock)	89%	7%	79%	88%	85%	94%	99%	79%	78%	14%
Existing	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
Existing	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
Existing	302	Window Film (Standard)	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
Existing	303	EMS - Chiller	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
Existing	304	Cool Roof - Chiller	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
Existing	305	Chiller Tune Up/Diagnostics	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
Existing	306	VSD for Chiller Pumps and Towers	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
Existing	307	EMS Optimization	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
Existing	308	Economizer	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
Existing	310	Base DX Packaged System, EER=10.3, 10 tons	77%	81%	61%	99%	75%	27%	32%	12%	56%	63%
Existing	311	DX Tune Up/ Advanced Diagnostics	77%	81%	61%	99%	75%	27%	32%	12%	56%	63%
Existing	312	DX Packaged System, EER=10.9, 10 tons	77%	81%	61%	99%	75%	27%	32%	12%	56%	63%
Existing	313	Window Film (Standard)	77%	81%	61%	99%	75%	27%	32%	12%	56%	63%
Existing	314	Evaporative Pre-Cooler	77%	81%	61%	99%	75%	27%	32%	12%	56%	63%
Existing	315	Prog. Thermostat - DX	77%	81%	61%	99%	75%	27%	32%	12%	56%	63%
Existing	316	Cool Roof - DX	77%	81%	61%	99%	75%	27%	32%	12%	56%	63%
Existing	317	Optimize Controls - DX	77%	81%	61%	99%	75%	27%	32%	12%	56%	63%
Existing	318	Economizer	77%	81%	61%	99%	75%	27%	32%	12%	56%	63%
Existing	400	Base Fan Motor, 5hp, 1800rpm, 87.5%	50%	99%	56%	51%	25%	78%	51%	37%	73%	53%

APPLICABILITY FACTOR (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	401	Fan Motor, 5hp, 1800rpm, 89.5%	50%	99%	56%	51%	25%	78%	51%	37%	73%	53%
Existing	402	Variable Speed Drive Control, 5 HP	50%	99%	56%	51%	25%	78%	51%	37%	73%	53%
Existing	410	Base Fan Motor, 15hp, 1800rpm, 91.0%	20%	0%	22%	49%	8%	21%	35%	37%	19%	19%
Existing	411	Fan Motor, 15hp, 1800rpm, 92.4%	20%	0%	22%	49%	8%	21%	35%	37%	19%	19%
Existing	412	Variable Speed Drive Control, 15 HP	20%	0%	22%	49%	8%	21%	35%	37%	19%	19%
Existing	413	Air Handler Tuneups	20%	0%	22%	49%	8%	21%	35%	37%	19%	19%
Existing	420	Base Fan Motor, 40hp, 1800rpm, 93.0%	25%	0%	19%	0%	0%	0%	13%	26%	7%	5%
Existing	421	Fan Motor, 40hp, 1800rpm, 94.1%	25%	0%	19%	0%	0%	0%	13%	26%	7%	5%
Existing	422	Variable Speed Drive Control, 40 HP	25%	0%	19%	0%	0%	0%	13%	26%	7%	5%
Existing	423	Air Handler Tuneups	25%	0%	19%	0%	0%	0%	13%	26%	7%	5%
Existing	500	Base Refrigeration System				100%						
Existing	501	High-efficiency fan motors				100%						
Existing	502	Strip curtains for walk-ins				100%						
Existing	503	Night covers for display cases				100%						
Existing	504	Evaporator fan controller for MT walk-ins				100%						
Existing	505	Efficient compressor motor retrofit				100%						
Existing	506	Compressor VSD retrofit				100%						
Existing	507	Floating head pressure controls				100%						
Existing	508	Refrigeration Commissioning				100%						
Existing	509	Demand Hot Gas Defrost				96%						
Existing	510	Demand Defrost Electric				96%						
Existing	511	Anti-sweat (humidistat) controls				100%						
Existing	610	Base Desktop PC	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	611	PC Manual Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	612	PC Network Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	620	Base Monitor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	621	Energy Star or Better Monitor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	622	Monitor Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	630	Base Monitor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	631	Energy Star or Better Monitor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	632	Monitor Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	640	Base Copier	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	641	Energy Star or Better Copier	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	642	Copier Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	650	Base Laser Printer	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	651	Printer Power Management Enabling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	800	Base Water Heating	48%	1%	30%	35%	67%	21%	21%	7%	33%	30%
Existing	801	Demand controlled circulating systems	48%	1%	30%	35%	67%	21%	21%	7%	33%	30%
Existing	803	High Efficiency Water Heater (electric)	48%	1%	30%	35%	67%	21%	21%	7%	33%	30%
Existing	804	Hot Water Pipe Insulation	48%	1%	30%	35%	67%	21%	21%	7%	33%	30%
Existing	805	Tankless Water Heater	48%	1%	30%	35%	67%	21%	21%	7%	33%	30%
Existing	910	Base Vending Machines	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	911	Vending Misers	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	100	Base Lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	101	Lighting 15% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	102	Lighting 25% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	300	Base Cooling and Ventilation	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
New	301	Cooling & Ventilation 10% More Efficient Design	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
New	302	Cooling & Ventilation 30% More Efficient Design	23%	0%	1%	0%	0%	22%	18%	54%	26%	14%
New	500	Base Refrigeration System				100%						
New	501	Refrigeration 10% More Efficient Design				100%						
New	502	Refrigeration 20% More Efficient Design				100%						

APPENDIX E

COMMERCIAL

MEASURE INPUT DATA

INCOMPLETE FACTOR (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAG	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	114	RET 4L4' Premium T8, 1EB	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Existing	115	RET 2L4' Premium T8, 1EB, Reflector	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	117	Occupancy Sensor, 4L4' Fluorescent Fixtures	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
Existing	118	Continuous Dimming, 5L4' Fluorescent Fixtures	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	120	Lighting Control Tuneup	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Existing	130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAG	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	133	RET 2L4' Premium T8, 1EB	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Existing	134	RET 1L4' Premium T8, 1EB, Reflector OEM	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	136	Occupancy Sensor, 8L4' Fluorescent Fixtures	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
Existing	137	Continuous Dimming, 10L4' Fluorescent Fixtures	100%	100%	100%	100%	96%	100%	100%	100%	100%	100%
Existing	139	Lighting Control Tuneup	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Existing	150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAG	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	152	RET 2 - 2L4' Premium T8, 1EB	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Existing	153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	155	Occupancy Sensor, 4L8' Fluorescent Fixtures	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
Existing	156	Continuous Dimming, 5L8' Fluorescent Fixtures	100%	100%	100%	100%	96%	100%	100%	100%	100%	100%
Existing	160	Base Incandescent Flood, 75W to Screw-in CFL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	161	CFL Screw-in 18W	51%	96%	80%	83%	100%	29%	94%	25%	37%	98%
Existing	165	Base Incandescent Flood, 75W to Hardwired CFL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	166	CFL Hardwired, Modular 18W	51%	96%	80%	83%	100%	29%	94%	25%	37%	98%
Existing	175	Base High Bay Metal Halide, 400W	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	176	High Bay T5	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Existing	180	Base 4L4'T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	181	ROB 4L4' Premium T8, 1EB	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Existing	182	Occupancy Sensor, 4L4' Fluorescent Fixtures	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
Existing	183	Lighting Control Tuneup	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Existing	185	Base 2L4'T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	186	ROB 2L4' Premium T8, 1EB	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Existing	187	Occupancy Sensor, 8L4' Fluorescent Fixtures	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
Existing	188	Lighting Control Tuneup	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Existing	190	Base Exit Sign	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	191	LED Exit Sign	81%	98%	93%	100%	91%	90%	84%	95%	87%	95%
Existing	220	Base Outdoor Mercury Vapor 400W Lamp	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	221	High Pressure Sodium 250W Lamp	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%
Existing	222	Outdoor Lighting Controls (Photocell/Timeclock)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Existing	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	302	Window Film (Standard)	14%	97%	94%	51%	95%	83%	92%	35%	67%	83%
Existing	303	EMS - Chiller	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Existing	304	Cool Roof - Chiller	48%	50%	63%	46%	66%	80%	94%	64%	100%	92%
Existing	305	Chiller Tune Up/Diagnostics	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Existing	306	VSD for Chiller Pumps and Towers	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
Existing	307	EMS Optimization	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Existing	308	Economizer	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Existing	310	Base DX Packaged System, EER=10.3, 10 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	311	DX Tune Up/ Advanced Diagnostics	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Existing	312	DX Packaged System, EER=10.9, 10 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	313	Window Film (Standard)	14%	97%	94%	51%	95%	83%	92%	35%	67%	83%
Existing	314	Evaporative Pre-Cooler	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	315	Prog. Thermostat - DX	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%
Existing	316	Cool Roof - DX	48%	50%	63%	46%	66%	80%	94%	64%	100%	92%
Existing	317	Optimize Controls - DX	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Existing	318	Economizer	17%	95%	40%	82%	85%	36%	100%	50%	52%	91%
Existing	400	Base Fan Motor, 5hp, 1800rpm, 87.5%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

APPENDIX E

COMMERCIAL

MEASURE INPUT DATA

INCOMPLETE FACTOR (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	401	Fan Motor, 5hp, 1800rpm, 89.5%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	402	Variable Speed Drive Control, 5 HP	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Existing	410	Base Fan Motor, 15hp, 1800rpm, 91.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	411	Fan Motor, 15hp, 1800rpm, 92.4%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	412	Variable Speed Drive Control, 15 HP	39%	95%	75%	75%	75%	50%	50%	75%	75%	75%
Existing	413	Air Handler Tuneups	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	420	Base Fan Motor, 40hp, 1800rpm, 93.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	421	Fan Motor, 40hp, 1800rpm, 94.1%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	422	Variable Speed Drive Control, 40 HP	39%	95%	75%	75%	75%	50%	50%	75%	75%	75%
Existing	423	Air Handler Tuneups	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	500	Base Refrigeration System				100%						
Existing	501	High-efficiency fan motors				95%						
Existing	502	Strip curtains for walk-ins				70%						
Existing	503	Night covers for display cases				95%						
Existing	504	Evaporator fan controller for MT walk-ins				80%						
Existing	505	Efficient compressor motor retrofit				70%						
Existing	506	Compressor VSD retrofit				80%						
Existing	507	Floating head pressure controls				25%						
Existing	508	Refrigeration Commissioning				50%						
Existing	509	Demand Hot Gas Defrost				30%						
Existing	510	Demand Defrost Electric				95%						
Existing	511	Anti-sweat (humidistat) controls				75%						
Existing	610	Base Desktop PC	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	611	PC Manual Power Management Enabling	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	612	PC Network Power Management Enabling	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	620	Base Monitor, CRT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	621	Energy Star or Better Monitor	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	622	Monitor Power Management Enabling	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
Existing	630	Base Monitor, LCD	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	631	Energy Star or Better Monitor	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	632	Monitor Power Management Enabling	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
Existing	640	Base Copier	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	641	Energy Star or Better Copier	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Existing	642	Copier Power Management Enabling	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%
Existing	650	Base Laser Printer	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	651	Printer Power Management Enabling	46%	46%	46%	46%	46%	46%	46%	46%	46%	46%
Existing	800	Base Water Heating	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	801	Demand controlled circulating systems	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%
Existing	803	High Efficiency Water Heater (electric)	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Existing	804	Hot Water Pipe Insulation	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	805	Tankless Water Heater	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Existing	910	Base Vending Machines	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	911	Vending Misers	100%	100%	87%	100%	100%	100%	100%	100%	53%	100%
New	100	Base Lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	101	Lighting 15% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	102	Lighting 25% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	300	Base Cooling and Ventilation	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	301	Cooling & Ventilation 10% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	302	Cooling & Ventilation 30% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	500	Base Refrigeration System				100%						
New	501	Refrigeration 10% More Efficient Design				95%						
New	502	Refrigeration 20% More Efficient Design				70%						

FEASIBILITY FACTOR (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAG	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	114	RET 4L4' Premium T8, 1EB	70%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Existing	115	RET 2L4' Premium T8, 1EB, Reflector	30%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Existing	117	Occupancy Sensor, 4L4' Fluorescent Fixtures	40%	10%	10%	10%	20%	50%	50%	50%	20%	20%
Existing	118	Continuous Dimming, 5L4' Fluorescent Fixtures	40%	50%	12%	26%	40%	30%	30%	10%	30%	30%
Existing	120	Lighting Control Tuneup	40%	10%	40%	25%	25%	25%	40%	40%	40%	25%
Existing	130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAG	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	133	RET 2L4' Premium T8, 1EB	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Existing	134	RET 1L4' Premium T8, 1EB, Reflector OEM	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Existing	136	Occupancy Sensor, 8L4' Fluorescent Fixtures	40%	10%	10%	10%	20%	50%	50%	50%	20%	20%
Existing	137	Continuous Dimming, 10L4' Fluorescent Fixtures	40%	50%	12%	26%	40%	30%	30%	10%	30%	30%
Existing	139	Lighting Control Tuneup	40%	10%	40%	25%	25%	25%	40%	40%	40%	25%
Existing	150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAG	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	152	RET 2 - 2L4' Premium T8, 1EB	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Existing	153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Existing	155	Occupancy Sensor, 4L8' Fluorescent Fixtures	40%	10%	10%	10%	20%	50%	50%	50%	20%	20%
Existing	156	Continuous Dimming, 5L8' Fluorescent Fixtures	40%	50%	12%	26%	40%	30%	30%	10%	30%	30%
Existing	160	Base Incandescent Flood, 75W to Screw-in CFL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	161	CFL Screw-in 18W	90%	50%	50%	90%	90%	90%	90%	90%	70%	90%
Existing	165	Base Incandescent Flood, 75W to Hardwired CFL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	166	CFL Hardwired, Modular 18W	90%	50%	50%	90%	90%	90%	90%	90%	70%	90%
Existing	175	Base High Bay Metal Halide, 400W	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	176	High Bay T5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	180	Base 4L4'T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	181	ROB 4L4' Premium T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	182	Occupancy Sensor, 4L4' Fluorescent Fixtures	40%	10%	10%	10%	20%	50%	50%	50%	20%	20%
Existing	183	Lighting Control Tuneup	40%	10%	40%	25%	25%	25%	40%	40%	40%	25%
Existing	185	Base 2L4'T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	186	ROB 2L4' Premium T8, 1EB	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	187	Occupancy Sensor, 8L4' Fluorescent Fixtures	40%	10%	10%	10%	20%	50%	50%	50%	20%	20%
Existing	188	Lighting Control Tuneup	40%	10%	40%	25%	25%	25%	40%	40%	40%	25%
Existing	190	Base Exit Sign	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	191	LED Exit Sign	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	220	Base Outdoor Mercury Vapor 400W Lamp	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	221	High Pressure Sodium 250W Lamp	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	222	Outdoor Lighting Controls (Photocell/Timeclock)	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Existing	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	302	Window Film (Standard)	75%	75%	50%	75%	75%	75%	75%	75%	75%	75%
Existing	303	EMS - Chiller	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	304	Cool Roof - Chiller	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Existing	305	Chiller Tune Up/Diagnostics	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	306	VSD for Chiller Pumps and Towers	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	307	EMS Optimization	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	308	Economizer	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Existing	310	Base DX Packaged System, EER=10.3, 10 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	311	DX Tune Up/ Advanced Diagnostics	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	312	DX Packaged System, EER=10.9, 10 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	313	Window Film (Standard)	75%	75%	50%	75%	75%	75%	75%	75%	75%	75%
Existing	314	Evaporative Pre-Cooler	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Existing	315	Prog. Thermostat - DX	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	316	Cool Roof - DX	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Existing	317	Optimize Controls - DX	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	318	Economizer	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Existing	400	Base Fan Motor, 5hp, 1800rpm, 87.5%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

APPENDIX E

COMMERCIAL

MEASURE INPUT DATA

FEASIBILITY FACTOR (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	401	Fan Motor, 5hp, 1800rpm, 89.5%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	402	Variable Speed Drive Control, 5 HP	24%	0%	19%	0%	6%	23%	31%	18%	4%	10%
Existing	410	Base Fan Motor, 15hp, 1800rpm, 91.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	411	Fan Motor, 15hp, 1800rpm, 92.4%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	412	Variable Speed Drive Control, 15 HP	71%	0%	19%	0%	55%	67%	88%	86%	7%	35%
Existing	413	Air Handler Tuneups	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	420	Base Fan Motor, 40hp, 1800rpm, 93.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	421	Fan Motor, 40hp, 1800rpm, 94.1%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	422	Variable Speed Drive Control, 40 HP	87%	0%	68%	0%	0%	0%	90%	88%	30%	55%
Existing	423	Air Handler Tuneups	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	500	Base Refrigeration System				100%						
Existing	501	High-efficiency fan motors				100%						
Existing	502	Strip curtains for walk-ins				100%						
Existing	503	Night covers for display cases				50%						
Existing	504	Evaporator fan controller for MT walk-ins				100%						
Existing	505	Efficient compressor motor retrofit				100%						
Existing	506	Compressor VSD retrofit				50%						
Existing	507	Floating head pressure controls				100%						
Existing	508	Refrigeration Commissioning				100%						
Existing	509	Demand Hot Gas Defrost				100%						
Existing	510	Demand Defrost Electric				100%						
Existing	511	Anti-sweat (humidistat) controls				100%						
Existing	610	Base Desktop PC	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	611	PC Manual Power Management Enabling	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	612	PC Network Power Management Enabling	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	620	Base Monitor, CRT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	621	Energy Star or Better Monitor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	622	Monitor Power Management Enabling	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	630	Base Monitor, LCD	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	631	Energy Star or Better Monitor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	632	Monitor Power Management Enabling	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	640	Base Copier	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	641	Energy Star or Better Copier	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	642	Copier Power Management Enabling	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	650	Base Laser Printer	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	651	Printer Power Management Enabling	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	800	Base Water Heating	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	801	Demand controlled circulating systems	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	803	High Efficiency Water Heater (electric)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	804	Hot Water Pipe Insulation	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	805	Tankless Water Heater	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	910	Base Vending Machines	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Existing	911	Vending Misers	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
New	100	Base Lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	101	Lighting 15% More Efficient Design	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
New	102	Lighting 25% More Efficient Design	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
New	300	Base Cooling and Ventilation	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	301	Cooling & Ventilation 10% More Efficient Design	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
New	302	Cooling & Ventilation 30% More Efficient Design	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
New	500	Base Refrigeration System				100%						
New	501	Refrigeration 10% More Efficient Design				100%						
New	502	Refrigeration 20% More Efficient Design				100%						

ENERGY SAVINGS (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAG										
Existing	114	RET 4L4' Premium T8, 1EB	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%
Existing	115	RET 2L4' Premium T8, 1EB, Reflector	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%
Existing	117	Occupancy Sensor, 4L4' Fluorescent Fixtures	30%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Existing	118	Continuous Dimming, 5L4' Fluorescent Fixtures	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	120	Lighting Control Tuneup	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAG										
Existing	133	RET 2L4' Premium T8, 1EB	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%
Existing	134	RET 1L4' Premium T8, 1EB, Reflector OEM	64%	64%	64%	64%	64%	64%	64%	64%	64%	64%
Existing	136	Occupancy Sensor, 8L4' Fluorescent Fixtures	30%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Existing	137	Continuous Dimming, 10L4' Fluorescent Fixtures	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	139	Lighting Control Tuneup	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAG										
Existing	152	RET 2 - 2L4' Premium T8, 1EB	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%
Existing	153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%
Existing	155	Occupancy Sensor, 4L8' Fluorescent Fixtures	30%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Existing	156	Continuous Dimming, 5L8' Fluorescent Fixtures	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Existing	160	Base Incandescent Flood, 75W to Screw-in CFL										
Existing	161	CFL Screw-in 18W	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%
Existing	165	Base Incandescent Flood, 75W to Hardwired CFL										
Existing	166	CFL Hardwired, Modular 18W	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%
Existing	175	Base High Bay Metal Halide, 400W										
Existing	176	High Bay T5	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%
Existing	180	Base 4L4'T8, 1EB										
Existing	181	ROB 4L4' Premium T8, 1EB	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Existing	182	Occupancy Sensor, 4L4' Fluorescent Fixtures	30%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Existing	183	Lighting Control Tuneup	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	185	Base 2L4'T8, 1EB										
Existing	186	ROB 2L4' Premium T8, 1EB	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
Existing	187	Occupancy Sensor, 8L4' Fluorescent Fixtures	30%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Existing	188	Lighting Control Tuneup	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	190	Base Exit Sign										
Existing	191	LED Exit Sign	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%
Existing	220	Base Outdoor Mercury Vapor 400W Lamp										
Existing	221	High Pressure Sodium 250W Lamp	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
Existing	222	Outdoor Lighting Controls (Photocell/Timeclock)	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%
Existing	300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons										
Existing	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
Existing	302	Window Film (Standard)	9%	10%	2%	9%	12%	4%	4%	1%	7%	2%
Existing	303	EMS - Chiller	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Existing	304	Cool Roof - Chiller	2%	7%	13%	15%	18%	6%	1%	0%	13%	13%
Existing	305	Chiller Tune Up/Diagnostics	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Existing	306	VSD for Chiller Pumps and Towers	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Existing	307	EMS Optimization	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	308	Economizer	27%	0%	21%	0%	0%	12%	19%	18%	43%	0%
Existing	310	Base DX Packaged System, EER=10.3, 10 tons										
Existing	311	DX Tune Up/ Advanced Diagnostics	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	312	DX Packaged System, EER=10.9, 10 tons	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Existing	313	Window Film (Standard)	9%	10%	2%	9%	12%	4%	4%	1%	7%	2%
Existing	314	Evaporative Pre-Cooler	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Existing	315	Prog. Thermostat - DX	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	316	Cool Roof - DX	2%	7%	13%	15%	18%	6%	1%	0%	13%	13%
Existing	317	Optimize Controls - DX	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	318	Economizer	28%	12%	27%	2%	0%	5%	4%	0%	4%	4%
Existing	400	Base Fan Motor, 5hp, 1800rpm, 87.5%										

ENERGY SAVINGS (percent)												
Segment	Measure #	Measure Description	Office	Restaurant	Retail	FoodStore	Warehouse	School	College	Hospital	Hotel	Miscellaneous
Existing	401	Fan Motor, 5hp, 1800rpm, 89.5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Existing	402	Variable Speed Drive Control, 5 HP	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Existing	410	Base Fan Motor, 15hp, 1800rpm, 91.0%										
Existing	411	Fan Motor, 15hp, 1800rpm, 92.4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Existing	412	Variable Speed Drive Control, 15 HP	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Existing	413	Air Handler Tuneups	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Existing	420	Base Fan Motor, 40hp, 1800rpm, 93.0%										
Existing	421	Fan Motor, 40hp, 1800rpm, 94.1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Existing	422	Variable Speed Drive Control, 40 HP	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Existing	423	Air Handler Tuneups	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Existing	500	Base Refrigeration System										
Existing	501	High-efficiency fan motors				12%						
Existing	502	Strip curtains for walk-ins				4%						
Existing	503	Night covers for display cases				6%						
Existing	504	Evaporator fan controller for MT walk-ins				1%						
Existing	505	Efficient compressor motor retrofit				7%						
Existing	506	Compressor VSD retrofit				6%						
Existing	507	Floating head pressure controls				7%						
Existing	508	Refrigeration Commissioning				5%						
Existing	509	Demand Hot Gas Defrost				3%						
Existing	510	Demand Defrost Electric				8%						
Existing	511	Anti-sweat (humidistat) controls				5%						
Existing	610	Base Desktop PC										
Existing	611	PC Manual Power Management Enabling	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
Existing	612	PC Network Power Management Enabling	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
Existing	620	Base Monitor, CRT										
Existing	621	Energy Star or Better Monitor	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%
Existing	622	Monitor Power Management Enabling	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%
Existing	630	Base Monitor, LCD										
Existing	631	Energy Star or Better Monitor	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Existing	632	Monitor Power Management Enabling	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
Existing	640	Base Copier										
Existing	641	Energy Star or Better Copier	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Existing	642	Copier Power Management Enabling	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
Existing	650	Base Laser Printer										
Existing	651	Printer Power Management Enabling	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%
Existing	800	Base Water Heating										
Existing	801	Demand controlled circulating systems	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Existing	803	High Efficiency Water Heater (electric)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Existing	804	Hot Water Pipe Insulation	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Existing	805	Tankless Water Heater	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Existing	910	Base Vending Machines										
Existing	911	Vending Misers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
New	100	Base Lighting										
New	101	Lighting 15% More Efficient Design	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
New	102	Lighting 25% More Efficient Design	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
New	300	Base Cooling and Ventilation										
New	301	Cooling & Ventilation 10% More Efficient Design	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
New	302	Cooling & Ventilation 30% More Efficient Design	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
New	500	Base Refrigeration System										
New	501	Refrigeration 10% More Efficient Design				10%						
New	502	Refrigeration 20% More Efficient Design				20%						

DSM TECHNOLOGY INPUT TABLES

UTILITY:	Xcel Energy	BATCH:	1
SECTOR:	Industrial	ANALYSIS:	Basic
SEGMENT:	All Electric	VINTAGE:	All

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

MEASURE COSTS		Savings	Cost	Unit	Unit	NPV of	Imple-	Cost	Full = 1				Relative Energy Reduction Factors						End	Implementation
Measure #	Measure Description	Units	Units	Equipment Cost	Labor Cost	Lifetime O & M Cost	mentation Cost Factor	Units per Savings Unit	Service Life	Initial Cost	Replace Cost	Unit Cost	SP	SPP	SOP	WP	WPP	WOP	Use	Type 1=1 time 2=ROB
705	Chiller Tune Up/Diagnostics	\$/ton	\$/ton	\$16.667	\$0.000	\$20.912	\$16.667	1	10	1	1	\$37.578	1.00	0.50	0.00	1.00	0.00	0.00	5	1
706	Cooling Circ. Pumps - VSD	\$/ton	\$/ton	\$65.040	\$0.000	\$0.000	\$65.040	1	15	1	1	\$65.040	1.00	1.00	1.00	1.00	1.00	1.00	5	1
707	Energy Star Transformers	\$/kWh	\$/kWh	\$0.064	\$0.000	\$0.000	\$0.064	1	25	1	1	\$0.064	1.00	1.00	1.00	1.00	1.00	1.00	5	2
710	Base DX Packaged System, EER=10.3, 10 tons	\$/ton	\$/ton	\$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	5	2
711	DX Tune Up/ Advanced Diagnostics	\$/ton	\$/ton	\$78.000	\$0.000	\$0.000	\$78.000	1	3	1	1	\$78.000	1.00	1.00	1.00	1.00	1.00	1.00	5	1
712	DX Packaged System, EER=10.9, 10 tons	\$/ton	\$/ton	\$51.600	\$0.000	\$0.000	\$51.600	1	15	1	1	\$51.600	1.00	1.00	1.00	1.00	1.00	1.00	5	2
713	Window Film - DX	\$/sf-window	\$/sf-window	\$3.070	\$0.000	\$0.000	\$3.070	1	10	1	1	\$3.070	1.00	1.00	1.00	1.00	1.00	1.00	5	1
714	Evaporative Pre-Cooler	\$/ton	\$/ton	\$133.333	\$160.000	\$0.000	\$293.333	1	10	1	1	\$293.333	1.00	1.00	1.00	1.00	1.00	1.00	5	1
715	Prog. Thermostat - DX	\$/ton	\$/ton	\$5.500	\$15.000	\$0.000	\$20.500	1	10	1	1	\$20.500	0.25	1.00	1.00	1.00	1.00	1.00	5	1
716	Cool Roof - DX	\$/sf-roof	\$/sf-roof	\$0.470	\$0.000	\$0.000	\$0.470	1	10	1	1	\$0.470	1.00	1.00	1.00	1.00	1.00	1.00	5	1
717	Energy Star Transformers	\$/kWh	\$/kWh	\$0.064	\$0.000	\$0.000	\$0.064	1	25	1	1	\$0.064	1.00	1.00	1.00	1.00	1.00	1.00	5	2
800	Base Lighting	fixture	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	4	1
801	RET 2L4' Premium T8, 1EB	fixture	fixture	\$25.000	\$9.400	\$0.000	\$34.400	1	15	1	1	\$34.400	1.00	1.00	1.00	1.00	1.00	1.00	4	1
802	CFL Hardwired, Modular 36W	fixture	fixture	\$41.700	\$15.450	-\$8.409	\$57.150	1	4	1	1	\$48.741	1.00	1.00	1.00	1.00	1.00	1.00	4	1
803	Metal Halide, 50W	fixture	fixture	\$224.700	\$55.450	\$0.000	\$280.150	1	5	1	1	\$280.150	1.00	1.00	1.00	1.00	1.00	1.00	4	1
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	fixture	fixture	\$12.250	\$1.575	\$0.000	\$13.825	1	9	1	1	\$13.825	1.00	1.00	0.50	1.00	1.00	0.50	4	1
805	Energy Star Transformers	\$/kWh	\$/kWh	\$0.064	\$0.000	\$0.000	\$0.064	1	25	1	1	\$0.064	1.00	1.00	1.00	1.00	1.00	1.00	4	2
900	Base Other	\$/kWh	\$/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	3	1
901	Replace V-belts	\$/kWh	\$/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	3	2
902	Membranes for wastewater	\$/kWh	\$/kWh	\$0.032	\$0.003	\$0.000	\$0.035	1	15	1	1	\$0.035	1.00	1.00	1.00	1.00	1.00	1.00	3	2
903	Energy Star Transformers	\$/kWh	\$/kWh	\$0.064	\$0.006	\$0.000	\$0.070	1	25	1	1	\$0.070	1.00	1.00	1.00	1.00	1.00	1.00	3	2

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

TECHNOLOGY SATURATION (units/base kWh)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
705	Chiller Tune Up/Diagnostics	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
706	Cooling Circ. Pumps - VSD	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
707	Energy Star Transformers	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
710	DX Packaged System, EER=10.3, 10 tons	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
711	DX Tune Up/ Advanced Diagnostics	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
712	DX Packaged System, EER=10.9, 10 tons	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
713	Window Film - DX	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099
714	Evaporative Pre-Cooler	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
715	Prog. Thermostat - DX	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
716	Cool Roof - DX	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745	0.1745
717	Energy Star Transformers	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
800	Base Lighting	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	0.0037	0.0037
801	RET 2L4' Premium T8, 1EB	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	0.0037	0.0037
802	CFL Hardwired, Modular 36W	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
803	Metal Halide, 50W	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
804	Occ Sensor, 4L4' Fluor Fixtures	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	0.0037	0.0037
805	Energy Star Transformers	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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	1.0000
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	1.0000
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	1.0000
903	Energy Star Transformers	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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 E

INDUSTRIAL

MEASURE INPUT DATA

APPLICABILITY FACTOR (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
100	Base Compressed Air	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
101	Compressed Air-O&M	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
102	Compressed Air - Controls	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
103	Compressed Air - System Optimization	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
104	Compressed Air- Sizing	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
105	Comp Air - Replace 1-5 HP motor	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
106	Comp Air - ASD (1-5 hp)	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
107	Comp Air - Motor practices-1 (1-5 HP)	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
108	Comp Air - Replace 6-100 HP motor	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
109	Comp Air - ASD (6-100 hp)	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
110	Comp Air - Motor practices-1 (6-100 HP)	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
111	Comp Air - Replace 100+ HP motor	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
112	Comp Air - ASD (100+ hp)	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
113	Comp Air - Motor practices-1 (100+ HP)	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
114	Power recovery	0%	0%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
115	Refinery Controls	0%	0%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
116	Energy Star Transformers	9%	4%	5%	4%	3%	2%	13%	4%	6%	6%	12%	16%	12%	14%	9%	12%	5%	15%
200	Base Fans	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
201	Fans - O&M	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
202	Fans - Controls	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
203	Fans - System Optimization	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
204	Fans- Improve components	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
205	Fans - Replace 1-5 HP motor	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
206	Fans - ASD (1-5 hp)	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
207	Fans - Motor practices-1 (1-5 HP)	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
208	Fans - Replace 6-100 HP motor	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
209	Fans - ASD (6-100 hp)	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
210	Fans - Motor practices-1 (6-100 HP)	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
211	Fans - Replace 100+ HP motor	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
212	Fans - ASD (100+ hp)	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
213	Fans - Motor practices-1 (100+ HP)	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
214	Optimize drying process	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
215	Power recovery	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
216	Refinery Controls	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
217	Energy Star Transformers	10%	8%	10%	16%	7%	5%	8%	7%	14%	14%	7%	6%	4%	6%	4%	4%	7%	15%
300	Base Pumps	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
301	Pumps - O&M	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
302	Pumps - Controls	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
303	Pumps - System Optimization	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
304	Pumps - Sizing	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
305	Pumps - Replace 1-5 HP motor	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
306	Pumps - ASD (1-5 hp)	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
307	Pumps - Motor practices-1 (1-5 HP)	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
308	Pumps - Replace 6-100 HP motor	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
309	Pumps - ASD (6-100 hp)	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
310	Pumps - Motor practices-1 (6-100 HP)	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
311	Pumps - Replace 100+ HP motor	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
312	Pumps - ASD (100+ hp)	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
313	Pumps - Motor practices-1 (100+ HP)	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
314	Power recovery	0%	0%	0%	0%	0%	0%	52%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
315	Refinery Controls	0%	0%	0%	0%	0%	0%	52%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
316	Energy Star Transformers	17%	10%	13%	27%	9%	20%	52%	9%	18%	18%	9%	8%	5%	8%	5%	5%	11%	51%
400	Base Drives	3%	36%	47%	35%	31%	16%	0%	33%	20%	21%	22%	21%	10%	14%	13%	20%	67%	0%
401	Bakery - Process (Mixing) - O&M	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
402	O&M/drives spinning machines	0%	36%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
403	Air conveying systems	0%	0%	47%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
404	Replace V-Belts	0%	0%	47%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

APPLICABILITY FACTOR (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
405	Drives - EE motor	0%	0%	47%	35%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	67%	0%
406	Gap Forming papermachine	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
407	High Consistency forming	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
408	Optimization control PM	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
409	Efficient practices printing press	0%	0%	0%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
410	Efficient Printing press (fewer cylinders)	0%	0%	0%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
411	Light cylinders	0%	0%	0%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
412	Efficient drives	0%	0%	0%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
413	Clean Room - Controls	0%	0%	0%	0%	0%	16%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
414	Clean Room - New Designs	0%	0%	0%	0%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
415	Drives - Process Controls (batch + site)	0%	0%	0%	0%	0%	16%	0%	0%	20%	21%	0%	0%	0%	0%	0%	0%	67%	0%
416	Process Drives - ASD	0%	0%	0%	0%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
417	O&M - Extruders/Injection Moulding	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
418	Extruders/injection Moulding-multipump	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
419	Direct drive Extruders	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
420	Injection Moulding - Impulse Cooling	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
421	Injection Moulding - Direct drive	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
422	Efficient grinding	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	67%	0%
423	Process control	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	67%	0%
424	Process optimization	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	67%	0%
425	Drives - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%
426	Efficient drives - rolling	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%
427	Drives - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22%	21%	0%	14%	13%	0%	0%	0%
428	Drives - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22%	21%	10%	14%	13%	20%	0%	0%
429	Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22%	21%	10%	14%	13%	0%	0%	0%
430	Efficient Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
431	Energy Star Transformers	3%	36%	47%	35%	31%	16%	0%	33%	20%	21%	22%	21%	10%	14%	13%	20%	67%	0%
500	Base Heating	8%	5%	6%	0%	0%	0%	0%	0%	23%	20%	15%	10%	15%	10%	11%	11%	0%	0%
501	Bakery - Process	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
502	Drying (UV/IR)	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
503	Heat Pumps - Drying	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
504	Top-heating (glass)	0%	0%	0%	0%	0%	0%	0%	0%	23%	0%	0%	0%	0%	0%	0%	0%	0%	0%
505	Efficient electric melting	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%
506	Intelligent extruder (DOE)	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%
507	Near Net Shape Casting	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%
508	Heating - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%
509	Efficient Curing ovens	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	10%	15%	10%	11%	11%	0%	0%
510	Heating - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	10%	0%	10%	0%	0%	0%	0%
511	Heating - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	10%	0%	0%	0%	0%	0%	0%
512	Energy Star Transformers	8%	5%	6%	0%	0%	0%	0%	0%	23%	20%	15%	10%	15%	10%	11%	11%	0%	0%
550	Base Refrigeration	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
551	Efficient Refrigeration - Operations	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
552	Optimization Refrigeration	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
553	Energy Star Transformers	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
600	Base Other Process	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	5%	1%	5%	4%	2%	1%	0%	0%
601	Other Process Controls (batch + site)	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
602	Efficient desalter	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
603	New transformers welding	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	1%	0%	4%	2%	0%	0%	0%
604	Efficient processes (welding, etc.)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%
605	Process control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
606	Power recovery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
607	Refinery Controls	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
608	Energy Star Transformers	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	5%	1%	5%	4%	2%	1%	0%	0%
700	Centrifugal Chiller, 0.58 kW/ton, 500 tons	2%	6%	2%	1%	8%	0%	0%	1%	1%	1%	3%	2%	4%	6%	2%	5%	5%	2%
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	2%	6%	2%	1%	8%	0%	0%	1%	1%	1%	3%	2%	4%	6%	2%	5%	5%	2%
702	Window Film - Chiller	2%	6%	2%	1%	8%	0%	0%	1%	1%	1%	3%	2%	4%	6%	2%	5%	5%	2%
703	EMS - Chiller	2%	6%	2%	1%	8%	0%	0%	1%	1%	1%	3%	2%	4%	6%	2%	5%	5%	2%
704	Cool Roof - Chiller	2%	6%	2%	1%	8%	0%	0%	1%	1%	1%	3%	2%	4%	6%	2%	5%	5%	2%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

APPLICABILITY FACTOR (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
705	Chiller Tune Up/Diagnostics	2%	6%	2%	1%	8%	0%	0%	1%	1%	1%	3%	2%	4%	6%	2%	5%	5%	2%
706	Cooling Circ. Pumps - VSD	2%	6%	2%	1%	8%	0%	0%	1%	1%	1%	3%	2%	4%	6%	2%	5%	5%	2%
707	Energy Star Transformers	2%	6%	2%	1%	8%	0%	0%	1%	1%	1%	3%	2%	4%	6%	2%	5%	5%	2%
710	DX Packaged System, EER=10.3, 10 tons	2%	4%	3%	2%	10%	1%	2%	2%	3%	2%	7%	4%	7%	12%	4%	12%	5%	2%
711	DX Tune Up/ Advanced Diagnostics	2%	4%	3%	2%	10%	1%	2%	2%	3%	2%	7%	4%	7%	12%	4%	12%	5%	2%
712	DX Packaged System, EER=10.9, 10 tons	2%	4%	3%	2%	10%	1%	2%	2%	3%	2%	7%	4%	7%	12%	4%	12%	5%	2%
713	Window Film - DX	2%	4%	3%	2%	10%	1%	2%	2%	3%	2%	7%	4%	7%	12%	4%	12%	5%	2%
714	Evaporative Pre-Cooler	2%	4%	3%	2%	10%	1%	2%	2%	3%	2%	7%	4%	7%	12%	4%	12%	5%	2%
715	Prog. Thermostat - DX	2%	4%	3%	2%	10%	1%	2%	2%	3%	2%	7%	4%	7%	12%	4%	12%	5%	2%
716	Cool Roof - DX	2%	4%	3%	2%	10%	1%	2%	2%	3%	2%	7%	4%	7%	12%	4%	12%	5%	2%
717	Energy Star Transformers	2%	4%	3%	2%	10%	1%	2%	2%	3%	2%	7%	4%	7%	12%	4%	12%	5%	2%
800	Base Lighting	7%	10%	6%	3%	23%	4%	3%	10%	5%	4%	15%	14%	13%	16%	17%	16%	5%	2%
801	RET 2L4' Premium T8, 1EB	7%	10%	6%	3%	23%	4%	3%	10%	5%	4%	15%	14%	13%	16%	17%	16%	5%	2%
802	CFL Hardwired, Modular 36W	7%	10%	6%	3%	23%	4%	3%	10%	5%	4%	15%	14%	13%	16%	17%	16%	5%	2%
803	Metal Halide, 50W	7%	10%	6%	3%	23%	4%	3%	10%	5%	4%	15%	14%	13%	16%	17%	16%	5%	2%
804	Occ Sensor, 4L4' Fluor Fixtures	7%	10%	6%	3%	23%	4%	3%	10%	5%	4%	15%	14%	13%	16%	17%	16%	5%	2%
805	Energy Star Transformers	7%	10%	6%	3%	23%	4%	3%	10%	5%	4%	15%	14%	13%	16%	17%	16%	5%	2%
900	Base Other	7%	7%	6%	4%	5%	1%	1%	4%	4%	1%	5%	7%	6%	8%	5%	8%	0%	0%
901	Replace V-belts	7%	7%	6%	4%	5%	1%	1%	4%	4%	1%	5%	7%	6%	8%	5%	8%	0%	0%
902	Membranes for wastewater	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
903	Energy Star Transformers	7%	7%	6%	4%	5%	1%	1%	4%	4%	1%	5%	7%	6%	8%	5%	8%	0%	0%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

INCOMPLETE FACTOR (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
100	Base Compressed Air	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
101	Compressed Air-O&M	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
102	Compressed Air - Controls	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
103	Compressed Air - System Optimization	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
104	Compressed Air - Sizing	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
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%	87%
106	Comp Air - ASD (1-5 hp)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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%	100%
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%	62%
109	Comp Air - ASD (6-100 hp)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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%	100%
111	Comp Air - Replace 100+ HP motor	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
112	Comp Air - ASD (100+ hp)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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%	100%
114	Power recovery	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
115	Refinery Controls	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
116	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
200	Base Fans	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
201	Fans - O&M	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
202	Fans - Controls	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
203	Fans - System Optimization	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
204	Fans - Improve components	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
205	Fans - Replace 1-5 HP motor	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%
206	Fans - ASD (1-5 hp)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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%	100%
208	Fans - Replace 6-100 HP motor	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
209	Fans - ASD (6-100 hp)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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%	100%
211	Fans - Replace 100+ HP motor	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
212	Fans - ASD (100+ hp)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
213	Fans - Motor practices-1 (100+ HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
214	Optimize drying process	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
215	Power recovery	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
216	Refinery Controls	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
217	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
300	Base Pumps	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
301	Pumps - O&M	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
302	Pumps - Controls	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
303	Pumps - System Optimization	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
304	Pumps - Sizing	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
305	Pumps - Replace 1-5 HP motor	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%
306	Pumps - ASD (1-5 hp)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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%	100%
308	Pumps - Replace 6-100 HP motor	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
309	Pumps - ASD (6-100 hp)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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%	100%
311	Pumps - Replace 100+ HP motor	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
312	Pumps - ASD (100+ hp)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
313	Pumps - Motor practices-1 (100+ HP)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
314	Power recovery	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
315	Refinery Controls	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
316	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
400	Base Drives	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
401	Bakery - Process (Mixing) - O&M	70%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
402	O&M/drives spinning machines	100%	40%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
403	Air conveying systems	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
404	Replace V-Belts	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

INCOMPLETE FACTOR (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
405	Drives - EE motor	100%	100%	40%	55%	100%	100%	100%	100%	30%	100%	100%	100%	100%	100%	100%	100%	30%	100%
406	Gap Forming papermachine	100%	100%	100%	10%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
407	High Consistency forming	100%	100%	100%	10%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
408	Optimization control PM	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
409	Efficient practices printing press	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
410	Efficient Printing press (fewer cylinders)	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
411	Light cylinders	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
412	Efficient drives	100%	100%	100%	100%	30%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
413	Clean Room - Controls	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%
414	Clean Room - New Designs	100%	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
415	Drives - Process Controls (batch + site)	100%	100%	100%	100%	100%	50%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	50%	100%
416	Process Drives - ASD	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%
417	O&M - Extruders/Injection Moulding	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
418	Extruders/injection Moulding-multipump	100%	100%	100%	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
419	Direct drive Extruders	100%	100%	100%	100%	100%	100%	100%	10%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
420	Injection Moulding - Impulse Cooling	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
421	Injection Moulding - Direct drive	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
422	Efficient grinding	100%	100%	100%	100%	100%	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	20%	100%
423	Process control	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	50%	100%
424	Process optimization	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	25%	100%
425	Drives - Process Control	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%
426	Efficient drives - rolling	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%
427	Drives - Optimization process (M&T)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	50%	100%	40%	50%	100%	100%	100%
428	Drives - Scheduling	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	30%	30%	30%	30%	30%	30%	100%	100%
429	Machinery	100%	100%	100%	100%	100%	100%	100%	100%	25%	25%	25%	25%	20%	25%	25%	100%	100%	100%
430	Efficient Machinery	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%
431	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
500	Base Heating	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
501	Bakery - Process	30%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
502	Drying (UV/IR)	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
503	Heat Pumps - Drying	100%	100%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
504	Top-heating (glass)	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	50%	50%
505	Efficient electric melting	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%
506	Intelligent extruder (DOE)	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%
507	Near Net Shape Casting	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%
508	Heating - Process Control	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%
509	Efficient Curing ovens	100%	100%	100%	100%	100%	100%	100%	100%	25%	25%	25%	25%	25%	25%	25%	25%	100%	100%
510	Heating - Optimization process (M&T)	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	50%	100%	40%	100%	100%	100%	100%	100%
511	Heating - Scheduling	100%	100%	100%	100%	100%	100%	100%	100%	100%	30%	30%	100%	100%	100%	100%	100%	100%	100%
512	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
550	Base Refrigeration	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
551	Efficient Refrigeration - Operations	22%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
552	Optimization Refrigeration	15%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
553	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
600	Base Other Process	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
601	Other Process Controls (batch + site)	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
602	Efficient desalter	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
603	New transformers welding	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	50%	50%	100%	100%	100%
604	Efficient processes (welding, etc.)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%
605	Process control	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	25%	100%	100%
606	Power recovery	100%	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
607	Refinery Controls	100%	100%	100%	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
608	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
700	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%	100%
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%	100%
702	Window Film - Chiller	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
703	EMS - Chiller	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%	63%
704	Cool Roof - Chiller	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

INCOMPLETE FACTOR (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
705	Chiller Tune Up/Diagnostics	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
706	Cooling Circ. Pumps - VSD	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
707	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
710	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%	100%
711	DX Tune Up/ Advanced Diagnostics	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
712	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%	100%
713	Window Film - DX	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%
714	Evaporative Pre-Cooler	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
715	Prog. Thermostat - DX	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%
716	Cool Roof - DX	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%
717	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
800	Base Lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
801	RET 2L4' Premium T8, 1EB	84%	74%	85%	79%	82%	83%	83%	85%	89%	87%	86%	84%	84%	81%	83%	84%	84%	84%
802	CFL Hardwired, Modular 36W	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%
803	Metal Halide, 50W	7%	16%	12%	5%	3%	23%	23%	8%	57%	25%	24%	18%	7%	12%	22%	2%	2%	2%
804	Occ Sensor, 4L4' Fluor Fixtures	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
805	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
900	Base Other	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
901	Replace V-belts	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
902	Membranes for wastewater	100%	15%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
903	Energy Star Transformers	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

FEASIBILITY FACTOR (percent)																				
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW	
100	Base Compressed Air	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
101	Compressed Air-O&M	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
102	Compressed Air - Controls	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
103	Compressed Air - System Optimization	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
104	Compressed Air - Sizing	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
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%	5%	
106	Comp Air - ASD (1-5 hp)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
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%	5%	
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%	36%	
109	Comp Air - ASD (6-100 hp)	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
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%	36%	
111	Comp Air - Replace 100+ HP motor	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
112	Comp Air - ASD (100+ hp)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
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%	59%	
114	Power recovery	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
115	Refinery Controls	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
116	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
200	Base Fans	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
201	Fans - O&M	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
202	Fans - Controls	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
203	Fans - System Optimization	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
204	Fans - Improve components	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
205	Fans - Replace 1-5 HP motor	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
206	Fans - ASD (1-5 hp)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
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%	5%	
208	Fans - Replace 6-100 HP motor	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
209	Fans - ASD (6-100 hp)	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
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%	36%	
211	Fans - Replace 100+ HP motor	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
212	Fans - ASD (100+ hp)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
213	Fans - Motor practices-1 (100+ HP)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
214	Optimize drying process	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
215	Power recovery	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
216	Refinery Controls	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
217	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
300	Base Pumps	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
301	Pumps - O&M	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
302	Pumps - Controls	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
303	Pumps - System Optimization	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
304	Pumps - Sizing	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
305	Pumps - Replace 1-5 HP motor	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
306	Pumps - ASD (1-5 hp)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
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%	5%	
308	Pumps - Replace 6-100 HP motor	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
309	Pumps - ASD (6-100 hp)	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	
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%	36%	
311	Pumps - Replace 100+ HP motor	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
312	Pumps - ASD (100+ hp)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
313	Pumps - Motor practices-1 (100+ HP)	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
314	Power recovery	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
315	Refinery Controls	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
316	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
400	Base Drives	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
401	Bakery - Process (Mixing) - O&M	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
402	O&M/drives spinning machines	0%	60%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
403	Air conveying systems	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
404	Replace V-Belts	0%	0%	70%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

FEASIBILITY FACTOR (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
405	Drives - EE motor	0%	0%	100%	100%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	100%	0%
406	Gap Forming papermachine	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
407	High Consistency forming	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
408	Optimization control PM	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
409	Efficient practices printing press	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
410	Efficient Printing press (fewer cylinders)	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
411	Light cylinders	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
412	Efficient drives	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
413	Clean Room - Controls	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%	0%
414	Clean Room - New Designs	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
415	Drives - Process Controls (batch + site)	0%	0%	0%	0%	0%	86%	0%	0%	100%	100%	0%	0%	0%	0%	0%	0%	100%	0%
416	Process Drives - ASD	0%	0%	0%	0%	0%	70%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%
417	O&M - Extruders/Injection Moulding	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
418	Extruders/injection Moulding-multipump	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
419	Direct drive Extruders	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
420	Injection Moulding - Impulse Cooling	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
421	Injection Moulding - Direct drive	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
422	Efficient grinding	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	100%	0%
423	Process control	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	100%	0%
424	Process optimization	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	25%	0%
425	Drives - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
426	Efficient drives - rolling	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
427	Drives - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	40%	0%	40%	40%	0%	0%	0%	0%
428	Drives - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	40%	40%	40%	40%	40%	40%	0%	0%
429	Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%	50%	50%	50%	50%	0%	0%	0%
430	Efficient Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%
431	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
500	Base Heating	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
501	Bakery - Process	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
502	Drying (UV/IR)	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
503	Heat Pumps - Drying	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
504	Top-heating (glass)	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%
505	Efficient electric melting	0%	0%	0%	0%	0%	0%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%
506	Intelligent extruder (DOE)	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%
507	Near Net Shape Casting	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%
508	Heating - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
509	Efficient Curing ovens	0%	0%	0%	0%	0%	0%	0%	0%	0%	70%	50%	50%	50%	50%	50%	50%	50%	50%
510	Heating - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	40%	0%	40%	40%	0%	0%	0%	0%
511	Heating - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	40%	0%	0%	0%	0%	0%	0%	0%
512	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
550	Base Refrigeration	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
551	Efficient Refrigeration - Operations	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
552	Optimization Refrigeration	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
553	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
600	Base Other Process	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
601	Other Process Controls (batch + site)	0%	0%	0%	0%	0%	86%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
602	Efficient desalter	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
603	New transformers welding	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	50%	0%	100%	50%	0%	0%	0%
604	Efficient processes (welding, etc.)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%
605	Process control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%
606	Power recovery	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
607	Refinery Controls	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
608	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
700	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%	100%
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%	100%
702	Window Film - Chiller	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
703	EMS - Chiller	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
704	Cool Roof - Chiller	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

FEASIBILITY FACTOR (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
705	Chiller Tune Up/Diagnostics	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
706	Cooling Circ. Pumps - VSD	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
707	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
710	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%	100%
711	DX Tune Up/ Advanced Diagnostics	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
712	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%	100%
713	Window Film - DX	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
714	Evaporative Pre-Cooler	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
715	Prog. Thermostat - DX	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
716	Cool Roof - DX	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
717	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
800	Base Lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
801	RET 2L4' Premium T8, 1EB	76%	86%	87%	80%	96%	77%	77%	80%	62%	66%	85%	87%	90%	89%	91%	93%	93%	93%
802	CFL Hardwired, Modular 36W	17%	8%	8%	16%	3%	10%	10%	18%	20%	27%	11%	9%	8%	8%	7%	6%	6%	6%
803	Metal Halide, 50W	6%	6%	5%	4%	2%	12%	12%	2%	18%	7%	4%	4%	2%	3%	3%	0%	0%	0%
804	Occ Sensor, 4L4' Fluor Fixtures	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
805	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
900	Base Other	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
901	Replace V-belts	73%	71%	80%	79%	39%	0%	7%	53%	70%	20%	53%	40%	33%	55%	32%	55%	55%	55%
902	Membranes for wastewater	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
903	Energy Star Transformers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

ENERGY SAVINGS (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
100	Base Compressed Air	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
101	Compressed Air-O&M	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
102	Compressed Air - Controls	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
103	Compressed Air - System Optimization	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
104	Compressed Air - Sizing	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
105	Comp Air - Replace 1-5 HP motor	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
106	Comp Air - ASD (1-5 hp)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
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%	5%
108	Comp Air - Replace 6-100 HP motor	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
109	Comp Air - ASD (6-100 hp)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
110	Comp Air - Motor practices-1 (6-100 HP)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
111	Comp Air - Replace 100+ HP motor	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
112	Comp Air - ASD (100+ hp)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
113	Comp Air - Motor practices-1 (100+ HP)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
114	Power recovery	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
115	Refinery Controls	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
116	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
200	Base Fans	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
201	Fans - O&M	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
202	Fans - Controls	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
203	Fans - System Optimization	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
204	Fans - Improve components	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
205	Fans - Replace 1-5 HP motor	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
206	Fans - ASD (1-5 hp)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
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%	5%
208	Fans - Replace 6-100 HP motor	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
209	Fans - ASD (6-100 hp)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
210	Fans - Motor practices-1 (6-100 HP)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
211	Fans - Replace 100+ HP motor	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
212	Fans - ASD (100+ hp)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
213	Fans - Motor practices-1 (100+ HP)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
214	Optimize drying process	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
215	Power recovery	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
216	Refinery Controls	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
217	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
300	Base Pumps	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
301	Pumps - O&M	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
302	Pumps - Controls	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
303	Pumps - System Optimization	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
304	Pumps - Sizing	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
305	Pumps - Replace 1-5 HP motor	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
306	Pumps - ASD (1-5 hp)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
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%	5%
308	Pumps - Replace 6-100 HP motor	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
309	Pumps - ASD (6-100 hp)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
310	Pumps - Motor practices-1 (6-100 HP)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
311	Pumps - Replace 100+ HP motor	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
312	Pumps - ASD (100+ hp)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
313	Pumps - Motor practices-1 (100+ HP)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
314	Power recovery	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
315	Refinery Controls	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
316	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
400	Base Drives	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
401	Bakery - Process (Mixing) - O&M	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
402	O&M/drives spinning machines	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
403	Air conveying systems	0%	0%	41%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
404	Replace V-Belts	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

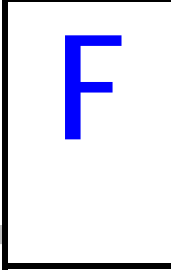
ENERGY SAVINGS (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
405	Drives - EE motor	0%	0%	4%	3%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	4%	0%
406	Gap Forming papermachine	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
407	High Consistency forming	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
408	Optimization control PM	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
409	Efficient practices printing press	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
410	Efficient Printing press (fewer cylinders)	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
411	Light cylinders	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
412	Efficient drives	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
413	Clean Room - Controls	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
414	Clean Room - New Designs	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
415	Drives - Process Controls (batch + site)	0%	0%	0%	0%	0%	8%	0%	0%	2%	5%	0%	0%	0%	0%	0%	0%	2%	0%
416	Process Drives - ASD	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
417	O&M - Extruders/Injection Moulding	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
418	Extruders/injection Moulding-multipump	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
419	Direct drive Extruders	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
420	Injection Moulding - Impulse Cooling	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
421	Injection Moulding - Direct drive	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
422	Efficient grinding	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	21%	0%
423	Process control	0%	0%	0%	0%	0%	0%	0%	0%	2%	5%	0%	0%	0%	0%	0%	0%	2%	0%
424	Process optimization	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	10%	0%
425	Drives - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%
426	Efficient drives - rolling	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
427	Drives - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	10%	0%	10%	10%	0%	0%	0%
428	Drives - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	5%	5%	5%	5%	5%	5%	0%	0%
429	Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	7%	4%	11%	7%	0%	0%	0%	0%
430	Efficient Machinery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	4%	4%
431	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
500	Base Heating	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
501	Bakery - Process	37%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
502	Drying (UV/IR)	0%	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
503	Heat Pumps - Drying	0%	0%	22%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
504	Top-heating (glass)	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%
505	Efficient electric melting	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
506	Intelligent extruder (DOE)	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
507	Near Net Shape Casting	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%
508	Heating - Process Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%
509	Efficient Curing ovens	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	20%	20%	20%	20%	20%	20%	20%	0%
510	Heating - Optimization process (M&T)	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	10%	0%	10%	0%	0%	0%	0%	0%
511	Heating - Scheduling	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	0%	0%
512	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
550	Base Refrigeration	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
551	Efficient Refrigeration - Operations	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
552	Optimization Refrigeration	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
553	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
600	Base Other Process	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
601	Other Process Controls (batch + site)	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
602	Efficient desalter	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
603	New transformers welding	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	25%	0%	25%	25%	0%	0%	0%	0%
604	Efficient processes (welding, etc.)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%
605	Process control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%
606	Power recovery	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
607	Refinery Controls	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
608	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
700	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%
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
702	Window Film - Chiller	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
703	EMS - Chiller	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
704	Cool Roof - Chiller	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%

APPENDIX E

INDUSTRIAL

MEASURE INPUT DATA

ENERGY SAVINGS (percent)																			
Measure #	Measure Description	SIC20	SIC22/23	SIC24/25	SIC26	SIC27	SIC28	SIC29	SIC30	SIC32	SIC33	SIC34	SIC35	SIC36	SIC37	SIC38	SIC39/21/31	Mining	Water/WW
705	Chiller Tune Up/Diagnostics	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
706	Cooling Circ. Pumps - VSD	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
707	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
710	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%
711	DX Tune Up/ Advanced Diagnostics	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
712	DX Packaged System, EER=10.9, 10 tons	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
713	Window Film - DX	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
714	Evaporative Pre-Cooler	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
715	Prog. Thermostat - DX	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
716	Cool Roof - DX	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
717	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
800	Base Lighting	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
801	RET 2L4' Premium T8, 1EB	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%	31%
802	CFL Hardwired, Modular 36W	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%	72%
803	Metal Halide, 50W	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%
804	Occ Sensor, 4L4' Fluor Fixtures	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
805	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
900	Base Other	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
901	Replace V-belts	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
902	Membranes for wastewater	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
903	Energy Star Transformers	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%



NON-ADDITIVE MEASURE LEVEL RESULTS

This appendix presents non-additive measure level results for the Colorado DSM Market Potential Study. Results are shown by sector and vintage: residential existing, residential new construction, commercial existing, commercial new construction, and industrial.

APPENDIX F

RESIDENTIAL EXISTING CONSTRUCTION

NON-ADDITIVE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy	Peak	Total	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Savings Fraction	Reduction Fraction	Costs/ Household	UEC	UEC		Watts/ Household	Potential GWH	Peak Tech. Potential MW	of Conserved \$/kWh	of Avoided Peak Capacity \$/kW		Resource Cost Test (TRC)		Payback (Years)
100	Base, 13 SEER Split-System Air Conditioner	Single Family	0%	0%	\$1,649	2,041	2,041	2,941	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
101	14 SEER Split-System Air Conditioner	Single Family	7%	7%	\$278	1,413	1,312	1,891	18	33.29	47.97	\$0.280	\$194	0.61	0.19	35.40	3.27
102	15 SEER Split-System Air Conditioner	Single Family	13%	13%	\$556	1,413	1,225	1,765	18	62.14	89.54	\$0.300	\$208	0.57	0.18	37.93	3.27
103	16 SEER Split-System Air Conditioner	Single Family	19%	19%	\$834	1,413	1,148	1,654	18	87.39	125.91	\$0.320	\$222	0.53	0.17	40.46	3.27
104	17 SEER Split-System Air Conditioner	Single Family	24%	24%	\$1,111	1,413	1,081	1,557	18	109.66	158.01	\$0.340	\$236	0.50	0.16	42.99	3.27
105	18 SEER Split-System Air Conditioner	Single Family	28%	28%	\$2,425	1,413	1,021	1,471	18	129.46	186.54	\$0.629	\$436	0.27	0.09	79.45	3.27
106	Evaporative Cooler	Single Family	58%	58%	\$813	2,106	884	1,274	15	190.74	274.84	\$0.075	\$52	2.28	0.76	8.56	3.27
107	Whole House Fans	Single Family	18%	10%	\$513	2,120	1,747	2,750	15	72.88	59.55	\$0.155	\$190	0.73	0.37	17.64	2.16
108	Attic Venting	Single Family	9%	5%	\$435	2,061	1,879	2,821	10	39.47	32.25	\$0.377	\$461	0.30	0.17	30.78	2.16
109	Typical Refrigerant Charge Adjustment	Single Family	10%	10%	\$115	2,167	1,957	2,820	10	27.73	39.96	\$0.086	\$60	1.99	0.75	7.04	3.27
110	High Refrigerant Charge Adjustment	Single Family	19%	19%	\$139	2,452	1,996	2,875	10	15.04	21.67	\$0.048	\$33	3.57	1.35	3.92	3.27
111	Duct Insulation	Single Family	4%	4%	\$246	2,115	2,030	2,925	20	3.63	5.23	\$0.283	\$196	0.60	0.18	37.46	3.27
112	Duct Sealing - from 24% AHU to 12%	Single Family	5%	5%	\$324	2,121	2,015	2,903	18	8.74	12.60	\$0.311	\$216	0.55	0.17	39.26	3.27
113	Duct Sealing - from 40% AHU to 12%	Single Family	15%	15%	\$324	2,171	1,846	2,659	18	64.45	92.87	\$0.101	\$70	1.69	0.53	12.78	3.27
114	Window Film	Single Family	38%	32%	\$420	2,041	1,266	2,000	10	30.69	37.25	\$0.085	\$70	1.76	0.76	6.97	2.87
115	Default Window With Sunscreen	Single Family	29%	27%	\$347	2,101	1,486	2,210	10	182.99	243.40	\$0.089	\$67	1.81	0.73	7.26	3.07
118	Ceiling R-0 to R-38 Insulation - Batts	Single Family	24%	20%	\$1,337	2,041	1,544	2,368	20	3.79	4.37	\$0.261	\$227	0.55	0.20	34.57	2.76
119	Ceiling R-11 to R-38 Insulation - Batts	Single Family	6%	5%	\$964	2,041	1,926	2,809	20	2.65	3.06	\$0.816	\$708	0.18	0.06	108.00	2.76
120	Ceiling R-19 to R-38 Insulation - Batts	Single Family	3%	2%	\$964	2,041	1,984	2,875	20	8.33	9.60	\$1.633	\$1,416	0.09	0.03	216.00	2.76
121	Wall Blow-in R-0 to R-13 Insulation	Single Family	15%	17%	\$2,618	2,362	1,997	2,828	20	14.42	22.76	\$0.698	\$442	0.26	0.07	92.40	3.52
140	Base Room Air Conditioner - EER 9.8	Single Family	0%	0%	\$560	1,021	1,021	1,471	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
141	Energy Star Room Air Conditioner - EER 10.8	Single Family	10%	10%	\$197	937	844	1,215	9	3.02	4.35	\$0.356	\$247	0.48	0.19	27.00	3.27
142	Evaporative Cooler	Single Family	58%	58%	\$369	1,053	442	637	15	9.30	13.41	\$0.068	\$47	2.51	0.84	7.77	3.27
143	Whole House Fans	Single Family	18%	10%	\$513	1,060	873	1,375	15	3.56	2.90	\$0.310	\$379	0.36	0.19	35.28	2.16
144	Attic Venting	Single Family	9%	5%	\$435	1,078	983	1,476	10	0.90	0.73	\$0.720	\$882	0.16	0.09	58.86	2.16
145	Window Film	Single Family	38%	32%	\$420	1,021	633	1,000	10	1.50	1.82	\$0.171	\$141	0.88	0.38	13.94	2.87
146	Default Window With Sunscreen	Single Family	29%	27%	\$347	1,050	743	1,105	10	8.93	11.87	\$0.178	\$134	0.91	0.36	14.51	3.07
148	Ceiling R-0 to R-38 Insulation - Batts	Single Family	48%	38%	\$1,337	1,021	533	908	20	0.36	0.42	\$0.266	\$231	0.54	0.20	35.25	2.76
149	Ceiling R-11 to R-38 Insulation - Batts	Single Family	15%	12%	\$964	1,021	868	1,294	20	0.34	0.40	\$0.612	\$531	0.24	0.09	81.00	2.76
150	Ceiling R-19 to R-38 Insulation - Batts	Single Family	8%	7%	\$964	1,021	934	1,371	20	1.22	1.40	\$1.088	\$944	0.13	0.05	144.00	2.76
151	Wall Blow-in R-0 to R-13 Insulation	Single Family	14%	11%	\$2,618	1,165	1,001	1,489	20	0.28	0.33	\$1.554	\$1,348	0.09	0.03	205.56	2.76
160	Base Furnace-AC Fan	Single Family	0%	0%	\$0	1,000	1,000	2	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
161	Variable Speed Furnace-AC Fan	Single Family	50%	30%	\$175	1,025	516	1	18	221.87	0.25	\$0.035	\$31,529	1.50	1.55	4.42	1.00
180	Base Resistance Space Heating	Single Family	0%	0%	\$0	10,556	10,556	19	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
182	Ceiling R-0 to R-38 Insulation - Batts	Single Family	51%	51%	\$1,337	10,556	5,172	9	20	7.00	0.01	\$0.024	\$13,151	2.17	2.17	3.19	1.00
183	Ceiling R-11 to R-38 Insulation - Batts	Single Family	16%	16%	\$1,337	10,556	8,867	16	20	6.66	0.01	\$0.077	\$41,920	0.68	0.68	10.18	1.00
184	Ceiling R-19 to R-38 Insulation - Batts	Single Family	9%	9%	\$1,337	10,556	9,606	18	20	23.53	0.04	\$0.137	\$74,524	0.38	0.38	18.10	1.00
185	Wall Blow-in R-0 to R-13 Insulation	Single Family	27%	27%	\$2,618	13,845	10,107	19	20	11.37	0.02	\$0.068	\$37,070	0.77	0.77	9.00	1.00
186	Infiltration Reduction (0.4)	Single Family	6%	6%	\$250	10,977	10,275	19	13	15.82	0.03	\$0.045	\$24,283	1.18	1.35	4.58	1.00
187	Floor R-0 to R-19 Insulation-Batts	Single Family	10%	10%	\$1,274	11,053	9,948	18	20	4.45	0.01	\$0.112	\$61,044	0.47	0.47	14.83	1.00
200	Base Incandescent Bulb	Single Family	0%	0%	\$0	1,452	1,452	145	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
201	CFL - 15w	Single Family	75%	75%	\$92	1,509	377	38	10	328.67	32.88	\$0.013	\$135	4.59	4.80	1.10	1.18
210	Base Torchiere	Single Family	0%	0%	\$0	458	458	46	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
211	CFL Torchiere - 55w	Single Family	82%	82%	\$107	503	92	9	9	38.25	3.83	\$0.044	\$441	1.40	1.50	3.35	1.18
220	Base Fluorescent Fixture, 2L4T12, 40W, 1EEMA	Single Family	0%	0%	\$95	251	251	25	31	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
221	ROB 2L4T8, 1EB	Single Family	28%	28%	\$15	255	183	18	48	32.70	3.27	\$0.016	\$156	3.10	2.62	2.64	1.18
222	RET 2L4T8, 1EB	Single Family	28%	28%	\$110	255	183	18	48	32.70	3.27	\$0.117	\$1,174	0.41	0.35	19.79	1.18
300	Base Refrigerator	Single Family	0%	0%	\$538	819	819	102	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	HE Refrigerator - Energy Star	Single Family	15%	15%	\$161	617	524	66	18	66.32	8.29	\$0.177	\$1,415	0.34	0.31	22.36	1.14
310	Base Refrigerator - Recycling	Single Family	0%	0%	\$0	1,638	1,638	205	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
311	Refrigerator Recycling	Single Family	61%	61%	\$232	1,638	638	80	10	241.33	30.17	\$0.036	\$292	1.63	1.77	2.98	1.14
400	Base Freezer	Single Family	0%	0%	\$329	373	373	50	11	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
401	HE Freezer	Single Family	15%	15%	\$33	299	254	34	11	8.65	1.17	\$0.106	\$787	0.57	0.60	9.47	1.15
410	Base Freezer - Recycling	Single Family	0%	0%	\$0	747	747	101	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
411	Freezer Recycling	Single Family	61%	61%	\$180	747	291	39	10	99.02	13.35	\$0.062	\$460	0.97	1.04	5.07	1.15

APPENDIX F

RESIDENTIAL EXISTING CONSTRUCTION

NON-ADDITIVE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY		RESIDENTIAL EXISTING CONSTRUCTION										NON-ADDITIVE MEASURE LEVEL RESULTS					
Measure Number	Measure	Building Type	Energy	Peak	Total	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Savings Fraction	Reduction Fraction	Costs/ Household	UEC	UEC	Watts/ Household	Life (yrs)	Potential GWH	Peak Tech. Potential MW	of Conserved Energy \$/kWh	of Avoided Peak Capacity \$/kW	Resource Cost Test (TRC)	Test	Payback (Years)	Test
500	Base 40 gal. Water Heating (EF=0.88)	Single Family	0%	0%	\$195	2,769	2,769	226	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
502	HE Water Heater (EF=0.93)	Single Family	3%	3%	\$72	2,845	2,765	226	15	3.84	0.31	\$0.103	\$1,259	0.57	0.56	11.69	
503	Solar Water Heat	Single Family	50%	50%	\$3,850	2,845	1,422	116	20	34.33	2.80	\$0.263	\$3,224	0.22	0.20	34.81	
504	Tankless Water Heater	Single Family	20%	20%	\$789	2,845	2,276	186	20	20.60	1.68	\$0.135	\$1,653	0.44	0.39	17.84	
505	Low Flow Showerhead	Single Family	8%	8%	\$48	2,984	2,760	225	10	3.28	0.27	\$0.034	\$416	1.73	1.90	2.77	
506	Faucet Aerators	Single Family	3%	3%	\$23	2,884	2,797	228	9	2.07	0.17	\$0.045	\$547	1.31	1.48	3.39	
507	Pipe Wrap	Single Family	4%	4%	\$28	2,861	2,746	224	15	3.80	0.31	\$0.028	\$339	2.12	2.08	3.15	
600	Base Clotheswasher (MEF=1.04)	Single Family	0%	0%	\$588	749	749	105	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
601	Energy Star CW (MEF=1.42)	Single Family	71%	71%	\$181	844	249	35	14	24.13	3.38	\$0.036	\$257	1.76	1.63	3.91	
602	Energy Star CW (MEF=1.6)	Single Family	78%	78%	\$549	856	185	26	14	27.22	3.82	\$0.097	\$691	0.66	0.61	10.52	
603	Ultra High Efficiency CW (MEF=1.8)	Single Family	90%	90%	\$593	875	89	13	14	31.84	4.47	\$0.089	\$638	0.71	0.66	9.71	
700	Base Dishwasher (EF=0.46)	Single Family	0%	0%	\$293	682	682	50	13	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
701	Energy Star DW (EF=0.58)	Single Family	21%	21%	\$134	821	651	48	13	0.49	0.04	\$0.099	\$1,345	0.66	0.61	10.11	
100	Base, 13 SEER Split-System Air Conditioner	Multifamily	0%	0%	\$1,099	1,941	1,941	2,797	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
101	14 SEER Split-System Air Conditioner	Multifamily	7%	7%	\$185	1,344	1,248	1,798	18	6.71	9.67	\$0.196	\$136	0.87	0.28	24.82	
102	15 SEER Split-System Air Conditioner	Multifamily	13%	13%	\$370	1,344	1,165	1,678	18	25.05	36.10	\$0.210	\$146	0.81	0.26	26.59	
103	16 SEER Split-System Air Conditioner	Multifamily	19%	19%	\$556	1,344	1,092	1,573	18	35.23	50.76	\$0.224	\$156	0.76	0.24	28.37	
104	17 SEER Split-System Air Conditioner	Multifamily	24%	24%	\$741	1,344	1,028	1,481	18	44.21	63.70	\$0.238	\$166	0.72	0.23	30.14	
105	18 SEER Split-System Air Conditioner	Multifamily	28%	28%	\$1,617	1,344	970	1,398	18	52.19	75.20	\$0.441	\$306	0.39	0.12	55.70	
106	Evaporative Cooler	Multifamily	58%	58%	\$813	1,987	835	1,202	15	77.35	111.46	\$0.080	\$55	2.15	0.72	9.08	
107	Whole House Fans	Multifamily	18%	10%	\$513	1,955	1,610	2,535	15	11.56	9.44	\$0.168	\$206	0.67	0.34	19.13	
108	Attic Venting	Multifamily	9%	5%	\$435	1,941	1,770	2,657	10	7.66	6.26	\$0.400	\$490	0.28	0.16	32.69	
109	Typical Refrigerant Charge Adjustment	Multifamily	10%	10%	\$77	2,061	1,861	2,681	10	11.18	16.11	\$0.060	\$42	2.83	1.07	4.94	
110	High Refrigerant Charge Adjustment	Multifamily	19%	19%	\$93	2,331	1,898	2,734	10	6.06	8.74	\$0.034	\$23	5.09	1.92	2.75	
111	Duct Insulation	Multifamily	4%	4%	\$216	2,019	1,938	2,793	20	0.34	0.49	\$0.259	\$180	0.66	0.20	34.33	
112	Duct Sealing - from 24% AHU to 12%	Multifamily	1%	1%	\$216	1,956	1,936	2,790	18	0.68	0.99	\$1.123	\$779	0.15	0.05	141.93	
113	Duct Sealing - from 40% AHU to 12%	Multifamily	5%	5%	\$216	1,980	1,881	2,711	18	8.31	11.97	\$0.222	\$154	0.77	0.24	28.03	
114	Window Film	Multifamily	32%	27%	\$137	1,941	1,314	2,036	10	18.41	22.34	\$0.035	\$28	4.35	1.87	2.82	
115	Default Window With Sunscreen	Multifamily	25%	23%	\$113	1,971	1,472	2,176	10	65.61	87.28	\$0.036	\$27	4.51	1.81	2.92	
118	Ceiling R-0 to R-38 Insulation - Batts	Multifamily	24%	20%	\$552	1,941	1,468	2,251	20	2.54	2.93	\$0.113	\$98	1.27	0.46	15.01	
119	Ceiling R-11 to R-38 Insulation - Batts	Multifamily	6%	5%	\$398	1,941	1,832	2,671	20	0.09	0.10	\$0.354	\$307	0.41	0.15	46.89	
120	Ceiling R-19 to R-38 Insulation - Batts	Multifamily	3%	2%	\$398	1,941	1,886	2,734	20	2.28	2.63	\$0.709	\$615	0.20	0.07	93.79	
121	Wall Blow-in R-0 to R-13 Insulation	Multifamily	3%	3%	\$764	1,982	1,921	2,759	20	2.82	4.45	\$1.215	\$770	0.15	0.04	160.75	
140	Base Room Air Conditioner - EER 9.8	Multifamily	0%	0%	\$484	970	970	1,398	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
141	Energy Star Room Air Conditioner - EER 10.8	Multifamily	10%	10%	\$170	891	802	1,156	9	2.39	3.44	\$0.323	\$224	0.53	0.20	24.53	
142	Evaporative Cooler	Multifamily	58%	58%	\$369	993	417	601	15	7.41	10.67	\$0.072	\$50	2.37	0.79	8.24	
143	Whole House Fans	Multifamily	18%	10%	\$513	978	805	1,268	15	1.11	0.90	\$0.336	\$411	0.34	0.17	38.26	
144	Attic Venting	Multifamily	9%	5%	\$435	989	902	1,354	10	0.59	0.48	\$0.785	\$961	0.14	0.08	64.15	
145	Window Film	Multifamily	32%	27%	\$137	970	657	1,018	10	1.76	2.14	\$0.069	\$57	2.17	0.94	5.64	
146	Default Window With Sunscreen	Multifamily	25%	23%	\$113	986	736	1,088	10	6.28	8.36	\$0.071	\$54	2.25	0.90	5.83	
148	Ceiling R-0 to R-38 Insulation - Batts	Multifamily	48%	38%	\$552	970	507	863	20	0.48	0.55	\$0.116	\$100	1.25	0.45	15.30	
149	Ceiling R-11 to R-38 Insulation - Batts	Multifamily	15%	12%	\$398	970	825	1,230	20	0.02	0.03	\$0.266	\$231	0.54	0.20	35.17	
150	Ceiling R-19 to R-38 Insulation - Batts	Multifamily	8%	7%	\$398	970	889	1,304	20	0.66	0.76	\$0.473	\$410	0.31	0.11	62.53	
151	Wall Blow-in R-0 to R-13 Insulation	Multifamily	3%	2%	\$764	989	961	1,393	20	0.19	0.22	\$2.671	\$2,317	0.05	0.02	353.38	
160	Base Furnace-AC Fan	Multifamily	0%	0%	\$0	800	800	1	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
161	Variable Speed Furnace-AC Fan	Multifamily	50%	30%	\$175	820	413	1	18	55.28	0.06	\$0.044	\$39,411	1.20	1.24	5.52	
180	Base Resistance Space Heating	Multifamily	0%	0%	\$0	6,556	6,556	12	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
182	Ceiling R-0 to R-38 Insulation - Batts	Multifamily	51%	51%	\$552	6,556	3,212	6	20	9.55	0.02	\$0.016	\$8,743	3.27	3.26	2.12	
183	Ceiling R-11 to R-38 Insulation - Batts	Multifamily	16%	16%	\$552	6,556	5,507	10	20	1.44	0.00	\$0.051	\$27,867	1.03	1.02	6.77	
184	Ceiling R-19 to R-38 Insulation - Batts	Multifamily	9%	9%	\$552	6,556	5,966	11	20	1.08	0.00	\$0.091	\$49,542	0.58	0.58	12.03	
185	Wall Blow-in R-0 to R-13 Insulation	Multifamily	21%	21%	\$764	7,629	6,027	11	20	5.96	0.01	\$0.046	\$25,256	1.13	1.13	6.13	
186	Infiltration Reduction (0.4)	Multifamily	8%	8%	\$250	6,890	6,332	12	13	7.97	0.01	\$0.056	\$30,566	0.94	1.07	5.76	
187	Floor R-0 to R-19 Insulation-Batts	Multifamily	10%	10%	\$1,274	6,908	6,217	11	20	2.05	0.00	\$0.179	\$97,674	0.29	0.29	23.73	
200	Base Incandescent Bulb	Multifamily	0%	0%	\$0	970	970	97	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
201	CFL - 15w	Multifamily	75%	75%	\$61	1,000	250	25	10	87.86	8.79	\$0.013	\$134	4.61	4.82	1.09	

APPENDIX F

RESIDENTIAL EXISTING CONSTRUCTION

NON-ADDITIVE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY													System	Levelized Cost	Levelized Cost	Total	Customer		
Measure	Measure	Building	Energy	Peak	Total	Base	Peak	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Payback	Revenue				
Number		Type	Savings Fraction	Reduction Fraction	Costs/ Household	UEC	Watts/ Household	Potential GWH	Peak Tech. Potential MW	of Conserved \$/kWH	of Avoided \$/kW	Resource Cost Test (TRC)	Test	(Years)	Test				
210	Base Torchiere	Multifamily	0%	0%	\$0	369	369	37	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A			
211	CFL Torchiera - 55w	Multifamily	82%	82%	\$83	391	72	7	9	10.17	1.02	\$0.044	\$441	1.40	1.50	3.35	1.18		
220	Base Fluorescent Fixture, 2L4T12, 40W, 1EEMA	Multifamily	0%	0%	\$50	140	140	14	31	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
221	ROB 2L4T8, 1EB	Multifamily	28%	28%	\$8	141	102	10	48	6.72	0.67	\$0.015	\$147	3.30	2.79	2.48	1.18		
222	RET 2L4T8, 1EB	Multifamily	28%	28%	\$57	141	102	10	48	6.72	0.67	\$0.110	\$1,103	0.44	0.37	18.61	1.18		
300	Base Refrigerator	Multifamily	0%	0%	\$430	607	607	76	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
301	HE Refrigerator - Energy Star	Multifamily	15%	15%	\$129	457	388	49	18	14.68	1.84	\$0.191	\$1,528	0.31	0.28	24.15	1.14		
310	Base Refrigerator - Recycling	Multifamily	0%	0%	\$0	1,213	1,213	152	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
311	Refrigerator Recycling	Multifamily	61%	61%	\$185	1,213	472	59	10	66.13	8.27	\$0.039	\$315	1.51	1.64	3.22	1.14		
400	Base Freezer	Multifamily	0%	0%	\$263	306	306	41	11	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
401	HE Freezer	Multifamily	15%	15%	\$26	244	208	28	11	0.87	0.12	\$0.104	\$770	0.58	0.61	9.26	1.15		
410	Base Freezer - Recycling	Multifamily	0%	0%	\$0	611	611	82	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
411	Freezer Recycling	Multifamily	61%	61%	\$144	611	238	32	10	9.99	1.35	\$0.061	\$450	0.99	1.06	4.96	1.15		
500	Base 40 gal. Water Heating (EF=0.88)	Multifamily	0%	0%	\$195	1,963	1,963	160	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
502	HE Water Heater (EF=0.93)	Multifamily	3%	3%	\$72	2,016	1,960	160	15	2.01	0.16	\$0.145	\$1,776	0.41	0.40	16.49	1.12		
503	Solar Water Heat	Multifamily	50%	50%	\$3,850	2,016	1,008	82	20	9.00	0.73	\$0.371	\$4,549	0.16	0.14	49.11	1.12		
504	Tankless Water Heater	Multifamily	20%	20%	\$789	2,016	1,613	132	20	10.80	0.88	\$0.190	\$2,331	0.31	0.28	25.17	1.12		
505	Low Flow Showerhead	Multifamily	8%	8%	\$34	2,111	1,953	159	10	1.81	0.15	\$0.034	\$419	1.72	1.89	2.80	1.12		
506	Faucet Aerators	Multifamily	3%	3%	\$13	2,040	1,979	161	9	1.20	0.10	\$0.035	\$435	1.65	1.87	2.69	1.12		
507	Pipe Wrap	Multifamily	4%	4%	\$28	2,027	1,946	159	15	1.76	0.14	\$0.039	\$478	1.50	1.47	4.44	1.12		
600	Base Clotheswasher (MEF=1.04)	Multifamily	0%	0%	\$588	577	577	81	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
601	Energy Star CW (MEF=1.42)	Multifamily	71%	71%	\$181	635	187	26	14	9.59	1.35	\$0.048	\$341	1.33	1.23	5.19	1.21		
602	Energy Star CW (MEF=1.6)	Multifamily	78%	78%	\$549	642	139	19	14	10.79	1.51	\$0.129	\$922	0.49	0.46	14.02	1.21		
603	Ultra High Efficiency CW (MEF=1.8)	Multifamily	90%	90%	\$593	653	67	9	14	12.57	1.76	\$0.120	\$854	0.53	0.49	13.00	1.21		
700	Base Dishwasher (EF=0.46)	Multifamily	0%	0%	\$293	515	515	38	13	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
701	Energy Star DW (EF=0.58)	Multifamily	21%	21%	\$134	604	479	35	13	0.65	0.05	\$0.134	\$1,829	0.48	0.45	13.75	1.24		

APPENDIX F

RESIDENTIAL NEW CONSTRUCTION

NON-ADDITIVE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy	Peak	Total	Base		Peak	Service Life (yrs)	Technical	System	Levelized Cost	Levelized Cost	Total	Customer		
			Savings Fraction	Reduction Fraction	Costs/ Household	UEC	UEC	Watts/ Household		Potential GWH	Peak Tech. Potential MW	of Conserved Energy \$/kWh	of Avoided Peak Capacity \$/kW	Resource Cost Test (TRC)	Participant Test	Payback (Years)	Revenue Test
130	Base Cooling System	Single Family	0%	0%	\$0	2,041	2,041	2,941	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
131	New Constr Cooling Package	Single Family	31%	31%	\$1,209	2,330	1,608	2,317	18	2.69	3.88	\$0.170	\$118	1.01	0.32	21.52	3.27
135	Base Cooling System - Oversized	Single Family	0%	0%	\$0	2,041	2,041	2,941	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
136	New Const Cooling Package w/ Downsizing	Single Family	35%	35%	\$887	2,373	1,543	2,223	18	3.10	4.46	\$0.109	\$75	1.58	0.50	13.73	3.27
160	Base Furnace-AC Fan	Single Family	0%	0%	\$0	1,000	1,000	631	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
161	Variable Speed Furnace-AC Fan	Single Family	41%	30%	\$175	1,021	604	451	18	4.18	1.94	\$0.043	\$92	2.12	1.26	5.40	1.73
190	Base Electric Heating and Cooling	Single Family	0%	0%	\$0	12,597	12,597	7,948	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
191	Ground-Source Heat Pump	Single Family	41%	7%	\$5,684	12,597	7,430	7,391	20	0.67	0.07	\$0.107	\$993	0.57	0.49	14.15	1.17
200	Base Incandescent Bulb	Single Family	0%	0%	\$0	1,452	1,452	145	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
201	CFL - 15w	Single Family	75%	75%	\$92	1,509	377	38	10	7.58	0.76	\$0.013	\$135	4.59	4.80	1.10	1.18
210	Base Torchiere	Single Family	0%	0%	\$0	458	458	46	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
211	CFL Torchiere - 55w	Single Family	82%	82%	\$107	503	92	9	9	0.88	0.09	\$0.044	\$441	1.40	1.50	3.35	1.18
220	Base Fluorescent Fixture, 2L4T12, 40W, 1EEMAC	Single Family	0%	0%	\$95	251	251	25	31	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
221	ROB 2L4T8, 1EB	Single Family	28%	28%	\$15	255	183	18	48	0.75	0.08	\$0.016	\$156	3.10	2.62	2.64	1.18
222	RET 2L4T8, 1EB	Single Family	28%	28%	\$110	255	183	18	48	0.75	0.08	\$0.117	\$1,174	0.41	0.35	19.79	1.18
300	Base Refrigerator	Single Family	0%	0%	\$629	958	958	120	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	HE Refrigerator - Energy Star	Single Family	15%	15%	\$188	722	613	77	18	1.81	0.23	\$0.177	\$1,415	0.34	0.31	22.36	1.14
400	Base Freezer	Single Family	0%	0%	\$329	373	373	50	11	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
401	HE Freezer	Single Family	15%	15%	\$33	299	254	34	11	0.32	0.04	\$0.106	\$787	0.57	0.60	9.47	1.15
500	Base 40 gal. Water Heating (EF=0.88)	Single Family	0%	0%	\$195	2,769	2,769	226	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
502	HE Water Heater (EF=0.93)	Single Family	3%	3%	\$72	2,845	2,765	226	15	0.09	0.01	\$0.103	\$1,259	0.57	0.56	11.69	1.12
503	Solar Water Heat	Single Family	50%	50%	\$3,850	2,845	1,422	116	20	0.79	0.06	\$0.263	\$3,224	0.22	0.20	34.81	1.12
504	Tankless Water Heater	Single Family	20%	20%	\$789	2,845	2,276	186	20	0.47	0.04	\$0.135	\$1,653	0.44	0.39	17.84	1.12
507	Pipe Wrap	Single Family	4%	4%	\$28	2,861	2,746	224	15	0.09	0.01	\$0.028	\$339	2.12	2.08	3.15	1.12
600	Base Clotheswasher (MEF=1.04)	Single Family	0%	0%	\$588	749	749	105	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
601	Energy Star CW (MEF=1.42)	Single Family	71%	71%	\$181	844	249	35	14	0.56	0.08	\$0.036	\$257	1.76	1.63	3.91	1.21
602	Energy Star CW (MEF=1.6)	Single Family	78%	78%	\$549	856	185	26	14	0.63	0.09	\$0.097	\$691	0.66	0.61	10.52	1.21
603	Ultra High Efficiency CW (MEF=1.8)	Single Family	90%	90%	\$593	875	89	13	14	0.73	0.10	\$0.089	\$638	0.71	0.66	9.71	1.21
700	Base Dishwasher (EF=0.46)	Single Family	0%	0%	\$293	682	682	50	13	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
701	Energy Star DW (EF=0.58)	Single Family	21%	21%	\$134	821	651	48	13	0.01	0.00	\$0.099	\$1,345	0.66	0.61	10.11	1.24
130	Base Cooling System	Multifamily	0%	0%	\$0	1,941	1,941	2,797	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
131	New Constr Cooling Package	Multifamily	23%	23%	\$641	2,138	1,646	2,372	18	0.74	1.06	\$0.133	\$92	1.29	0.41	16.76	3.27
135	Base Cooling System - Oversized	Multifamily	0%	0%	\$0	1,941	1,941	2,797	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
136	New Const Cooling Package w/ Downsizing	Multifamily	23%	23%	\$319	2,138	1,646	2,372	18	0.74	1.06	\$0.066	\$46	2.59	0.82	8.35	3.27
160	Base Furnace-AC Fan	Multifamily	0%	0%	\$0	800	800	505	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
161	Variable Speed Furnace-AC Fan	Multifamily	41%	30%	\$175	817	483	361	18	1.04	0.48	\$0.053	\$115	1.69	1.01	6.75	1.73
200	Base Incandescent Bulb	Multifamily	0%	0%	\$0	970	970	97	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
201	CFL - 15w	Multifamily	75%	75%	\$61	1,000	250	25	10	2.03	0.20	\$0.013	\$134	4.61	4.82	1.09	1.18
210	Base Torchiere	Multifamily	0%	0%	\$0	369	369	37	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
211	CFL Torchiere - 55w	Multifamily	82%	82%	\$83	391	72	7	9	0.23	0.02	\$0.044	\$441	1.40	1.50	3.35	1.18
220	Base Fluorescent Fixture, 2L4T12, 40W, 1EEMAC	Multifamily	0%	0%	\$50	140	140	14	31	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
221	ROB 2L4T8, 1EB	Multifamily	28%	28%	\$8	141	102	10	48	0.15	0.02	\$0.015	\$147	3.30	2.79	2.48	1.18
222	RET 2L4T8, 1EB	Multifamily	28%	28%	\$57	141	102	10	48	0.15	0.02	\$0.110	\$1,103	0.44	0.37	18.61	1.18
300	Base Refrigerator	Multifamily	0%	0%	\$592	655	655	82	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	HE Refrigerator - Energy Star	Multifamily	15%	15%	\$177	493	419	52	18	0.46	0.06	\$0.243	\$1,946	0.24	0.22	30.75	1.14
400	Base Freezer	Multifamily	0%	0%	\$263	306	306	41	11	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
401	HE Freezer	Multifamily	15%	15%	\$26	244	208	28	11	0.03	0.00	\$0.104	\$770	0.58	0.61	9.26	1.15
500	Base 40 gal. Water Heating (EF=0.88)	Multifamily	0%	0%	\$195	1,963	1,963	160	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
502	HE Water Heater (EF=0.93)	Multifamily	3%	3%	\$72	2,016	1,960	160	15	0.05	0.00	\$0.145	\$1,776	0.41	0.40	16.49	1.12
503	Solar Water Heat	Multifamily	50%	50%	\$3,850	2,016	1,008	82	20	0.21	0.02	\$0.371	\$4,549	0.16	0.14	49.11	1.12
504	Tankless Water Heater	Multifamily	20%	20%	\$789	2,016	1,613	132	20	0.25	0.02	\$0.190	\$2,331	0.31	0.28	25.17	1.12
507	Pipe Wrap	Multifamily	4%	4%	\$28	2,027	1,946	159	15	0.04	0.00	\$0.039	\$478	1.50	1.47	4.44	1.12
600	Base Clotheswasher (MEF=1.04)	Multifamily	0%	0%	\$588	577	577	81	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
601	Energy Star CW (MEF=1.42)	Multifamily	71%	71%	\$181	635	187	26	14	0.22	0.03	\$0.048	\$341	1.33	1.23	5.19	1.21

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy	Peak	Total	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Savings Fraction	Reduction Fraction	Costs/ Sq Ft												
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAC	Office	0%	0%	\$0.560	9.88	9.88	1.69	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
114	RET 4L4' Premium T8, 1EB	Office	31%	31%	\$0.667	10.04	6.89	1.17	15	53.83	9.18	\$0.021	\$125	3.05	2.09	3.17	1.48
115	RET 2L4' Premium T8, 1EB, Reflector	Office	66%	66%	\$0.894	9.88	3.39	0.58	15	50.01	8.53	\$0.014	\$84	4.53	3.18	2.06	1.48
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	Office	26%	30%	\$0.369	10.10	7.50	1.21	8	24.46	4.86	\$0.025	\$126	2.83	2.29	1.98	1.60
118	Continuous Dimming, 5L4' Fluorescent Fixtures	Office	42%	75%	\$3.842	9.88	5.70	0.42	11	42.97	12.98	\$0.138	\$456	0.62	0.39	14.13	1.94
120	Lighting Control Tuneup	Office	5%	1%	\$0.014	10.24	9.77	1.72	6	1.21	0.06	\$0.007	\$157	7.38	8.31	0.45	1.22
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAC	Office	0%	0%	\$0.624	9.88	9.88	1.69	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
133	RET 2L4' Premium T8, 1EB	Office	31%	31%	\$0.918	10.04	6.89	1.17	15	61.15	10.43	\$0.030	\$177	2.16	1.51	4.36	1.48
134	RET 1L4' Premium T8, 1EB, Reflector OEM	Office	64%	64%	\$1.302	9.88	3.53	0.60	15	14.41	2.46	\$0.022	\$129	2.98	2.12	3.07	1.48
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	Office	26%	30%	\$0.369	10.10	7.50	1.21	8	21.61	4.29	\$0.025	\$126	2.83	2.29	1.98	1.60
137	Continuous Dimming, 10L4' Fluorescent Fixtures	Office	42%	75%	\$3.842	9.88	5.70	0.42	11	37.96	11.47	\$0.138	\$456	0.62	0.39	14.13	1.94
139	Lighting Control Tuneup	Office	5%	1%	\$0.014	10.24	9.77	1.72	6	1.07	0.05	\$0.007	\$157	7.38	8.31	0.45	1.22
150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAC	Office	0%	0%	\$0.828	9.88	9.88	1.69	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
152	RET 2 - 2L4' Premium T8, 1EB	Office	27%	27%	\$1.075	10.02	7.33	1.25	15	3.75	0.64	\$0.041	\$240	1.60	1.10	5.99	1.48
153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	Office	63%	63%	\$1.525	9.88	3.62	0.62	15	3.94	0.67	\$0.026	\$151	2.53	1.79	3.65	1.48
155	Occupancy Sensor, 4L8' Fluorescent Fixtures	Office	26%	30%	\$0.432	10.10	7.50	1.21	8	2.00	0.40	\$0.029	\$147	2.41	1.96	2.32	1.60
156	Continuous Dimming, 5L8' Fluorescent Fixtures	Office	42%	75%	\$4.493	9.88	5.70	0.42	11	3.51	1.06	\$0.161	\$534	0.53	0.33	16.52	1.94
160	Base Incandescent Flood, 75W to Screw-in CFL	Office	0%	0%	\$0.372	32.76	32.76	5.59	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
161	CFL Screw-in 18W	Office	72%	72%	\$0.861	50.70	14.20	2.42	2	33.20	5.66	\$0.012	\$68	5.64	5.60	0.41	1.48
165	Base Incandescent Flood, 75W to Hardwired CFL	Office	0%	0%	\$0.372	32.76	32.76	5.59	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
166	CFL Hardwired, Modular 18W	Office	72%	72%	\$3.906	50.70	14.20	2.42	4	11.07	1.89	\$0.032	\$190	2.01	1.95	1.50	1.48
175	Base High Bay Metal Halide, 400W	Office	0%	0%	\$1.284	10.16	10.16	1.73	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
176	High Bay T5	Office	37%	37%	\$1.729	10.36	6.49	1.11	10	35.24	6.01	\$0.053	\$311	1.23	0.89	6.95	1.48
180	Base 4L4'T8, 1EB	Office	0%	0%	\$0.000	5.68	5.68	0.97	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
181	ROB 4L4' Premium T8, 1EB	Office	16%	16%	\$0.129	5.73	4.82	0.82	15	57.19	9.75	\$0.016	\$96	4.00	2.96	2.14	1.48
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	Office	30%	30%	\$0.509	5.83	4.08	0.70	8	42.68	7.28	\$0.051	\$301	1.27	1.12	4.07	1.48
183	Lighting Control Tuneup	Office	5%	1%	\$0.014	5.89	5.62	0.99	6	1.81	0.08	\$0.013	\$274	4.24	4.78	0.79	1.22
185	Base 2L4'T8, 1EB	Office	0%	0%	\$0.000	5.68	5.68	0.97	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
186	ROB 2L4' Premium T8, 1EB	Office	17%	17%	\$0.115	5.73	4.75	0.81	15	59.05	10.07	\$0.013	\$78	4.89	3.63	1.75	1.48
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	Office	30%	30%	\$0.318	5.83	4.08	0.70	8	40.33	6.88	\$0.032	\$188	2.04	1.79	2.55	1.48
188	Lighting Control Tuneup	Office	5%	1%	\$0.014	5.89	5.62	0.99	6	1.71	0.08	\$0.013	\$274	4.24	4.78	0.79	1.22
190	Base Exit Sign	Office	0%	0%	\$0.000	0.04	0.04	0.01	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
191	LED Exit Sign	Office	81%	81%	\$0.017	0.05	0.01	0.00	16	6.48	1.10	\$0.046	\$270	1.42	1.03	6.27	1.48
220	Base Outdoor Mercury Vapor 400W Lamp	Office	0%	0%	\$0.000	1.62	1.62	0.12	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
221	High Pressure Sodium 250W Lamp	Office	35%	35%	\$0.157	1.84	1.20	0.09	5	72.97	5.47	\$0.063	\$834	0.89	1.00	3.29	1.26
222	Outdoor Lighting Controls (Photocell/Timeclock)	Office	23%	0%	\$0.028	2.04	1.57	0.15	5	7.35	0.00	\$0.016	N/A	3.11	4.00	0.82	1.10
300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Office	0%	0%	\$0.522	1.94	1.94	1.07	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Office	12%	12%	\$0.083	1.73	1.52	0.84	20	9.24	5.07	\$0.039	\$70	2.55	1.14	5.86	2.23
302	Window Film (Standard)	Office	9%	9%	\$0.269	2.11	1.92	1.05	10	0.88	0.48	\$0.217	\$395	0.45	0.25	20.36	2.23
303	EMS - Chiller	Office	10%	10%	\$0.142	2.14	1.93	1.06	10	0.71	0.39	\$0.105	\$191	0.94	0.52	9.83	2.23
304	Cool Roof - Chiller	Office	2%	2%	\$0.175	1.96	1.93	1.06	10	0.38	0.21	\$0.778	\$1,418	0.13	0.07	73.04	2.23
305	Chiller Tune Up/Diagnostics	Office	7%	4%	\$0.100	2.02	1.87	1.06	10	2.42	0.73	\$0.108	\$356	0.70	0.50	10.12	1.72
306	VSD for Chiller Pumps and Towers	Office	10%	10%	\$0.100	2.02	1.82	1.00	15	4.13	2.26	\$0.056	\$102	1.76	0.87	7.29	2.23
307	EMS Optimization	Office	4%	1%	\$0.030	1.98	1.90	1.07	5	1.41	0.23	\$0.099	\$620	0.63	0.63	5.20	1.42
308	Economizer	Office	23%	7%	\$0.403	2.44	1.87	1.25	15	1.57	0.25	\$0.081	\$505	0.78	0.60	10.55	1.42
310	Base DX Packaged System, EER=10.3, 10 tons	Office	0%	0%	\$1.594	3.37	3.37	1.85	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
311	DX Tune Up/ Advanced Diagnostics	Office	5%	4%	\$0.125	3.48	3.31	1.84	10	6.12	2.64	\$0.119	\$275	0.74	0.46	11.15	1.99
312	DX Packaged System, EER=10.9, 10 tons	Office	6%	6%	\$0.064	2.91	2.75	1.51	15	23.90	13.11	\$0.045	\$82	2.18	1.07	5.90	2.23
313	Window Film (Standard)	Office	9%	9%	\$0.269	3.66	3.32	1.82	10	5.14	2.82	\$0.125	\$228	0.79	0.43	11.75	2.23
314	Evaporative Pre-Cooler	Office	13%	13%	\$0.696	3.37	2.93	1.61	10	16.33	8.96	\$0.250	\$456	0.39	0.22	23.49	2.23
315	Prog. Thermostat - DX	Office	4%	1%	\$0.049	3.42	3.27	1.85	10	10.99	1.75	\$0.052	\$327	1.20	1.04	4.90	1.42
316	Cool Roof - DX	Office	2%	2%	\$0.175	3.40	3.34	1.83	10	2.22	1.22	\$0.449	\$818	0.22	0.12	42.14	2.23
317	Optimize Controls	Office	4%	1%	\$0.040	3.47	3.32	1.88	5	5.50	0.88	\$0.076	\$474	0.83	0.82	3.97	1.42

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy Savings	Peak Reduction	Total Costs/	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Fraction	Fraction	Costs/	EUl	Watts/	Life (yrs)	Potential	Peak Tech.	of Conserved	of Avoided	Resource	Test	Payback	Test	
					Sq Ft	Sq Ft	Sq Ft		GWH	MW	\$/kWh	\$/kW	(TRC)		(Years)		
318	Economizer	Office	24%	7%	\$0.403	4.21	3.20	2.15	15	12.67	2.02	\$0.045	\$282	1.39	1.07	5.89	1.42
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	Office	0%	0%	\$0.064	2.00	2.00	0.31	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
401	Fan Motor, 5hp, 1800rpm, 89.5%	Office	2%	2%	\$0.025	2.00	1.95	0.30	15	4.34	0.67	\$0.062	\$400	1.00	0.78	8.12	1.41
402	Variable Speed Drive Control, 5 HP	Office	28%	8%	\$0.472	2.03	1.46	0.29	15	12.52	0.52	\$0.094	\$2,260	0.55	0.51	12.30	1.17
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	Office	0%	0%	\$0.051	1.85	1.85	0.29	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
411	Fan Motor, 15hp, 1800rpm, 92.4%	Office	2%	2%	\$0.013	1.85	1.83	0.28	15	1.11	0.17	\$0.053	\$339	1.18	0.92	6.89	1.41
412	Variable Speed Drive Control, 15 HP	Office	28%	8%	\$0.275	2.23	1.61	0.32	15	6.83	0.28	\$0.050	\$1,193	1.04	0.97	6.49	1.17
413	Air Handler Optimization, 15 HP	Office	9%	3%	\$0.030	1.90	1.72	0.29	8	3.92	0.16	\$0.032	\$757	1.64	1.82	2.50	1.17
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	Office	0%	0%	\$0.044	1.82	1.82	0.28	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
421	Fan Motor, 40hp, 1800rpm, 94.1%	Office	1%	1%	\$0.012	1.82	1.80	0.28	15	1.04	0.16	\$0.063	\$408	0.98	0.76	8.29	1.41
422	Variable Speed Drive Control, 40 HP	Office	28%	8%	\$0.188	2.20	1.58	0.32	15	10.26	0.43	\$0.034	\$829	1.50	1.40	4.51	1.17
423	Air Handler Optimization, 40 HP	Office	9%	3%	\$0.030	1.87	1.69	0.28	8	4.79	0.20	\$0.032	\$770	1.61	1.79	2.55	1.17
610	Base Desktop PC	Office	0%	0%	\$0.000	0.59	0.59	0.08	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
611	PC Manual Power Management Enabling	Office	69%	45%	\$0.015	0.71	0.22	0.06	4	54.22	4.94	\$0.010	\$111	5.38	6.33	0.44	1.24
612	PC Network Power Management Enabling	Office	69%	45%	\$0.007	0.71	0.22	0.06	4	54.22	4.94	\$0.005	\$56	10.76	12.67	0.22	1.24
620	Base Monitor, CRT	Office	0%	0%	\$0.000	0.58	0.58	0.08	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
621	Energy Star or Better Monitor	Office	56%	56%	\$0.000	1.24	0.54	0.08	4	6.76	0.95	\$0.000	\$0	-	-	0.00	N/A
622	Monitor Power Management Enabling	Office	54%	35%	\$0.014	0.86	0.39	0.08	4	27.29	2.49	\$0.010	\$112	5.35	6.29	0.44	1.24
630	Base Monitor, LCD	Office	0%	0%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
631	Energy Star or Better Monitor	Office	2%	2%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	N/A
632	Monitor Power Management Enabling	Office	28%	18%	\$0.001	0.00	0.00	0.00	4	0.04	0.00	\$0.326	\$3,582	0.17	0.20	14.03	1.24
640	Base Copier	Office	0%	0%	\$0.000	0.19	0.19	0.03	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
641	Energy Star or Better Copier	Office	21%	21%	\$0.000	0.24	0.19	0.03	6	0.95	0.13	\$0.000	\$0	-	-	0.00	N/A
642	Copier Power Management Enabling	Office	20%	13%	\$0.008	0.21	0.17	0.03	6	3.98	0.36	\$0.044	\$484	1.24	1.37	2.73	1.24
650	Base Laser Printer	Office	0%	0%	\$0.000	0.38	0.38	0.05	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
651	Printer Power Management Enabling	Office	50%	32%	\$0.023	0.52	0.26	0.05	5	17.49	1.59	\$0.025	\$276	2.17	2.48	1.32	1.24
800	Base Water Heating	Office	0%	0%	\$0.000	0.27	0.27	0.03	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
801	Demand controlled circulating systems	Office	5%	5%	\$0.022	0.28	0.26	0.03	15	0.65	0.08	\$0.182	\$1,496	0.33	0.27	23.81	1.34
803	High Efficiency Water Heater (electric)	Office	2%	2%	\$0.002	0.27	0.27	0.03	15	0.49	0.06	\$0.039	\$324	1.50	1.23	5.16	1.34
804	Hot Water Pipe Insulation	Office	2%	2%	\$0.003	0.27	0.27	0.03	15	0.29	0.04	\$0.065	\$531	0.92	0.75	8.45	1.34
805	Tankless Water Heater	Office	10%	10%	\$0.016	0.27	0.25	0.03	20	1.84	0.22	\$0.058	\$478	1.02	0.76	8.85	1.34
910	Base Vending Machines	Office	0%	0%	\$0.000	0.36	0.36	0.06	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
911	Vending Misers (cooled machines only)	Office	40%	26%	\$0.017	0.36	0.21	0.04	10	19.46	2.15	\$0.019	\$175	2.92	2.82	1.81	1.28
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAC	Restaurant	0%	0%	\$0.301	2.78	2.78	0.45	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
114	RET 4L4' Premium T8, 1EB	Restaurant	31%	31%	\$0.359	2.83	1.94	0.31	28	9.05	1.46	\$0.034	\$212	1.68	1.13	5.91	1.48
115	RET 2L4' Premium T8, 1EB, Reflector	Restaurant	66%	66%	\$0.481	2.78	0.95	0.15	28	4.91	0.79	\$0.022	\$138	2.58	1.74	3.85	1.48
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	Restaurant	17%	20%	\$0.198	2.82	2.34	0.36	16	0.60	0.11	\$0.044	\$235	1.61	1.08	5.99	1.60
118	Continuous Dimming, 5L4' Fluorescent Fixtures	Restaurant	43%	75%	\$2.065	2.78	1.59	0.11	20	7.97	2.25	\$0.167	\$593	0.51	0.26	25.47	1.94
120	Lighting Control Tuneup	Restaurant	5%	1%	\$0.014	2.88	2.75	0.46	6	0.04	0.00	\$0.026	\$593	2.11	2.35	1.60	1.24
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAC	Restaurant	0%	0%	\$0.336	2.78	2.78	0.45	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
133	RET 2L4' Premium T8, 1EB	Restaurant	31%	31%	\$0.493	2.83	1.94	0.31	28	2.70	0.43	\$0.047	\$292	1.22	0.82	8.14	1.48
134	RET 1L4' Premium T8, 1EB, Reflector OEM	Restaurant	64%	64%	\$0.700	2.78	0.99	0.16	28	0.64	0.10	\$0.033	\$206	1.73	1.17	5.74	1.48
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	Restaurant	17%	20%	\$0.198	2.82	2.34	0.36	16	0.16	0.03	\$0.044	\$235	1.61	1.08	5.99	1.60
137	Continuous Dimming, 10L4' Fluorescent Fixtures	Restaurant	43%	75%	\$2.065	2.78	1.59	0.11	20	2.11	0.60	\$0.167	\$593	0.51	0.26	25.47	1.94
139	Lighting Control Tuneup	Restaurant	5%	1%	\$0.014	2.88	2.75	0.46	6	0.01	0.00	\$0.026	\$593	2.11	2.35	1.60	1.24
160	Base Incandescent Flood, 75W to Screw-in CFL	Restaurant	0%	0%	\$0.200	9.22	9.22	1.48	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
161	CFL Screw-in 18W	Restaurant	72%	72%	\$0.463	9.48	2.65	0.43	3	20.16	3.24	\$0.019	\$116	3.50	3.32	0.93	1.48
165	Base Incandescent Flood, 75W to Hardwired CFL	Restaurant	0%	0%	\$0.200	9.22	9.22	1.48	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
166	CFL Hardwired, Modular 18W	Restaurant	72%	72%	\$2.100	9.48	2.65	0.43	8	6.72	1.08	\$0.054	\$337	1.21	1.04	4.51	1.48
175	Base High Bay Metal Halide, 400W	Restaurant	0%	0%	\$0.690	2.86	2.86	0.46	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
176	High Bay T5	Restaurant	37%	37%	\$0.929	2.91	1.83	0.29	18	0.00	0.00	\$0.083	\$517	0.78	0.53	12.50	1.48
180	Base 4L4'T8, 1EB	Restaurant	0%	0%	\$0.000	1.60	1.60	0.26	28	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
181	ROB 4L4' Premium T8, 1EB	Restaurant	16%	16%	\$0.069	1.61	1.36	0.22	28	0.32	0.05	\$0.023	\$143	2.49	1.68	3.99	1.48

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIV MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy Savings	Peak Reduction	Total Costs/	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Fraction	Fraction	Sq Ft	EUl	Watts/ Sq Ft	Life (yrs)	Potential GWH	Peak Tech. Potential MW	of Conserved Energy \$/kWh	of Avoided Peak Capacity \$/kW	Resource Cost Test (TRC)	Test	Payback (Years)	Test	
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	Restaurant	20%	20%	\$0.274	1.63	1.30	0.21	16	0.04	0.01	\$0.090	\$562	0.72	0.52	12.32	1.48
183	Lighting Control Tuneup	Restaurant	5%	1%	\$0.014	1.66	1.58	0.26	6	0.00	0.00	\$0.045	\$1,031	1.22	1.35	2.78	1.24
185	Base 2L4'T8, 1EB	Restaurant	0%	0%	\$0.000	1.60	1.60	0.26	28	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
186	ROB 2L4' Premium T8, 1EB	Restaurant	17%	17%	\$0.062	1.61	1.33	0.21	28	0.12	0.02	\$0.019	\$117	3.05	2.06	3.26	1.48
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	Restaurant	20%	20%	\$0.171	1.63	1.30	0.21	16	0.01	0.00	\$0.057	\$351	1.15	0.84	7.70	1.48
188	Lighting Control Tuneup	Restaurant	5%	1%	\$0.014	1.66	1.58	0.26	6	0.00	0.00	\$0.045	\$1,031	1.22	1.35	2.78	1.24
190	Base Exit Sign	Restaurant	0%	0%	\$0.000	0.06	0.06	0.01	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
191	LED Exit Sign	Restaurant	81%	81%	\$0.024	0.06	0.01	0.00	16	1.32	0.21	\$0.053	\$331	1.22	0.89	7.26	1.48
220	Base Outdoor Mercury Vapor 400W Lamp	Restaurant	0%	0%	\$0.000	4.27	4.27	0.21	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
221	High Pressure Sodium 250W Lamp	Restaurant	35%	35%	\$0.395	4.86	3.16	0.15	5	2.12	0.10	\$0.060	\$1,216	0.90	1.04	3.13	1.22
222	Outdoor Lighting Controls (Photocell/Timeclock)	Restaurant	23%	0%	\$0.072	5.41	4.14	0.27	5	0.22	0.00	\$0.014	N/A	3.39	4.30	0.76	1.12
310	Base DX Packaged System, EER=10.3, 10 tons	Restaurant	0%	0%	\$2.315	4.63	4.63	3.23	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
311	DX Tune Up/ Advanced Diagnostics	Restaurant	5%	4%	\$0.125	4.78	4.56	3.21	10	1.23	0.68	\$0.087	\$157	1.15	0.62	8.21	2.29
312	DX Packaged System, EER=10.9, 10 tons	Restaurant	6%	6%	\$0.093	4.00	3.78	2.64	15	4.87	3.40	\$0.048	\$68	2.39	1.02	6.22	2.58
313	Window Film (Standard)	Restaurant	10%	10%	\$0.087	4.65	4.17	2.91	10	7.70	5.38	\$0.029	\$41	3.97	1.90	2.69	2.58
314	Evaporative Pre-Cooler	Restaurant	13%	13%	\$1.010	4.63	4.03	2.81	10	3.33	2.32	\$0.264	\$378	0.43	0.21	24.80	2.58
315	Prog. Thermostat - DX	Restaurant	4%	1%	\$0.071	4.69	4.50	3.24	10	2.14	0.45	\$0.057	\$271	1.21	0.95	5.39	1.57
316	Cool Roof - DX	Restaurant	7%	7%	\$0.350	4.79	4.46	3.12	10	1.85	1.29	\$0.166	\$238	0.68	0.33	15.60	2.58
317	Optimize Controls	Restaurant	4%	1%	\$0.040	4.76	4.57	3.28	5	1.07	0.23	\$0.057	\$271	1.21	1.09	3.01	1.57
318	Economizer	Restaurant	10%	3%	\$0.586	4.65	4.19	3.15	15	4.83	1.02	\$0.144	\$679	0.48	0.34	18.81	1.57
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	Restaurant	0%	0%	\$0.061	2.19	2.19	0.30	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
401	Fan Motor, 5hp, 1800rpm, 89.5%	Restaurant	2%	2%	\$0.024	2.19	2.15	0.29	15	1.32	0.18	\$0.054	\$402	1.13	0.89	7.11	1.39
402	Variable Speed Drive Control, 5 HP	Restaurant	28%	8%	\$0.454	2.23	1.60	0.28	15	0.00	0.00	\$0.082	\$2,273	0.64	0.59	10.71	1.18
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	Restaurant	0%	0%	\$0.049	2.03	2.03	0.28	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
411	Fan Motor, 15hp, 1800rpm, 92.4%	Restaurant	2%	2%	\$0.013	2.03	2.00	0.27	15	0.00	0.00	\$0.046	\$341	1.33	1.05	6.03	1.39
412	Variable Speed Drive Control, 15 HP	Restaurant	28%	8%	\$0.264	2.06	1.48	0.26	15	0.00	0.00	\$0.051	\$1,426	1.02	0.94	6.72	1.18
413	Air Handler Optimization, 15 HP	Restaurant	9%	3%	\$0.030	2.08	1.89	0.27	8	0.00	0.00	\$0.029	\$793	1.83	2.01	2.27	1.18
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	Restaurant	0%	0%	\$0.043	2.00	2.00	0.27	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
421	Fan Motor, 40hp, 1800rpm, 94.1%	Restaurant	1%	1%	\$0.011	2.00	1.98	0.27	15	0.00	0.00	\$0.056	\$410	1.11	0.87	7.26	1.39
422	Variable Speed Drive Control, 40 HP	Restaurant	28%	8%	\$0.180	2.03	1.46	0.25	15	0.00	0.00	\$0.036	\$990	1.46	1.36	4.66	1.18
423	Air Handler Optimization, 40 HP	Restaurant	9%	3%	\$0.030	2.05	1.86	0.27	8	0.00	0.00	\$0.029	\$806	1.80	1.97	2.31	1.18
610	Base Desktop PC	Restaurant	0%	0%	\$0.000	0.05	0.05	0.01	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
611	PC Manual Power Management Enabling	Restaurant	68%	45%	\$0.001	0.06	0.02	0.00	4	0.59	0.06	\$0.010	\$105	5.40	6.21	0.45	1.27
612	PC Network Power Management Enabling	Restaurant	68%	45%	\$0.001	0.06	0.02	0.00	4	0.59	0.06	\$0.005	\$52	10.80	12.41	0.22	1.27
620	Base Monitor, CRT	Restaurant	0%	0%	\$0.000	0.05	0.05	0.01	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
621	Energy Star or Better Monitor	Restaurant	56%	56%	\$0.000	0.10	0.04	0.01	4	0.08	0.01	\$0.000	\$0	-	-	0.00	N/A
622	Monitor Power Management Enabling	Restaurant	54%	35%	\$0.001	0.07	0.03	0.01	4	0.30	0.03	\$0.010	\$106	5.34	6.14	0.45	1.27
630	Base Monitor, LCD	Restaurant	0%	0%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
631	Energy Star or Better Monitor	Restaurant	2%	2%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	N/A
632	Monitor Power Management Enabling	Restaurant	28%	18%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.333	\$3,374	0.17	0.19	14.32	1.27
640	Base Copier	Restaurant	0%	0%	\$0.000	0.03	0.03	0.00	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
641	Energy Star or Better Copier	Restaurant	21%	21%	\$0.000	0.04	0.03	0.00	6	0.02	0.00	\$0.000	\$0	-	-	0.00	N/A
642	Copier Power Management Enabling	Restaurant	19%	13%	\$0.001	0.03	0.03	0.00	6	0.08	0.01	\$0.045	\$455	1.24	1.35	2.78	1.27
650	Base Laser Printer	Restaurant	0%	0%	\$0.000	0.08	0.08	0.01	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
651	Printer Power Management Enabling	Restaurant	49%	32%	\$0.005	0.10	0.05	0.01	5	0.48	0.05	\$0.026	\$260	2.18	2.43	1.35	1.27
800	Base Water Heating	Restaurant	0%	0%	\$0.000	1.52	1.52	0.19	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
801	Demand controlled circulating systems	Restaurant	5%	5%	\$0.045	1.55	1.47	0.18	15	0.01	0.00	\$0.065	\$532	0.92	0.74	8.56	1.37
803	High Efficiency Water Heater (electric)	Restaurant	2%	2%	\$0.004	1.52	1.49	0.18	15	0.01	0.00	\$0.013	\$107	4.57	3.68	1.72	1.37
804	Hot Water Pipe Insulation	Restaurant	2%	2%	\$0.006	1.53	1.50	0.18	15	0.00	0.00	\$0.022	\$175	2.79	2.25	2.82	1.37
805	Tankless Water Heater	Restaurant	10%	10%	\$0.031	1.53	1.38	0.17	20	0.02	0.00	\$0.019	\$158	3.10	2.27	2.95	1.37
910	Base Vending Machines	Restaurant	0%	0%	\$0.000	0.48	0.48	0.08	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
911	Vending Misers (cooled machines only)	Restaurant	40%	26%	\$0.023	0.48	0.29	0.06	10	3.63	0.39	\$0.019	\$180	2.97	2.80	1.82	1.31
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAC	Retail	0%	0%	\$0.469	4.57	4.57	0.74	17	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy Savings	Peak Reduction	Total Costs/	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Fraction	Fraction	Sq Ft	EUl	Watts/ Sq Ft	Life (yrs)	Potential GWH	Peak Tech. Potential MW	of Conserved Energy \$/kWh	of Avoided Peak Capacity \$/kW	Resource Cost Test (TRC)	Test	Payback (Years)	Test	
114	RET 4L4' Premium T8, 1EB	Retail	31%	31%	\$0.558	4.65	3.19	0.51	27	38.13	6.13	\$0.033	\$207	1.74	1.17	5.70	1.48
115	RET 2L4' Premium T8, 1EB, Reflector	Retail	66%	66%	\$0.748	4.57	1.57	0.25	27	20.66	3.32	\$0.022	\$135	2.67	1.80	3.71	1.48
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	Retail	17%	20%	\$0.309	4.64	3.84	0.60	15	2.51	0.47	\$0.043	\$229	1.64	1.13	5.61	1.60
118	Continuous Dimming, 5L4' Fluorescent Fixtures	Retail	43%	75%	\$3.215	4.57	2.62	0.18	19	8.06	2.28	\$0.162	\$575	0.52	0.28	24.20	1.94
120	Lighting Control Tuneup	Retail	5%	1%	\$0.014	4.74	4.52	0.75	6	0.75	0.03	\$0.016	\$361	3.48	3.86	0.97	1.24
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAC	Retail	0%	0%	\$0.523	4.57	4.57	0.74	17	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
133	RET 2L4' Premium T8, 1EB	Retail	31%	31%	\$0.768	4.65	3.19	0.51	27	62.93	10.12	\$0.046	\$285	1.26	0.85	7.85	1.48
134	RET 1L4' Premium T8, 1EB, Reflector OEM	Retail	64%	64%	\$1.090	4.57	1.63	0.26	27	14.83	2.39	\$0.032	\$201	1.79	1.21	5.53	1.48
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	Retail	17%	20%	\$0.309	4.64	3.84	0.60	15	3.69	0.69	\$0.043	\$229	1.64	1.13	5.61	1.60
137	Continuous Dimming, 10L4' Fluorescent Fixtures	Retail	43%	75%	\$3.215	4.57	2.62	0.18	19	11.82	3.34	\$0.162	\$575	0.52	0.28	24.20	1.94
139	Lighting Control Tuneup	Retail	5%	1%	\$0.014	4.74	4.52	0.75	6	1.11	0.05	\$0.016	\$361	3.48	3.86	0.97	1.24
150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAC	Retail	0%	0%	\$0.693	4.57	4.57	0.74	17	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
152	RET 2 - 2L4' Premium T8, 1EB	Retail	27%	27%	\$0.900	4.64	3.39	0.55	27	4.73	0.76	\$0.063	\$392	0.92	0.62	10.79	1.48
153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	Retail	63%	63%	\$1.276	4.57	1.67	0.27	27	4.98	0.80	\$0.038	\$239	1.51	1.02	6.56	1.48
155	Occupancy Sensor, 4L8' Fluorescent Fixtures	Retail	17%	20%	\$0.362	4.64	3.84	0.60	15	0.42	0.08	\$0.050	\$268	1.41	0.96	6.57	1.60
156	Continuous Dimming, 5L8' Fluorescent Fixtures	Retail	43%	75%	\$3.761	4.57	2.62	0.18	19	1.34	0.38	\$0.190	\$673	0.45	0.24	28.30	1.94
160	Base Incandescent Flood, 75W to Screw-in CFL	Retail	0%	0%	\$0.311	15.15	15.15	2.44	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
161	CFL Screw-in 18W	Retail	72%	72%	\$0.721	17.68	4.95	0.80	3	72.60	11.68	\$0.016	\$102	3.97	3.76	0.82	1.48
165	Base Incandescent Flood, 75W to Hardwired CFL	Retail	0%	0%	\$0.311	15.15	15.15	2.44	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
166	CFL Hardwired, Modular 18W	Retail	72%	72%	\$3.269	17.68	4.95	0.80	8	24.20	3.89	\$0.048	\$297	1.37	1.18	3.97	1.48
175	Base High Bay Metal Halide, 400W	Retail	0%	0%	\$1.075	4.70	4.70	0.76	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
176	High Bay T5	Retail	37%	37%	\$1.447	4.79	3.00	0.48	17	49.34	7.94	\$0.079	\$492	0.82	0.56	11.81	1.48
180	Base 4L4'T8, 1EB	Retail	0%	0%	\$0.000	2.63	2.63	0.42	27	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
181	ROB 4L4' Premium T8, 1EB	Retail	16%	16%	\$0.108	2.65	2.23	0.36	27	3.57	0.57	\$0.022	\$140	2.58	1.74	3.84	1.48
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	Retail	20%	20%	\$0.426	2.67	2.14	0.34	15	0.44	0.07	\$0.088	\$549	0.74	0.55	11.55	1.48
183	Lighting Control Tuneup	Retail	5%	1%	\$0.014	2.72	2.60	0.43	6	0.11	0.00	\$0.027	\$627	2.00	2.22	1.69	1.24
185	Base 2L4'T8, 1EB	Retail	0%	0%	\$0.000	2.63	2.63	0.42	27	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
186	ROB 2L4' Premium T8, 1EB	Retail	17%	17%	\$0.096	2.65	2.19	0.35	27	9.54	1.53	\$0.018	\$114	3.16	2.13	3.14	1.48
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	Retail	20%	20%	\$0.266	2.67	2.14	0.34	15	1.08	0.17	\$0.055	\$343	1.18	0.88	7.22	1.48
188	Lighting Control Tuneup	Retail	5%	1%	\$0.014	2.72	2.60	0.43	6	0.28	0.01	\$0.027	\$627	2.00	2.22	1.69	1.24
190	Base Exit Sign	Retail	0%	0%	\$0.000	0.02	0.02	0.00	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
191	LED Exit Sign	Retail	81%	81%	\$0.008	0.02	0.00	0.00	16	2.80	0.45	\$0.051	\$319	1.27	0.92	6.99	1.48
220	Base Outdoor Mercury Vapor 400W Lamp	Retail	0%	0%	\$0.000	1.34	1.34	0.07	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
221	High Pressure Sodium 250W Lamp	Retail	35%	35%	\$0.126	1.52	0.99	0.05	5	48.40	2.37	\$0.061	\$1,235	0.89	1.03	3.18	1.22
222	Outdoor Lighting Controls (Photocell/Timeclock)	Retail	23%	0%	\$0.023	1.70	1.30	0.08	5	5.00	0.00	\$0.015	N/A	3.34	4.23	0.77	1.12
300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Retail	0%	0%	\$0.454	0.96	0.96	0.67	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Retail	12%	12%	\$0.072	0.85	0.75	0.52	20	0.23	0.16	\$0.068	\$98	1.67	0.65	10.38	2.58
302	Window Film (Standard)	Retail	2%	2%	\$0.126	0.96	0.93	0.65	10	0.03	0.02	\$0.837	\$1,198	0.14	0.06	78.59	2.58
303	EMS - Chiller	Retail	10%	10%	\$0.124	1.05	0.95	0.66	10	0.02	0.01	\$0.185	\$265	0.61	0.29	17.39	2.58
304	Cool Roof - Chiller	Retail	13%	13%	\$0.350	1.00	0.87	0.61	10	0.09	0.06	\$0.424	\$606	0.27	0.13	39.78	2.58
305	Chiller Tune Up/Diagnostics	Retail	7%	4%	\$0.100	0.99	0.92	0.66	10	0.06	0.02	\$0.225	\$569	0.38	0.24	21.13	1.95
306	VSD for Chiller Pumps and Towers	Retail	10%	10%	\$0.087	0.99	0.89	0.62	15	0.10	0.07	\$0.099	\$141	1.15	0.49	12.90	2.58
307	EMS Optimization	Retail	4%	1%	\$0.030	0.98	0.94	0.67	5	0.03	0.01	\$0.210	\$991	0.33	0.30	11.03	1.57
308	Economizer	Retail	17%	5%	\$0.351	1.13	0.93	0.75	15	0.03	0.01	\$0.204	\$961	0.34	0.24	26.63	1.57
310	Base DX Packaged System, EER=10.3, 10 tons	Retail	0%	0%	\$1.388	1.66	1.66	1.16	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
311	DX Tune Up/ Advanced Diagnostics	Retail	5%	4%	\$0.125	1.71	1.63	1.15	10	2.11	1.18	\$0.244	\$439	0.41	0.22	22.96	2.29
312	DX Packaged System, EER=10.9, 10 tons	Retail	6%	6%	\$0.056	1.43	1.35	0.94	15	8.36	5.84	\$0.080	\$114	1.43	0.61	10.43	2.58
313	Window Film (Standard)	Retail	2%	2%	\$0.126	1.66	1.62	1.13	10	2.04	1.43	\$0.483	\$691	0.24	0.11	45.34	2.58
314	Evaporative Pre-Cooler	Retail	13%	13%	\$0.605	1.66	1.44	1.01	10	5.71	3.99	\$0.443	\$634	0.26	0.12	41.56	2.58
315	Prog. Thermostat - DX	Retail	4%	1%	\$0.042	1.68	1.61	1.16	10	3.68	0.78	\$0.096	\$454	0.72	0.56	9.04	1.57
316	Cool Roof - DX	Retail	13%	13%	\$0.350	1.74	1.51	1.06	10	7.50	5.24	\$0.244	\$350	0.47	0.22	22.95	2.58
317	Optimize Controls	Retail	4%	1%	\$0.040	1.70	1.63	1.17	5	1.84	0.39	\$0.160	\$757	0.43	0.39	8.42	1.57
318	Economizer	Retail	22%	7%	\$0.351	1.91	1.49	1.24	15	9.04	1.92	\$0.093	\$440	0.74	0.52	12.20	1.57

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY

Measure Number	Measure	Building Type	Energy	Peak	Total	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Savings Fraction	Reduction Fraction	Costs/ Sq Ft												EU/ EU
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	Retail	0%	0%	\$0.032	0.63	0.63	0.08	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
401	Fan Motor, 5hp, 1800rpm, 89.5%	Retail	2%	2%	\$0.012	0.63	0.61	0.08	15	1.37	0.19	\$0.098	\$727	0.62	0.49	12.86	1.39
402	Variable Speed Drive Control, 5 HP	Retail	28%	8%	\$0.235	0.64	0.46	0.08	15	3.18	0.11	\$0.148	\$4,111	0.35	0.33	19.37	1.18
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	Retail	0%	0%	\$0.025	0.58	0.58	0.08	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
411	Fan Motor, 15hp, 1800rpm, 92.4%	Retail	2%	2%	\$0.007	0.58	0.57	0.08	15	0.34	0.05	\$0.083	\$617	0.74	0.58	10.91	1.39
412	Variable Speed Drive Control, 15 HP	Retail	28%	8%	\$0.137	0.63	0.45	0.08	15	0.95	0.03	\$0.088	\$2,432	0.60	0.55	11.45	1.18
413	Air Handler Optimization, 15 HP	Retail	9%	3%	\$0.030	0.60	0.54	0.08	8	1.22	0.04	\$0.100	\$2,770	0.52	0.57	7.92	1.18
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	Retail	0%	0%	\$0.022	0.57	0.57	0.08	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
421	Fan Motor, 40hp, 1800rpm, 94.1%	Retail	1%	1%	\$0.006	0.57	0.57	0.08	15	0.22	0.03	\$0.100	\$742	0.61	0.48	13.13	1.39
422	Variable Speed Drive Control, 40 HP	Retail	28%	8%	\$0.093	0.62	0.44	0.08	15	2.93	0.11	\$0.061	\$1,689	0.86	0.80	7.95	1.18
423	Air Handler Optimization, 40 HP	Retail	9%	3%	\$0.030	0.59	0.53	0.08	8	1.02	0.04	\$0.101	\$2,817	0.51	0.56	8.06	1.18
610	Base Desktop PC	Retail	0%	0%	\$0.000	0.10	0.10	0.01	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
611	PC Manual Power Management Enabling	Retail	68%	45%	\$0.002	0.12	0.04	0.01	4	7.90	0.78	\$0.010	\$105	5.40	6.21	0.45	1.27
612	PC Network Power Management Enabling	Retail	68%	45%	\$0.001	0.12	0.04	0.01	4	7.90	0.78	\$0.005	\$52	10.80	12.41	0.22	1.27
620	Base Monitor, CRT	Retail	0%	0%	\$0.000	0.10	0.10	0.01	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
621	Energy Star or Better Monitor	Retail	56%	56%	\$0.000	0.21	0.09	0.01	4	1.01	0.15	\$0.000	\$0	-	-	0.00	N/A
622	Monitor Power Management Enabling	Retail	54%	35%	\$0.002	0.14	0.07	0.01	4	3.96	0.39	\$0.010	\$106	5.34	6.14	0.45	1.27
630	Base Monitor, LCD	Retail	0%	0%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
631	Energy Star or Better Monitor	Retail	2%	2%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	N/A
632	Monitor Power Management Enabling	Retail	28%	18%	\$0.000	0.00	0.00	0.00	4	0.01	0.00	\$0.333	\$3,374	0.17	0.19	14.32	1.27
640	Base Copier	Retail	0%	0%	\$0.000	0.07	0.07	0.01	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
641	Energy Star or Better Copier	Retail	21%	21%	\$0.000	0.08	0.06	0.01	6	0.29	0.04	\$0.000	\$0	-	-	0.00	N/A
642	Copier Power Management Enabling	Retail	19%	13%	\$0.003	0.07	0.06	0.01	6	1.18	0.12	\$0.045	\$455	1.24	1.35	2.78	1.27
650	Base Laser Printer	Retail	0%	0%	\$0.000	0.13	0.13	0.02	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
651	Printer Power Management Enabling	Retail	49%	32%	\$0.008	0.18	0.09	0.02	5	5.24	0.52	\$0.026	\$260	2.18	2.43	1.35	1.27
800	Base Water Heating	Retail	0%	0%	\$0.000	0.24	0.24	0.03	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
801	Demand controlled circulating systems	Retail	5%	5%	\$0.011	0.25	0.24	0.03	15	0.32	0.04	\$0.102	\$827	0.59	0.48	13.31	1.37
803	High Efficiency Water Heater (electric)	Retail	2%	2%	\$0.002	0.24	0.24	0.03	15	0.24	0.03	\$0.039	\$321	1.52	1.23	5.16	1.37
804	Hot Water Pipe Insulation	Retail	2%	2%	\$0.003	0.25	0.24	0.03	15	0.15	0.02	\$0.065	\$525	0.93	0.75	8.45	1.37
805	Tankless Water Heater	Retail	10%	10%	\$0.015	0.25	0.22	0.03	20	0.92	0.11	\$0.058	\$473	1.03	0.76	8.85	1.37
910	Base Vending Machines	Retail	0%	0%	\$0.000	0.05	0.05	0.01	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
911	Vending Misers (cooled machines only)	Retail	40%	26%	\$0.003	0.06	0.03	0.01	10	2.37	0.25	\$0.018	\$171	3.13	2.95	1.73	1.31
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAC	FoodStore	0%	0%	\$0.556	9.01	9.01	1.45	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
114	RET 4L4' Premium T8, 1EB	FoodStore	31%	31%	\$0.662	9.15	6.28	1.01	16	3.61	0.58	\$0.023	\$141	2.88	1.97	3.38	1.48
115	RET 2L4' Premium T8, 1EB, Reflector	FoodStore	66%	66%	\$0.887	9.01	3.09	0.50	16	1.96	0.32	\$0.015	\$94	4.32	3.00	2.20	1.48
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	FoodStore	17%	20%	\$0.366	9.14	7.57	1.18	9	0.24	0.04	\$0.039	\$206	1.83	1.44	3.37	1.60
118	Continuous Dimming, 5L4' Fluorescent Fixtures	FoodStore	43%	75%	\$3.813	9.01	5.16	0.36	12	1.65	0.47	\$0.138	\$489	0.62	0.38	15.28	1.94
120	Lighting Control Tuneup	FoodStore	5%	1%	\$0.014	9.33	8.90	1.48	6	0.04	0.00	\$0.008	\$183	6.85	7.61	0.49	1.24
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAC	FoodStore	0%	0%	\$0.620	9.01	9.01	1.45	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
133	RET 2L4' Premium T8, 1EB	FoodStore	31%	31%	\$0.911	9.15	6.28	1.01	16	3.32	0.53	\$0.032	\$197	2.06	1.42	4.65	1.48
134	RET 1L4' Premium T8, 1EB, Reflector OEM	FoodStore	64%	64%	\$1.293	9.01	3.22	0.52	16	0.78	0.13	\$0.023	\$142	2.86	2.00	3.28	1.48
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	FoodStore	17%	20%	\$0.366	9.14	7.57	1.18	9	0.19	0.04	\$0.039	\$206	1.83	1.44	3.37	1.60
137	Continuous Dimming, 10L4' Fluorescent Fixtures	FoodStore	43%	75%	\$3.813	9.01	5.16	0.36	12	1.35	0.38	\$0.138	\$489	0.62	0.38	15.28	1.94
139	Lighting Control Tuneup	FoodStore	5%	1%	\$0.014	9.33	8.90	1.48	6	0.04	0.00	\$0.008	\$183	6.85	7.61	0.49	1.24
150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAC	FoodStore	0%	0%	\$0.822	9.01	9.01	1.45	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
152	RET 2 - 2L4' Premium T8, 1EB	FoodStore	27%	27%	\$1.067	9.13	6.68	1.08	16	7.44	1.20	\$0.043	\$268	1.51	1.04	6.39	1.48
153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	FoodStore	63%	63%	\$1.513	9.01	3.30	0.53	16	7.83	1.26	\$0.027	\$167	2.42	1.69	3.89	1.48
155	Occupancy Sensor, 4L8' Fluorescent Fixtures	FoodStore	17%	20%	\$0.429	9.14	7.57	1.18	9	0.66	0.12	\$0.045	\$242	1.56	1.23	3.94	1.60
156	Continuous Dimming, 5L8' Fluorescent Fixtures	FoodStore	43%	75%	\$4.459	9.01	5.16	0.36	12	4.57	1.29	\$0.162	\$572	0.53	0.32	17.87	1.94
160	Base Incandescent Flood, 75W to Screw-in CFL	FoodStore	0%	0%	\$0.369	29.86	29.86	4.80	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
161	CFL Screw-in 18W	FoodStore	72%	72%	\$0.855	34.03	9.53	1.53	2	5.81	0.93	\$0.016	\$98	4.16	4.12	0.56	1.48
165	Base Incandescent Flood, 75W to Hardwired CFL	FoodStore	0%	0%	\$0.369	29.86	29.86	4.80	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
166	CFL Hardwired, Modular 18W	FoodStore	72%	72%	\$3.877	34.03	9.53	1.53	5	1.94	0.31	\$0.045	\$282	1.44	1.35	2.54	1.48

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy	Peak	Total	Base		Peak	Service Life (yrs)	Technical	System	Levelized Cost	Levelized Cost	Total	Participant Test	Customer	Revenue Test	
			Savings Fraction	Reduction Fraction	Costs/ Sq Ft	EU	EU	Watts/ Sq Ft		Potential GWH	Peak Tech. Potential MW	of Conserved Energy \$/kWH	of Avoided Peak Capacity \$/kW	Resource Cost Test (TRC)		Payback (Years)		
175	Base High Bay Metal Halide, 400W	FoodStore	0%	0%	\$1.275	9.26	9.26	1.49	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
176	High Bay T5	FoodStore	37%	37%	\$1.716	9.44	5.91	0.95	10	0.12	0.02	\$0.053	\$329	1.23	0.89	6.95	1.48	
180	Base 4L4'T8, 1EB	FoodStore	0%	0%	\$0.000	5.18	5.18	0.83	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
181	ROB 4L4' Premium T8, 1EB	FoodStore	16%	16%	\$0.128	5.22	4.40	0.71	16	5.68	0.91	\$0.017	\$104	3.90	2.83	2.28	1.48	
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	FoodStore	20%	20%	\$0.505	5.27	4.21	0.68	9	0.70	0.11	\$0.079	\$494	0.82	0.70	6.93	1.48	
183	Lighting Control Tuneup	FoodStore	5%	1%	\$0.014	5.37	5.12	0.85	6	0.11	0.00	\$0.014	\$318	3.94	4.38	0.86	1.24	
185	Base 2L4'T8, 1EB	FoodStore	0%	0%	\$0.000	5.18	5.18	0.83	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
186	ROB 2L4' Premium T8, 1EB	FoodStore	17%	17%	\$0.114	5.23	4.32	0.70	16	5.58	0.90	\$0.014	\$85	4.78	3.46	1.86	1.48	
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	FoodStore	20%	20%	\$0.316	5.27	4.21	0.68	9	0.63	0.10	\$0.050	\$309	1.31	1.12	4.33	1.48	
188	Lighting Control Tuneup	FoodStore	5%	1%	\$0.014	5.37	5.12	0.85	6	0.10	0.00	\$0.014	\$318	3.94	4.38	0.86	1.24	
190	Base Exit Sign	FoodStore	0%	0%	\$0.000	0.01	0.01	0.00	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
191	LED Exit Sign	FoodStore	81%	81%	\$0.004	0.01	0.00	0.00	16	0.16	0.03	\$0.054	\$337	1.20	0.87	7.39	1.48	
220	Base Outdoor Mercury Vapor 400W Lamp	FoodStore	0%	0%	\$0.000	2.10	2.10	0.10	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
221	High Pressure Sodium 250W Lamp	FoodStore	35%	35%	\$0.202	2.38	1.55	0.08	5	10.54	0.52	\$0.062	\$1,268	0.87	1.00	3.27	1.22	
222	Outdoor Lighting Controls (Photocell/Timeclock)	FoodStore	23%	0%	\$0.037	2.65	2.03	0.13	5	1.09	0.00	\$0.015	N/A	3.25	4.12	0.79	1.12	
310	Base DX Packaged System, EER=10.3, 10 tons	FoodStore	0%	0%	\$1.651	2.11	2.11	1.47	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
311	DX Tune Up/ Advanced Diagnostics	FoodStore	5%	4%	\$0.125	2.18	2.07	1.46	10	0.55	0.30	\$0.192	\$345	0.52	0.28	18.03	2.29	
312	DX Packaged System, EER=10.9, 10 tons	FoodStore	6%	6%	\$0.066	1.82	1.72	1.20	15	2.17	1.51	\$0.074	\$107	1.53	0.65	9.75	2.58	
313	Window Film (Standard)	FoodStore	9%	9%	\$0.141	2.21	2.00	1.40	10	1.72	1.20	\$0.107	\$154	1.06	0.51	10.09	2.58	
314	Evaporative Pre-Cooler	FoodStore	13%	13%	\$0.720	2.11	1.83	1.28	10	1.48	1.03	\$0.414	\$592	0.27	0.13	38.83	2.58	
315	Prog. Thermostat - DX	FoodStore	4%	1%	\$0.050	2.14	2.05	1.47	10	0.95	0.20	\$0.090	\$424	0.77	0.60	8.44	1.57	
316	Cool Roof - DX	FoodStore	15%	15%	\$0.350	2.30	1.94	1.36	10	1.77	1.24	\$0.155	\$222	0.73	0.35	14.55	2.58	
317	Optimize Controls	FoodStore	4%	1%	\$0.040	2.17	2.08	1.50	5	0.48	0.10	\$0.126	\$594	0.55	0.49	6.62	1.57	
318	Economizer	FoodStore	2%	1%	\$0.418	2.12	2.08	1.47	15	0.31	0.07	\$1.354	\$6,389	0.05	0.04	177.07	1.57	
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	FoodStore	0%	0%	\$0.032	0.82	0.82	0.11	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
401	Fan Motor, 5hp, 1800rpm, 89.5%	FoodStore	2%	2%	\$0.012	0.82	0.80	0.11	15	0.20	0.03	\$0.076	\$561	0.81	0.64	9.93	1.39	
402	Variable Speed Drive Control, 5 HP	FoodStore	28%	8%	\$0.236	0.83	0.59	0.10	15	0.00	0.00	\$0.114	\$3,173	0.46	0.42	14.95	1.18	
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	FoodStore	0%	0%	\$0.025	0.76	0.76	0.10	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
411	Fan Motor, 15hp, 1800rpm, 92.4%	FoodStore	2%	2%	\$0.007	0.76	0.74	0.10	15	0.12	0.02	\$0.064	\$476	0.95	0.75	8.42	1.39	
412	Variable Speed Drive Control, 15 HP	FoodStore	28%	8%	\$0.137	0.81	0.58	0.10	15	0.00	0.00	\$0.068	\$1,876	0.77	0.72	8.84	1.18	
413	Air Handler Optimization, 15 HP	FoodStore	9%	3%	\$0.030	0.77	0.70	0.10	8	0.44	0.02	\$0.077	\$2,133	0.68	0.75	6.10	1.18	
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	FoodStore	0%	0%	\$0.022	0.74	0.74	0.10	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
421	Fan Motor, 40hp, 1800rpm, 94.1%	FoodStore	1%	1%	\$0.006	0.74	0.73	0.10	15	0.00	0.00	\$0.077	\$573	0.79	0.62	10.13	1.39	
422	Variable Speed Drive Control, 40 HP	FoodStore	28%	8%	\$0.094	0.80	0.57	0.10	15	0.00	0.00	\$0.047	\$1,303	1.11	1.03	6.14	1.18	
423	Air Handler Optimization, 40 HP	FoodStore	9%	3%	\$0.030	0.76	0.69	0.10	8	0.00	0.00	\$0.078	\$2,169	0.67	0.73	6.21	1.18	
500	Base Refrigeration System	FoodStore	0%	0%	\$0.000	23.29	23.29	2.77	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
501	High-efficiency fan motors	FoodStore	12%	12%	\$1.161	23.44	20.63	2.45	16	58.41	6.95	\$0.045	\$377	1.32	1.05	6.11	1.34	
502	Strip curtains for walk-ins	FoodStore	4%	4%	\$0.050	23.58	22.63	2.69	4	14.54	1.73	\$0.018	\$152	3.28	3.55	0.78	1.34	
503	Night covers for display cases	FoodStore	5%	0%	\$0.114	23.36	22.10	2.78	5	13.08	0.00	\$0.025	N/A	1.89	2.45	1.34	1.09	
504	Evaporator fan controller for MT walk-ins	FoodStore	1%	0%	\$0.045	23.32	23.20	2.77	5	2.09	0.00	\$0.106	N/A	0.45	0.59	5.58	1.09	
505	Efficient compressor motor	FoodStore	7%	7%	\$0.088	23.78	22.16	2.64	10	24.90	2.96	\$0.009	\$71	6.96	6.39	0.80	1.34	
506	Compressor VSD retrofit	FoodStore	6%	3%	\$0.405	23.58	22.17	2.72	10	12.35	0.76	\$0.045	\$733	1.19	1.20	4.25	1.22	
507	Floating head pressure controls	FoodStore	6%	0%	\$0.125	24.46	22.91	2.91	14	8.49	0.00	\$0.010	N/A	5.04	5.19	1.19	1.09	
508	Refrigeration Commissioning	FoodStore	5%	5%	\$0.175	23.89	22.70	2.70	3	13.08	1.56	\$0.066	\$551	0.90	1.01	2.17	1.34	
509	Demand Hot Gas Defrost	FoodStore	3%	3%	\$0.032	23.71	23.12	2.75	10	3.75	0.45	\$0.009	\$72	6.90	6.33	0.81	1.34	
510	Demand Defrost Electric	FoodStore	8%	8%	\$0.032	23.39	21.57	2.57	10	36.24	4.31	\$0.003	\$24	21.08	19.34	0.26	1.34	
511	Anti-sweat (humidistat) controls	FoodStore	5%	2%	\$0.161	23.58	22.44	2.74	12	18.64	1.15	\$0.019	\$308	2.84	2.74	2.10	1.22	
610	Base Desktop PC	FoodStore	0%	0%	\$0.000	0.04	0.04	0.01	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
611	PC Manual Power Management Enabling	FoodStore	68%	45%	\$0.001	0.05	0.01	0.00	4	0.38	0.04	\$0.010	\$105	5.40	6.21	0.45	1.27	
612	PC Network Power Management Enabling	FoodStore	68%	45%	\$0.000	0.05	0.01	0.00	4	0.38	0.04	\$0.005	\$52	10.80	12.41	0.22	1.27	
620	Base Monitor, CRT	FoodStore	0%	0%	\$0.000	0.04	0.04	0.01	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
621	Energy Star or Better Monitor	FoodStore	56%	56%	\$0.000	0.08	0.03	0.01	4	0.05	0.01	\$0.000	\$0	-	-	0.00	N/A	
622	Monitor Power Management Enabling	FoodStore	54%	35%	\$0.001	0.05	0.03	0.01	4	0.19	0.02	\$0.010	\$106	5.34	6.14	0.45	1.27	

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY												System	Levelized Cost	Levelized Cost	Total	Customer	
Measure	Building	Energy	Peak	Total	Base	Peak	Service	Technical	Peak Tech.	of Conserved	of Avoided	Resource	Participant	Payback	Revenue		
Number	Type	Savings Fraction	Reduction Fraction	Costs/ Sq Ft	EUI	Watts/ Sq Ft	Life (yrs)	Potential GWH	Potential MW	Energy \$/kWH	Peak Capacity \$/kW	Cost Test (TRC)	Test	(Years)	Test		
630	Base Monitor, LCD	FoodStore	0%	0%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
631	Energy Star or Better Monitor	FoodStore	2%	2%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	
632	Monitor Power Management Enabling	FoodStore	28%	18%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.333	\$3,374	0.17	0.19	14.32	
640	Base Copier	FoodStore	0%	0%	\$0.000	0.07	0.07	0.01	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
641	Energy Star or Better Copier	FoodStore	21%	21%	\$0.000	0.09	0.07	0.01	6	0.04	0.01	\$0.000	\$0	-	-	0.00	
642	Copier Power Management Enabling	FoodStore	19%	13%	\$0.003	0.08	0.06	0.01	6	0.16	0.02	\$0.045	\$455	1.24	1.35	2.78	
650	Base Laser Printer	FoodStore	0%	0%	\$0.000	0.04	0.04	0.01	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
651	Printer Power Management Enabling	FoodStore	49%	32%	\$0.003	0.06	0.03	0.01	5	0.23	0.02	\$0.026	\$260	2.18	2.43	1.35	
800	Base Water Heating	FoodStore	0%	0%	\$0.000	1.59	1.59	0.20	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
801	Demand controlled circulating systems	FoodStore	5%	5%	\$0.011	1.62	1.54	0.19	15	0.30	0.04	\$0.016	\$127	3.84	3.09	2.05	
803	High Efficiency Water Heater (electric)	FoodStore	2%	2%	\$0.003	1.59	1.56	0.19	15	0.23	0.03	\$0.010	\$80	6.09	4.90	1.29	
804	Hot Water Pipe Insulation	FoodStore	2%	2%	\$0.005	1.60	1.57	0.19	15	0.14	0.02	\$0.016	\$131	3.72	3.00	2.11	
805	Tankless Water Heater	FoodStore	10%	10%	\$0.024	1.60	1.44	0.18	20	0.86	0.11	\$0.015	\$118	4.13	3.03	2.21	
910	Base Vending Machines	FoodStore	0%	0%	\$0.000	0.09	0.09	0.01	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
911	Vending Misers (cooled machines only)	FoodStore	40%	26%	\$0.004	0.09	0.05	0.01	10	0.54	0.06	\$0.019	\$180	2.97	2.80	1.82	
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAC	Warehouse	0%	0%	\$0.268	2.80	2.80	0.45	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
114	RET 4L4' Premium T8, 1EB	Warehouse	31%	31%	\$0.320	2.85	1.95	0.31	25	3.84	0.62	\$0.032	\$197	1.88	1.27	5.28	
115	RET 2L4' Premium T8, 1EB, Reflector	Warehouse	66%	66%	\$0.428	2.80	0.96	0.15	25	2.08	0.33	\$0.021	\$128	2.89	1.95	3.44	
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	Warehouse	17%	20%	\$0.177	2.84	2.35	0.37	14	0.51	0.09	\$0.042	\$224	1.68	1.18	5.24	
118	Continuous Dimming, 5L4' Fluorescent Fixtures	Warehouse	43%	75%	\$1.840	2.80	1.60	0.11	18	2.70	0.76	\$0.158	\$558	0.54	0.29	22.92	
120	Lighting Control Tuneup	Warehouse	5%	1%	\$0.014	2.90	2.77	0.46	6	0.05	0.00	\$0.026	\$589	2.13	2.37	1.59	
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAC	Warehouse	0%	0%	\$0.299	2.80	2.80	0.45	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
133	RET 2L4' Premium T8, 1EB	Warehouse	31%	31%	\$0.440	2.85	1.95	0.31	25	51.86	8.34	\$0.044	\$271	1.37	0.92	7.27	
134	RET 1L4' Premium T8, 1EB, Reflector OEM	Warehouse	64%	64%	\$0.624	2.80	1.00	0.16	25	12.22	1.97	\$0.031	\$191	1.94	1.31	5.12	
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	Warehouse	17%	20%	\$0.177	2.84	2.35	0.37	14	6.08	1.14	\$0.042	\$224	1.68	1.18	5.24	
137	Continuous Dimming, 10L4' Fluorescent Fixtures	Warehouse	43%	75%	\$1.840	2.84	1.63	0.11	18	31.79	8.98	\$0.155	\$550	0.55	0.29	22.57	
139	Lighting Control Tuneup	Warehouse	5%	1%	\$0.014	2.90	2.77	0.46	6	0.57	0.02	\$0.026	\$589	2.13	2.37	1.59	
150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAC	Warehouse	0%	0%	\$0.397	2.80	2.80	0.45	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
152	RET 2 - 2L4' Premium T8, 1EB	Warehouse	27%	27%	\$0.515	2.84	2.08	0.33	25	3.14	0.50	\$0.060	\$373	0.99	0.67	9.99	
153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	Warehouse	63%	63%	\$0.730	2.80	1.02	0.16	25	3.30	0.53	\$0.036	\$227	1.63	1.10	6.08	
155	Occupancy Sensor, 4L8' Fluorescent Fixtures	Warehouse	17%	20%	\$0.207	2.84	2.35	0.37	14	0.55	0.10	\$0.049	\$263	1.44	1.01	6.13	
156	Continuous Dimming, 5L8' Fluorescent Fixtures	Warehouse	43%	75%	\$2.153	2.84	1.63	0.11	18	2.90	0.82	\$0.182	\$643	0.47	0.25	26.40	
160	Base Incandescent Flood, 75W to Screw-in CFL	Warehouse	0%	0%	\$0.178	9.28	9.28	1.49	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
161	CFL Screw-in 18W	Warehouse	72%	72%	\$0.413	9.28	2.60	0.42	3	23.30	3.75	\$0.019	\$119	3.40	3.23	0.96	
165	Base Incandescent Flood, 75W to Hardwired CFL	Warehouse	0%	0%	\$0.178	9.28	9.28	1.49	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
166	CFL Hardwired, Modular 18W	Warehouse	72%	72%	\$1.871	9.28	2.60	0.42	7	7.77	1.25	\$0.054	\$339	1.20	1.06	4.05	
175	Base High Bay Metal Halide, 400W	Warehouse	0%	0%	\$0.615	2.88	2.88	0.46	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
176	High Bay T5	Warehouse	37%	37%	\$0.828	2.93	1.84	0.30	16	3.35	0.54	\$0.075	\$468	0.87	0.60	11.11	
180	Base 4L4'T8, 1EB	Warehouse	0%	0%	\$0.000	1.61	1.61	0.26	25	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
181	ROB 4L4' Premium T8, 1EB	Warehouse	16%	16%	\$0.062	1.62	1.37	0.22	25	0.13	0.02	\$0.021	\$133	2.79	1.88	3.56	
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	Warehouse	20%	20%	\$0.244	1.64	1.31	0.21	14	0.03	0.00	\$0.086	\$537	0.75	0.57	10.78	
183	Lighting Control Tuneup	Warehouse	5%	1%	\$0.014	1.67	1.59	0.27	6	0.00	0.00	\$0.044	\$1,024	1.22	1.36	2.76	
185	Base 2L4'T8, 1EB	Warehouse	0%	0%	\$0.000	1.61	1.61	0.26	25	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
186	ROB 2L4' Premium T8, 1EB	Warehouse	17%	17%	\$0.055	1.62	1.34	0.22	25	2.17	0.35	\$0.017	\$109	3.41	2.30	2.91	
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	Warehouse	20%	20%	\$0.152	1.64	1.31	0.21	14	0.49	0.08	\$0.054	\$336	1.21	0.92	6.74	
188	Lighting Control Tuneup	Warehouse	5%	1%	\$0.014	1.67	1.59	0.27	6	0.04	0.00	\$0.044	\$1,024	1.22	1.36	2.76	
190	Base Exit Sign	Warehouse	0%	0%	\$0.000	0.00	0.00	0.00	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
191	LED Exit Sign	Warehouse	81%	81%	\$0.002	0.00	0.00	0.00	16	0.32	0.05	\$0.050	\$314	1.29	0.94	6.88	
220	Base Outdoor Mercury Vapor 400W Lamp	Warehouse	0%	0%	\$0.000	0.22	0.22	0.01	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
221	High Pressure Sodium 250W Lamp	Warehouse	35%	35%	\$0.021	0.24	0.16	0.01	5	4.63	0.23	\$0.064	\$1,305	0.84	0.97	3.36	
222	Outdoor Lighting Controls (Photocell/Timeclock)	Warehouse	23%	0%	\$0.004	0.27	0.21	0.01	5	0.48	0.00	\$0.016	N/A	3.16	4.01	0.82	
310	Base DX Packaged System, EER=10.3, 10 tons	Warehouse	0%	0%	\$1.183	0.99	0.99	0.69	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
311	DX Tune Up/ Advanced Diagnostics	Warehouse	5%	4%	\$0.125	1.02	0.97	0.69	10	0.87	0.48	\$0.410	\$736	0.25	0.13	38.46	

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY

Measure Number	Measure	Building Type	Energy	Peak	Total	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Savings Fraction	Reduction Fraction	Costs/ Sq Ft												EU/ EU
312	DX Packaged System, EER=10.9, 10 tons	Warehouse	6%	6%	\$0.047	0.85	0.81	0.56	15	3.43	2.40	\$0.114	\$163	1.00	0.42	14.90	2.58
313	Window Film (Standard)	Warehouse	12%	12%	\$0.290	0.99	0.87	0.61	10	6.39	4.47	\$0.371	\$531	0.31	0.15	34.84	2.58
314	Evaporative Pre-Cooler	Warehouse	13%	13%	\$0.516	0.99	0.86	0.60	10	2.35	1.64	\$0.632	\$905	0.18	0.09	59.36	2.58
315	Prog. Thermostat - DX	Warehouse	4%	1%	\$0.036	1.00	0.96	0.69	10	1.51	0.32	\$0.137	\$649	0.50	0.40	12.91	1.57
316	Cool Roof - DX	Warehouse	18%	18%	\$0.029	1.05	0.86	0.60	10	4.68	3.27	\$0.024	\$34	4.79	2.29	2.23	2.58
317	Optimize Controls	Warehouse	4%	1%	\$0.040	1.02	0.97	0.70	5	0.76	0.16	\$0.269	\$1,268	0.26	0.23	14.11	1.57
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	Warehouse	0%	0%	\$0.031	0.25	0.25	0.03	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
401	Fan Motor, 5hp, 1800rpm, 89.5%	Warehouse	2%	2%	\$0.012	0.25	0.25	0.03	15	0.14	0.02	\$0.239	\$1,765	0.26	0.20	31.22	1.39
402	Variable Speed Drive Control, 5 HP	Warehouse	28%	8%	\$0.231	0.26	0.19	0.03	15	0.10	0.00	\$0.359	\$9,980	0.15	0.13	47.01	1.18
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	Warehouse	0%	0%	\$0.025	0.24	0.24	0.03	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
411	Fan Motor, 15hp, 1800rpm, 92.4%	Warehouse	2%	2%	\$0.006	0.24	0.23	0.03	15	0.03	0.00	\$0.202	\$1,497	0.30	0.24	26.48	1.39
412	Variable Speed Drive Control, 15 HP	Warehouse	28%	8%	\$0.134	0.25	0.18	0.03	15	0.22	0.01	\$0.213	\$5,903	0.25	0.23	27.81	1.18
413	Air Handler Optimization, 15 HP	Warehouse	9%	3%	\$0.030	0.24	0.22	0.03	8	0.10	0.00	\$0.246	\$6,837	0.21	0.23	19.56	1.18
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	Warehouse	0%	0%	\$0.022	0.23	0.23	0.03	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
421	Fan Motor, 40hp, 1800rpm, 94.1%	Warehouse	1%	1%	\$0.006	0.23	0.23	0.03	15	0.00	0.00	\$0.244	\$1,802	0.25	0.20	31.88	1.39
422	Variable Speed Drive Control, 40 HP	Warehouse	28%	8%	\$0.092	0.25	0.18	0.03	15	0.00	0.00	\$0.148	\$4,099	0.35	0.33	19.31	1.18
423	Air Handler Optimization, 40 HP	Warehouse	9%	3%	\$0.030	0.24	0.22	0.03	8	0.00	0.00	\$0.250	\$6,952	0.21	0.23	19.89	1.18
610	Base Desktop PC	Warehouse	0%	0%	\$0.000	0.32	0.32	0.05	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
611	PC Manual Power Management Enabling	Warehouse	68%	45%	\$0.008	0.38	0.12	0.03	4	14.25	1.41	\$0.010	\$105	5.40	6.21	0.45	1.27
612	PC Network Power Management Enabling	Warehouse	68%	45%	\$0.004	0.38	0.12	0.03	4	14.25	1.41	\$0.005	\$52	10.80	12.41	0.22	1.27
620	Base Monitor, CRT	Warehouse	0%	0%	\$0.000	0.31	0.31	0.05	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
621	Energy Star or Better Monitor	Warehouse	56%	56%	\$0.000	0.67	0.29	0.04	4	1.81	0.27	\$0.000	\$0	-	-	0.00	N/A
622	Monitor Power Management Enabling	Warehouse	54%	35%	\$0.007	0.46	0.21	0.04	4	7.14	0.70	\$0.010	\$106	5.34	6.14	0.45	1.27
630	Base Monitor, LCD	Warehouse	0%	0%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
631	Energy Star or Better Monitor	Warehouse	2%	2%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	N/A
632	Monitor Power Management Enabling	Warehouse	28%	18%	\$0.000	0.00	0.00	0.00	4	0.01	0.00	\$0.333	\$3,374	0.17	0.19	14.32	1.27
640	Base Copier	Warehouse	0%	0%	\$0.000	0.12	0.12	0.02	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
641	Energy Star or Better Copier	Warehouse	21%	21%	\$0.000	0.15	0.12	0.02	6	0.30	0.04	\$0.000	\$0	-	-	0.00	N/A
642	Copier Power Management Enabling	Warehouse	19%	13%	\$0.005	0.13	0.11	0.02	6	1.22	0.12	\$0.045	\$455	1.24	1.35	2.78	1.27
650	Base Laser Printer	Warehouse	0%	0%	\$0.000	0.23	0.23	0.03	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
651	Printer Power Management Enabling	Warehouse	49%	32%	\$0.014	0.31	0.16	0.03	5	5.18	0.51	\$0.026	\$260	2.18	2.43	1.35	1.27
800	Base Water Heating	Warehouse	0%	0%	\$0.000	0.14	0.14	0.02	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
801	Demand controlled circulating systems	Warehouse	5%	5%	\$0.004	0.14	0.13	0.02	15	0.23	0.03	\$0.072	\$583	0.84	0.67	9.39	1.37
803	High Efficiency Water Heater (electric)	Warehouse	2%	2%	\$0.001	0.14	0.14	0.02	15	0.17	0.02	\$0.039	\$321	1.52	1.23	5.16	1.37
804	Hot Water Pipe Insulation	Warehouse	2%	2%	\$0.002	0.14	0.14	0.02	15	0.10	0.01	\$0.065	\$525	0.93	0.75	8.45	1.37
805	Tankless Water Heater	Warehouse	10%	10%	\$0.008	0.14	0.13	0.02	20	0.65	0.08	\$0.058	\$473	1.03	0.76	8.85	1.37
910	Base Vending Machines	Warehouse	0%	0%	\$0.000	0.19	0.19	0.03	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
911	Vending Misers (cooled machines only)	Warehouse	40%	26%	\$0.009	0.19	0.11	0.02	10	5.10	0.55	\$0.020	\$182	2.95	2.78	1.84	1.31
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAG	School	0%	0%	\$0.633	5.86	5.86	0.94	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
114	RET 4L4' Premium T8, 1EB	School	31%	31%	\$0.754	5.96	4.08	0.66	28	17.40	2.80	\$0.034	\$212	1.68	1.13	5.91	1.48
115	RET 2L4' Premium T8, 1EB, Reflector	School	66%	66%	\$1.010	5.86	2.01	0.32	28	9.43	1.52	\$0.022	\$138	2.58	1.74	3.85	1.48
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	School	17%	20%	\$0.417	5.95	4.92	0.77	16	5.73	1.07	\$0.044	\$235	1.61	1.08	5.99	1.60
118	Continuous Dimming, 5L4' Fluorescent Fixtures	School	43%	75%	\$4.340	5.86	3.36	0.24	20	9.19	2.60	\$0.167	\$593	0.51	0.26	25.47	1.94
120	Lighting Control Tuneup	School	5%	1%	\$0.014	6.07	5.79	0.96	6	0.21	0.01	\$0.012	\$281	4.46	4.95	0.76	1.24
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAG	School	0%	0%	\$0.705	5.86	5.86	0.94	18	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
133	RET 2L4' Premium T8, 1EB	School	31%	31%	\$1.037	5.96	4.08	0.66	28	9.56	1.54	\$0.047	\$292	1.22	0.82	8.14	1.48
134	RET 1L4' Premium T8, 1EB, Reflector OEM	School	64%	64%	\$1.471	5.86	2.09	0.34	28	2.25	0.36	\$0.033	\$206	1.73	1.17	5.74	1.48
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	School	17%	20%	\$0.417	5.95	4.92	0.77	16	2.80	0.52	\$0.044	\$235	1.61	1.08	5.99	1.60
137	Continuous Dimming, 10L4' Fluorescent Fixtures	School	43%	75%	\$4.340	5.86	3.36	0.24	20	4.49	1.27	\$0.167	\$593	0.51	0.26	25.47	1.94
139	Lighting Control Tuneup	School	5%	1%	\$0.014	6.07	5.79	0.96	6	0.10	0.00	\$0.012	\$281	4.46	4.95	0.76	1.24
160	Base Incandescent Flood, 75W to Screw-in CFL	School	0%	0%	\$0.420	19.43	19.43	3.13	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
161	CFL Screw-in 18W	School	72%	72%	\$0.973	39.61	11.09	1.78	3	2.53	0.41	\$0.009	\$58	6.94	6.58	0.47	1.48
165	Base Incandescent Flood, 75W to Hardwired CFL	School	0%	0%	\$0.420	19.43	19.43	3.13	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY		Building Type	Energy Savings	Peak Reduction	Total Costs/	Base	Peak	Service Life (yrs)	Technical	System	Levelized Cost	Levelized Cost	Total	Participant Test	Customer Payback (Years)	Revenue Test	
Measure Number	Measure		Fraction	Fraction	Sq Ft	EUI	Watts/ Sq Ft		Potential GWH	Peak Tech. Potential MW	of Conserved Energy \$/kWh	of Avoided Peak Capacity \$/kW	Resource Cost Test (TRC)				
166	CFL Hardwired, Modular 18W	School	72%	72%	\$4.413	39.61	11.09	1.78	8	0.84	0.14	\$0.027	\$170	2.39	2.07	2.27	1.48
175	Base High Bay Metal Halide, 400W	School	0%	0%	\$1.451	6.03	6.03	0.97	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
176	High Bay T5	School	37%	37%	\$1.953	6.14	3.85	0.62	18	3.34	0.54	\$0.083	\$517	0.78	0.53	12.50	1.48
180	Base 4L4'T8, 1EB	School	0%	0%	\$0.000	3.37	3.37	0.54	28	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
181	ROB 4L4' Premium T8, 1EB	School	16%	16%	\$0.146	3.40	2.86	0.46	28	11.22	1.81	\$0.023	\$143	2.49	1.68	3.99	1.48
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	School	20%	20%	\$0.575	3.43	2.74	0.44	16	6.92	1.11	\$0.090	\$562	0.72	0.52	12.32	1.48
183	Lighting Control Tuneup	School	5%	1%	\$0.014	3.49	3.33	0.55	6	0.22	0.01	\$0.021	\$489	2.56	2.85	1.32	1.24
185	Base 2L4'T8, 1EB	School	0%	0%	\$0.000	3.37	3.37	0.54	28	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
186	ROB 2L4' Premium T8, 1EB	School	17%	17%	\$0.130	3.40	2.81	0.45	28	6.34	1.02	\$0.019	\$117	3.05	2.06	3.26	1.48
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	School	20%	20%	\$0.359	3.43	2.74	0.44	16	3.58	0.58	\$0.057	\$351	1.15	0.84	7.70	1.48
188	Lighting Control Tuneup	School	5%	1%	\$0.014	3.49	3.33	0.55	6	0.11	0.00	\$0.021	\$489	2.56	2.85	1.32	1.24
190	Base Exit Sign	School	0%	0%	\$0.000	0.01	0.01	0.00	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
191	LED Exit Sign	School	81%	81%	\$0.006	0.02	0.00	0.00	16	0.62	0.10	\$0.050	\$310	1.31	0.95	6.79	1.48
220	Base Outdoor Mercury Vapor 400W Lamp	School	0%	0%	\$0.000	1.27	1.27	0.06	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
221	High Pressure Sodium 250W Lamp	School	35%	35%	\$0.123	1.44	0.94	0.05	5	17.06	0.84	\$0.063	\$1,276	0.86	1.00	3.29	1.22
222	Outdoor Lighting Controls (Photocell/Timeclock)	School	23%	0%	\$0.022	1.61	1.23	0.08	5	1.76	0.00	\$0.015	N/A	3.23	4.10	0.80	1.12
300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	School	0%	0%	\$0.726	1.97	1.97	1.37	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	School	12%	12%	\$0.115	1.76	1.54	1.08	20	2.59	1.81	\$0.053	\$76	2.14	0.83	8.06	2.58
302	Window Film (Standard)	School	4%	4%	\$0.074	1.98	1.90	1.33	10	0.59	0.41	\$0.152	\$218	0.75	0.36	14.28	2.58
303	EMS - Chiller	School	10%	10%	\$0.198	2.17	1.95	1.36	10	0.20	0.14	\$0.144	\$206	0.79	0.38	13.50	2.58
304	Cool Roof - Chiller	School	6%	6%	\$0.175	1.99	1.87	1.31	10	0.60	0.42	\$0.225	\$322	0.50	0.24	21.14	2.58
305	Chiller Tune Up/Diagnostics	School	7%	4%	\$0.100	2.04	1.90	1.37	10	0.66	0.26	\$0.109	\$276	0.79	0.50	10.27	1.95
306	VSD for Chiller Pumps and Towers	School	10%	10%	\$0.139	2.05	1.84	1.29	15	1.16	0.81	\$0.077	\$110	1.48	0.63	10.02	2.58
307	EMS Optimization	School	4%	1%	\$0.030	2.01	1.93	1.39	5	0.38	0.08	\$0.102	\$481	0.68	0.61	5.36	1.57
308	Economizer	School	10%	3%	\$0.561	2.15	1.94	1.46	15	0.16	0.03	\$0.298	\$1,406	0.23	0.16	38.96	1.57
310	Base DX Packaged System, EER=10.3, 10 tons	School	0%	0%	\$2.219	3.41	3.41	2.38	15	0.00	0.00	N/A	N/A	0.23	0.16	N/A	N/A
311	DX Tune Up/ Advanced Diagnostics	School	5%	4%	\$0.125	3.52	3.36	2.37	10	0.61	0.34	\$0.119	\$213	0.85	0.46	11.15	2.29
312	DX Packaged System, EER=10.9, 10 tons	School	6%	6%	\$0.089	2.95	2.78	1.94	15	2.41	1.68	\$0.062	\$89	1.84	0.78	8.10	2.58
313	Window Film (Standard)	School	4%	4%	\$0.074	3.43	3.30	2.30	10	1.23	0.86	\$0.088	\$126	1.29	0.62	8.24	2.58
314	Evaporative Pre-Cooler	School	13%	13%	\$0.968	3.41	2.97	2.07	10	1.65	1.15	\$0.344	\$492	0.33	0.16	32.28	2.58
315	Prog. Thermostat - DX	School	4%	1%	\$0.068	3.46	3.31	2.38	10	1.06	0.22	\$0.075	\$353	0.93	0.73	7.02	1.57
316	Cool Roof - DX	School	6%	6%	\$0.175	3.45	3.24	2.26	10	1.26	0.88	\$0.130	\$186	0.87	0.42	12.20	2.58
317	Optimize Controls	School	4%	1%	\$0.040	3.51	3.36	2.42	5	0.53	0.11	\$0.078	\$368	0.89	0.80	4.09	1.57
318	Economizer	School	4%	1%	\$0.561	3.50	3.36	2.42	15	0.39	0.08	\$0.440	\$2,075	0.16	0.11	57.50	1.57
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	School	0%	0%	\$0.062	1.11	1.11	0.15	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
401	Fan Motor, 5hp, 1800rpm, 89.5%	School	2%	2%	\$0.024	1.11	1.08	0.15	15	1.06	0.14	\$0.110	\$810	0.56	0.44	14.33	1.39
402	Variable Speed Drive Control, 5 HP	School	28%	8%	\$0.461	1.12	0.81	0.14	15	2.99	0.11	\$0.165	\$4,581	0.32	0.29	21.58	1.18
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	School	0%	0%	\$0.050	1.03	1.03	0.14	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
411	Fan Motor, 15hp, 1800rpm, 92.4%	School	2%	2%	\$0.013	1.03	1.01	0.14	15	0.18	0.02	\$0.093	\$687	0.66	0.52	12.15	1.39
412	Variable Speed Drive Control, 15 HP	School	28%	8%	\$0.268	1.19	0.86	0.15	15	1.32	0.05	\$0.090	\$2,504	0.58	0.54	11.80	1.18
413	Air Handler Optimization, 15 HP	School	9%	3%	\$0.030	1.05	0.95	0.14	8	0.65	0.02	\$0.057	\$1,572	0.92	1.01	4.50	1.18
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	School	0%	0%	\$0.043	1.01	1.01	0.14	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
421	Fan Motor, 40hp, 1800rpm, 94.1%	School	1%	1%	\$0.012	1.01	1.00	0.13	15	0.00	0.00	\$0.112	\$827	0.55	0.43	14.63	1.39
422	Variable Speed Drive Control, 40 HP	School	28%	8%	\$0.183	1.17	0.84	0.15	15	0.00	0.00	\$0.063	\$1,739	0.83	0.77	8.19	1.18
423	Air Handler Optimization, 40 HP	School	9%	3%	\$0.030	1.03	0.94	0.14	8	0.00	0.00	\$0.058	\$1,599	0.91	1.00	4.57	1.18
610	Base Desktop PC	School	0%	0%	\$0.000	0.37	0.37	0.06	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
611	PC Manual Power Management Enabling	School	68%	45%	\$0.009	0.45	0.14	0.04	4	9.48	0.94	\$0.010	\$105	5.40	6.21	0.45	1.27
612	PC Network Power Management Enabling	School	68%	45%	\$0.005	0.45	0.14	0.04	4	9.48	0.94	\$0.005	\$52	10.80	12.41	0.22	1.27
620	Base Monitor, CRT	School	0%	0%	\$0.000	0.37	0.37	0.06	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
621	Energy Star or Better Monitor	School	56%	56%	\$0.000	0.78	0.34	0.05	4	1.21	0.18	\$0.000	\$0	-	-	0.00	N/A
622	Monitor Power Management Enabling	School	54%	35%	\$0.009	0.54	0.25	0.05	4	4.75	0.47	\$0.010	\$106	5.34	6.14	0.45	1.27
630	Base Monitor, LCD	School	0%	0%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
631	Energy Star or Better Monitor	School	2%	2%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	N/A

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																			
Measure Number	Measure	Building Type	Energy Savings	Peak Reduction	Total Costs/	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant Test	Customer Payback (Years)	Revenue Test			
			Fraction	Fraction	Sq Ft	EUl	Watts/ Sq Ft	Life (yrs)	Potential GWH	Peak Tech. Potential MW	of Conserved Energy \$/kWh	of Avoided Peak Capacity \$/kW	Resource Cost Test (TRC)						
632	Monitor Power Management Enabling	School	28%	18%	\$0.000	0.00	0.00	0.00	4	0.01	0.00	\$0.333	\$3,374	0.17	0.19	14.32	1.27		
640	Base Copier	School	0%	0%	\$0.000	0.08	0.08	0.01	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
641	Energy Star or Better Copier	School	21%	21%	\$0.000	0.10	0.08	0.01	6	0.11	0.02	\$0.000	\$0	-	-	0.00	N/A		
642	Copier Power Management Enabling	School	19%	13%	\$0.003	0.09	0.07	0.01	6	0.47	0.05	\$0.045	\$455	1.24	1.35	2.78	1.27		
650	Base Laser Printer	School	0%	0%	\$0.000	0.23	0.23	0.04	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
651	Printer Power Management Enabling	School	49%	32%	\$0.014	0.32	0.16	0.03	5	2.96	0.29	\$0.026	\$260	2.18	2.43	1.35	1.27		
800	Base Water Heating	School	0%	0%	\$0.000	1.90	1.90	0.23	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
801	Demand controlled circulating systems	School	5%	5%	\$0.011	1.94	1.84	0.23	15	0.54	0.07	\$0.013	\$106	4.60	3.70	1.71	1.37		
803	High Efficiency Water Heater (electric)	School	2%	2%	\$0.003	1.91	1.87	0.23	15	0.41	0.05	\$0.010	\$80	6.09	4.90	1.29	1.37		
804	Hot Water Pipe Insulation	School	2%	2%	\$0.005	1.91	1.88	0.23	15	0.24	0.03	\$0.016	\$131	3.72	3.00	2.11	1.37		
805	Tankless Water Heater	School	10%	10%	\$0.029	1.91	1.72	0.21	20	1.54	0.19	\$0.015	\$118	4.13	3.03	2.21	1.37		
910	Base Vending Machines	School	0%	0%	\$0.000	0.24	0.24	0.04	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
911	Vending Misers (cooled machines only)	School	40%	26%	\$0.012	0.24	0.14	0.03	10	3.65	0.39	\$0.019	\$180	2.97	2.80	1.82	1.31		
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAC	College	0%	0%	\$0.357	4.59	4.59	0.74	13	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
114	RET 4L4' Premium T8, 1EB	College	31%	31%	\$0.425	4.66	3.20	0.51	20	9.95	1.60	\$0.028	\$173	2.35	1.59	4.22	1.48		
115	RET 2L4' Premium T8, 1EB, Reflector	College	66%	66%	\$0.570	4.59	1.57	0.25	20	5.39	0.87	\$0.018	\$112	3.61	2.43	2.75	1.48		
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	College	17%	20%	\$0.235	4.66	3.86	0.60	12	3.28	0.61	\$0.041	\$217	1.74	1.28	4.49	1.60		
118	Continuous Dimming, 5L4' Fluorescent Fixtures	College	43%	75%	\$2.448	4.59	2.63	0.18	14	5.26	1.48	\$0.143	\$506	0.60	0.35	17.83	1.94		
120	Lighting Control Tuneup	College	5%	1%	\$0.014	4.75	4.53	0.76	6	0.20	0.01	\$0.016	\$359	3.49	3.88	0.97	1.24		
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAC	College	0%	0%	\$0.398	4.59	4.59	0.74	13	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
133	RET 2L4' Premium T8, 1EB	College	31%	31%	\$0.585	4.66	3.20	0.51	20	8.24	1.32	\$0.038	\$238	1.71	1.15	5.81	1.48		
134	RET 1L4' Premium T8, 1EB, Reflector OEM	College	64%	64%	\$0.830	4.59	1.64	0.26	20	1.94	0.31	\$0.027	\$167	2.42	1.63	4.10	1.48		
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	College	17%	20%	\$0.235	4.66	3.86	0.60	12	2.41	0.45	\$0.041	\$217	1.74	1.28	4.49	1.60		
137	Continuous Dimming, 10L4' Fluorescent Fixtures	College	43%	75%	\$2.448	4.59	2.63	0.18	14	3.87	1.09	\$0.143	\$506	0.60	0.35	17.83	1.94		
139	Lighting Control Tuneup	College	5%	1%	\$0.014	4.75	4.53	0.76	6	0.14	0.01	\$0.016	\$359	3.49	3.88	0.97	1.24		
160	Base Incandescent Flood, 75W to Screw-in CFL	College	0%	0%	\$0.237	15.21	15.21	2.45	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
161	CFL Screw-in 18W	College	72%	72%	\$0.549	15.91	4.45	0.72	2	29.15	4.69	\$0.017	\$106	3.81	3.78	0.61	1.48		
165	Base Incandescent Flood, 75W to Hardwired CFL	College	0%	0%	\$0.237	15.21	15.21	2.45	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
166	CFL Hardwired, Modular 18W	College	72%	72%	\$2.489	15.91	4.45	0.72	6	9.72	1.56	\$0.051	\$314	1.29	1.18	3.32	1.48		
175	Base High Bay Metal Halide, 400W	College	0%	0%	\$0.818	4.72	4.72	0.76	7	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
176	High Bay T5	College	37%	37%	\$1.102	4.81	3.01	0.48	13	3.04	0.49	\$0.064	\$396	1.02	0.72	9.03	1.48		
180	Base 4L4'T8, 1EB	College	0%	0%	\$0.000	2.64	2.64	0.42	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
181	ROB 4L4' Premium T8, 1EB	College	16%	16%	\$0.082	2.66	2.24	0.36	20	1.34	0.22	\$0.019	\$116	3.49	2.35	2.85	1.48		
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	College	20%	20%	\$0.324	2.68	2.15	0.35	12	0.83	0.13	\$0.084	\$520	0.78	0.62	9.24	1.48		
183	Lighting Control Tuneup	College	5%	1%	\$0.014	2.73	2.61	0.43	6	0.04	0.00	\$0.027	\$625	2.01	2.23	1.68	1.24		
185	Base 2L4'T8, 1EB	College	0%	0%	\$0.000	2.64	2.64	0.42	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
186	ROB 2L4' Premium T8, 1EB	College	17%	17%	\$0.073	2.66	2.20	0.35	20	1.95	0.31	\$0.015	\$95	4.27	2.88	2.33	1.48		
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	College	20%	20%	\$0.203	2.68	2.15	0.35	12	1.10	0.18	\$0.052	\$325	1.25	1.00	5.78	1.48		
188	Lighting Control Tuneup	College	5%	1%	\$0.014	2.73	2.61	0.43	6	0.06	0.00	\$0.027	\$625	2.01	2.23	1.68	1.24		
190	Base Exit Sign	College	0%	0%	\$0.000	0.02	0.02	0.00	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
191	LED Exit Sign	College	81%	81%	\$0.009	0.03	0.01	0.00	16	0.52	0.08	\$0.047	\$293	1.38	1.00	6.43	1.48		
220	Base Outdoor Mercury Vapor 400W Lamp	College	0%	0%	\$0.000	0.28	0.28	0.01	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
221	High Pressure Sodium 250W Lamp	College	35%	35%	\$0.024	0.32	0.21	0.01	5	2.12	0.10	\$0.056	\$1,142	0.96	1.11	2.94	1.22		
222	Outdoor Lighting Controls (Photocell/Timeclock)	College	23%	0%	\$0.004	0.35	0.27	0.02	5	0.22	0.00	\$0.014	N/A	3.61	4.58	0.72	1.12		
300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	College	0%	0%	\$0.582	1.88	1.88	1.31	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	College	12%	12%	\$0.093	1.67	1.47	1.03	20	1.05	0.73	\$0.045	\$64	2.55	0.99	6.78	2.58		
302	Window Film (Standard)	College	4%	4%	\$0.192	1.88	1.81	1.26	10	0.27	0.19	\$0.405	\$580	0.28	0.13	38.03	2.58		
303	EMS - Chiller	College	10%	10%	\$0.159	2.07	1.86	1.30	10	0.08	0.06	\$0.121	\$173	0.94	0.45	11.36	2.58		
304	Cool Roof - Chiller	College	1%	1%	\$0.152	1.88	1.85	1.29	10	0.06	0.04	\$0.942	\$1,349	0.12	0.06	88.50	2.58		
305	Chiller Tune Up/Diagnostics	College	7%	4%	\$0.100	1.94	1.81	1.30	10	0.27	0.11	\$0.115	\$290	0.75	0.47	10.77	1.95		
306	VSD for Chiller Pumps and Towers	College	10%	10%	\$0.111	1.95	1.76	1.23	15	0.47	0.33	\$0.064	\$92	1.76	0.75	8.43	2.58		
307	EMS Optimization	College	4%	1%	\$0.030	1.91	1.84	1.32	5	0.15	0.03	\$0.107	\$505	0.65	0.58	5.62	1.57		
308	Economizer	College	16%	5%	\$0.450	2.17	1.83	1.45	15	0.11	0.02	\$0.150	\$706	0.46	0.32	19.56	1.57		

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy Savings	Peak Reduction	Total Costs/	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue		
			Fraction	Fraction	Sq Ft	EU	Watts/ Sq Ft	Life (yrs)	Potential GWH	Potential MW	of Conserved Energy \$/kWh	of Avoided Peak Capacity \$/kW	Resource Cost Test (TRC)					
310	Base DX Packaged System, EER=10.3, 10 tons	College	0%	0%	\$1.780	3.25	3.25	2.27	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
311	DX Tune Up/ Advanced Diagnostics	College	5%	4%	\$0.125	3.36	3.20	2.26	10	0.36	0.20	\$0.125	\$224	0.81	0.44	11.70	2.29	
312	DX Packaged System, EER=10.9, 10 tons	College	6%	6%	\$0.071	2.81	2.65	1.85	15	1.44	1.01	\$0.052	\$75	2.18	0.93	6.82	2.58	
313	Window Film (Standard)	College	4%	4%	\$0.192	3.26	3.13	2.19	10	0.83	0.58	\$0.234	\$335	0.49	0.23	21.94	2.58	
314	Evaporative Pre-Cooler	College	13%	13%	\$0.777	3.25	2.83	1.98	10	0.99	0.69	\$0.289	\$414	0.39	0.19	27.16	2.58	
315	Prog. Thermostat - DX	College	4%	1%	\$0.054	3.30	3.16	2.27	10	0.64	0.13	\$0.063	\$297	1.10	0.86	5.91	1.57	
316	Cool Roof - DX	College	1%	1%	\$0.152	3.25	3.21	2.24	10	0.19	0.13	\$0.544	\$778	0.21	0.10	51.05	2.58	
317	Optimize Controls	College	4%	1%	\$0.040	3.34	3.21	2.31	5	0.32	0.07	\$0.082	\$386	0.85	0.76	4.29	1.57	
318	Economizer	College	3%	1%	\$0.450	3.25	3.14	2.25	15	0.50	0.11	\$0.475	\$2,241	0.15	0.10	62.12	1.57	
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	College	0%	0%	\$0.048	1.13	1.13	0.15	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
401	Fan Motor, 5hp, 1800rpm, 89.5%	College	2%	2%	\$0.018	1.13	1.11	0.15	15	0.38	0.05	\$0.082	\$608	0.75	0.59	10.75	1.39	
402	Variable Speed Drive Control, 5 HP	College	28%	8%	\$0.354	1.15	0.82	0.14	15	1.43	0.05	\$0.124	\$3,436	0.42	0.39	16.19	1.18	
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	College	0%	0%	\$0.038	1.05	1.05	0.14	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
411	Fan Motor, 15hp, 1800rpm, 92.4%	College	2%	2%	\$0.010	1.05	1.03	0.14	15	0.17	0.02	\$0.070	\$515	0.88	0.69	9.12	1.39	
412	Variable Speed Drive Control, 15 HP	College	28%	8%	\$0.206	1.22	0.88	0.15	15	1.58	0.06	\$0.068	\$1,878	0.77	0.72	8.85	1.18	
413	Air Handler Optimization, 15 HP	College	9%	3%	\$0.030	1.07	0.97	0.14	8	0.59	0.02	\$0.055	\$1,537	0.94	1.03	4.40	1.18	
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	College	0%	0%	\$0.033	1.03	1.03	0.14	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
421	Fan Motor, 40hp, 1800rpm, 94.1%	College	1%	1%	\$0.009	1.03	1.02	0.14	15	0.05	0.01	\$0.084	\$620	0.73	0.58	10.97	1.39	
422	Variable Speed Drive Control, 40 HP	College	28%	8%	\$0.141	1.20	0.86	0.15	15	0.60	0.02	\$0.047	\$1,304	1.11	1.03	6.14	1.18	
423	Air Handler Optimization, 40 HP	College	9%	3%	\$0.030	1.06	0.96	0.14	8	0.22	0.01	\$0.056	\$1,563	0.93	1.02	4.47	1.18	
610	Base Desktop PC	College	0%	0%	\$0.000	0.10	0.10	0.02	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
611	PC Manual Power Management Enabling	College	68%	45%	\$0.003	0.12	0.04	0.01	4	1.38	0.14	\$0.010	\$105	5.40	6.21	0.45	1.27	
612	PC Network Power Management Enabling	College	68%	45%	\$0.001	0.12	0.04	0.01	4	1.38	0.14	\$0.005	\$52	10.80	12.41	0.22	1.27	
620	Base Monitor, CRT	College	0%	0%	\$0.000	0.10	0.10	0.01	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
621	Energy Star or Better Monitor	College	56%	56%	\$0.000	0.21	0.09	0.01	4	0.18	0.03	\$0.000	\$0	-	-	0.00	N/A	
622	Monitor Power Management Enabling	College	54%	35%	\$0.002	0.15	0.07	0.01	4	0.69	0.07	\$0.010	\$106	5.34	6.14	0.45	1.27	
630	Base Monitor, LCD	College	0%	0%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
631	Energy Star or Better Monitor	College	2%	2%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	N/A	
632	Monitor Power Management Enabling	College	28%	18%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.333	\$3,374	0.17	0.19	14.32	1.27	
640	Base Copier	College	0%	0%	\$0.000	0.02	0.02	0.00	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
641	Energy Star or Better Copier	College	21%	21%	\$0.000	0.02	0.02	0.00	6	0.01	0.00	\$0.000	\$0	-	-	0.00	N/A	
642	Copier Power Management Enabling	College	19%	13%	\$0.001	0.02	0.02	0.00	6	0.06	0.01	\$0.045	\$455	1.24	1.35	2.78	1.27	
650	Base Laser Printer	College	0%	0%	\$0.000	0.07	0.07	0.01	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
651	Printer Power Management Enabling	College	49%	32%	\$0.004	0.09	0.05	0.01	5	0.46	0.05	\$0.026	\$260	2.18	2.43	1.35	1.27	
800	Base Water Heating	College	0%	0%	\$0.000	1.90	1.90	0.23	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
801	Demand controlled circulating systems	College	5%	5%	\$0.004	1.94	1.84	0.23	15	0.29	0.04	\$0.005	\$42	11.51	9.26	0.68	1.37	
803	High Efficiency Water Heater (electric)	College	2%	2%	\$0.003	1.91	1.87	0.23	15	0.22	0.03	\$0.010	\$80	6.09	4.90	1.29	1.37	
804	Hot Water Pipe Insulation	College	2%	2%	\$0.005	1.91	1.88	0.23	15	0.13	0.02	\$0.016	\$131	3.72	3.00	2.11	1.37	
805	Tankless Water Heater	College	10%	10%	\$0.029	1.91	1.72	0.21	20	0.83	0.10	\$0.015	\$118	4.13	3.03	2.21	1.37	
910	Base Vending Machines	College	0%	0%	\$0.000	0.13	0.13	0.02	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
911	Vending Misers (cooled machines only)	College	40%	26%	\$0.006	0.13	0.08	0.02	10	1.04	0.11	\$0.019	\$180	2.97	2.80	1.82	1.31	
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAC	Health	0%	0%	\$0.431	9.05	9.05	1.46	8	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
114	RET 4L4' Premium T8, 1EB	Health	31%	31%	\$0.513	9.20	6.31	1.02	12	11.52	1.85	\$0.018	\$110	3.69	2.57	2.53	1.48	
115	RET 2L4' Premium T8, 1EB, Reflector	Health	66%	66%	\$0.687	9.05	3.10	0.50	12	6.25	1.00	\$0.012	\$77	5.27	3.82	1.65	1.48	
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	Health	17%	20%	\$0.284	9.19	7.61	1.18	7	3.80	0.71	\$0.037	\$198	1.90	1.59	2.62	1.60	
118	Continuous Dimming, 5L4' Fluorescent Fixtures	Health	43%	75%	\$2.954	9.05	5.19	0.36	9	2.03	0.57	\$0.131	\$465	0.65	0.42	11.46	1.94	
120	Lighting Control Tuneup	Health	5%	1%	\$0.014	9.38	8.95	1.49	6	0.23	0.01	\$0.008	\$182	6.88	7.65	0.49	1.24	
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAC	Health	0%	0%	\$0.480	9.05	9.05	1.46	8	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
133	RET 2L4' Premium T8, 1EB	Health	31%	31%	\$0.706	9.20	6.31	1.02	12	20.25	3.26	\$0.026	\$160	2.54	1.82	3.49	1.48	
134	RET 1L4' Premium T8, 1EB, Reflector OEM	Health	64%	64%	\$1.001	9.05	3.23	0.52	12	4.77	0.77	\$0.019	\$120	3.38	2.51	2.46	1.48	
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	Health	17%	20%	\$0.284	9.19	7.61	1.18	7	5.93	1.11	\$0.037	\$198	1.90	1.59	2.62	1.60	
137	Continuous Dimming, 10L4' Fluorescent Fixtures	Health	43%	75%	\$2.954	9.05	5.19	0.36	9	3.17	0.90	\$0.131	\$465	0.65	0.42	11.46	1.94	
139	Lighting Control Tuneup	Health	5%	1%	\$0.014	9.38	8.95	1.49	6	0.36	0.02	\$0.008	\$182	6.88	7.65	0.49	1.24	

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY

Measure Number	Measure	Building Type	Energy	Peak	Total	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Savings Fraction	Reduction Fraction	Costs/ Sq Ft												EU/ EU
160	Base Incandescent Flood, 75W to Screw-in CFL	Health	0%	0%	\$0.286	30.01	30.01	4.83	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
161	CFL Screw-in 18W	Health	72%	72%	\$0.662	65.46	18.33	2.95	1	4.38	0.71	\$0.008	\$47	8.56	8.98	0.15	1.48
165	Base Incandescent Flood, 75W to Hardwired CFL	Health	0%	0%	\$0.286	30.01	30.01	4.83	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
166	CFL Hardwired, Modular 18W	Health	72%	72%	\$3.004	65.46	18.33	2.95	4	1.46	0.24	\$0.023	\$143	2.84	2.75	1.06	1.48
175	Base High Bay Metal Halide, 400W	Health	0%	0%	\$0.988	9.31	9.31	1.50	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
176	High Bay T5	Health	37%	37%	\$1.330	9.49	5.94	0.96	8	0.00	0.00	\$0.045	\$280	1.45	1.08	5.56	1.48
180	Base 4L4'T8, 1EB	Health	0%	0%	\$0.000	5.21	5.21	0.84	12	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
181	ROB 4L4' Premium T8, 1EB	Health	16%	16%	\$0.099	5.25	4.42	0.71	12	2.92	0.47	\$0.015	\$96	4.22	3.36	1.71	1.48
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	Health	20%	20%	\$0.392	5.30	4.24	0.68	7	1.80	0.29	\$0.076	\$475	0.85	0.77	5.39	1.48
183	Lighting Control Tuneup	Health	5%	1%	\$0.014	5.39	5.14	0.86	6	0.09	0.00	\$0.014	\$317	3.96	4.40	0.85	1.24
185	Base 2L4'T8, 1EB	Health	0%	0%	\$0.000	5.21	5.21	0.84	12	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
186	ROB 2L4' Premium T8, 1EB	Health	17%	17%	\$0.089	5.25	4.35	0.70	12	6.48	1.04	\$0.013	\$78	5.17	4.12	1.40	1.48
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	Health	20%	20%	\$0.245	5.30	4.24	0.68	7	3.65	0.59	\$0.048	\$297	1.37	1.23	3.37	1.48
188	Lighting Control Tuneup	Health	5%	1%	\$0.014	5.39	5.14	0.86	6	0.19	0.01	\$0.014	\$317	3.96	4.40	0.85	1.24
190	Base Exit Sign	Health	0%	0%	\$0.000	0.06	0.06	0.01	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
191	LED Exit Sign	Health	81%	81%	\$0.024	0.06	0.01	0.00	16	1.27	0.21	\$0.052	\$323	1.26	0.91	7.08	1.48
220	Base Outdoor Mercury Vapor 400W Lamp	Health	0%	0%	\$0.000	0.38	0.38	0.02	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
221	High Pressure Sodium 250W Lamp	Health	35%	35%	\$0.037	0.43	0.28	0.01	5	2.11	0.10	\$0.064	\$1,296	0.85	0.98	3.34	1.22
222	Outdoor Lighting Controls (Photocell/Timeclock)	Health	23%	0%	\$0.007	0.48	0.37	0.02	5	0.22	0.00	\$0.015	N/A	3.18	4.03	0.81	1.12
300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Health	0%	0%	\$0.762	2.18	2.18	1.52	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Health	12%	12%	\$0.121	1.94	1.71	1.19	20	3.40	2.37	\$0.050	\$72	2.26	0.88	7.64	2.58
302	Window Film (Standard)	Health	1%	1%	\$0.052	2.19	2.17	1.52	10	0.10	0.07	\$0.321	\$459	0.35	0.17	30.13	2.58
303	EMS - Chiller	Health	10%	10%	\$0.208	2.40	2.16	1.51	10	0.26	0.18	\$0.136	\$195	0.83	0.40	12.80	2.58
304	Cool Roof - Chiller	Health	1%	1%	\$0.350	2.18	2.17	1.52	10	0.06	0.05	\$3.972	\$5,687	0.03	0.01	373.00	2.58
305	Chiller Tune Up/Diagnostics	Health	7%	4%	\$0.100	2.26	2.10	1.51	10	0.87	0.34	\$0.099	\$250	0.87	0.55	9.27	1.95
306	VSD for Chiller Pumps and Towers	Health	10%	10%	\$0.145	2.26	2.04	1.42	15	1.52	1.06	\$0.073	\$104	1.57	0.67	9.49	2.58
307	EMS Optimization	Health	4%	1%	\$0.030	2.22	2.13	1.53	5	0.50	0.11	\$0.092	\$435	0.75	0.68	4.84	1.57
308	Economizer	Health	15%	5%	\$0.589	2.50	2.13	1.67	15	0.34	0.07	\$0.179	\$846	0.39	0.27	23.45	1.57
310	Base DX Packaged System, EER=10.3, 10 tons	Health	0%	0%	\$2.328	3.78	3.78	2.64	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
311	DX Tune Up/ Advanced Diagnostics	Health	5%	4%	\$0.125	3.90	3.71	2.62	10	0.15	0.08	\$0.107	\$193	0.94	0.51	10.07	2.29
312	DX Packaged System, EER=10.9, 10 tons	Health	6%	6%	\$0.093	3.26	3.08	2.15	15	0.58	0.41	\$0.059	\$84	1.94	0.82	7.68	2.58
313	Window Film (Standard)	Health	1%	1%	\$0.052	3.80	3.76	2.63	10	0.04	0.03	\$0.185	\$265	0.61	0.29	17.38	2.58
314	Evaporative Pre-Cooler	Health	13%	13%	\$1.016	3.78	3.28	2.29	10	0.40	0.28	\$0.326	\$466	0.35	0.17	30.59	2.58
315	Prog. Thermostat - DX	Health	4%	1%	\$0.071	3.83	3.67	2.64	10	0.26	0.05	\$0.071	\$334	0.98	0.77	6.65	1.57
316	Cool Roof - DX	Health	1%	1%	\$0.350	3.78	3.76	2.63	10	0.03	0.02	\$2.291	\$3,281	0.05	0.02	215.19	2.58
317	Optimize Controls	Health	4%	1%	\$0.040	3.88	3.72	2.68	5	0.13	0.03	\$0.070	\$332	0.99	0.89	3.70	1.57
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	Health	0%	0%	\$0.065	1.76	1.76	0.24	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
401	Fan Motor, 5hp, 1800rpm, 89.5%	Health	2%	2%	\$0.025	1.76	1.72	0.23	15	0.40	0.05	\$0.071	\$528	0.86	0.68	9.34	1.39
402	Variable Speed Drive Control, 5 HP	Health	28%	8%	\$0.478	1.78	1.28	0.22	15	0.86	0.03	\$0.107	\$2,985	0.48	0.45	14.06	1.18
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	Health	0%	0%	\$0.052	1.63	1.63	0.22	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
411	Fan Motor, 15hp, 1800rpm, 92.4%	Health	2%	2%	\$0.013	1.63	1.61	0.22	15	0.24	0.03	\$0.061	\$448	1.01	0.80	7.92	1.39
412	Variable Speed Drive Control, 15 HP	Health	28%	8%	\$0.278	1.75	1.26	0.22	15	3.15	0.11	\$0.064	\$1,766	0.82	0.76	8.32	1.18
413	Air Handler Optimization, 15 HP	Health	9%	3%	\$0.030	1.67	1.51	0.22	8	0.87	0.03	\$0.036	\$989	1.46	1.61	2.83	1.18
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	Health	0%	0%	\$0.045	1.60	1.60	0.22	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
421	Fan Motor, 40hp, 1800rpm, 94.1%	Health	1%	1%	\$0.012	1.60	1.58	0.21	15	0.13	0.02	\$0.073	\$539	0.84	0.66	9.54	1.39
422	Variable Speed Drive Control, 40 HP	Health	28%	8%	\$0.190	1.72	1.24	0.22	15	2.23	0.08	\$0.044	\$1,226	1.18	1.10	5.78	1.18
423	Air Handler Optimization, 40 HP	Health	9%	3%	\$0.030	1.64	1.49	0.22	8	0.60	0.02	\$0.036	\$1,006	1.44	1.58	2.88	1.18
610	Base Desktop PC	Health	0%	0%	\$0.000	0.36	0.36	0.05	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
611	PC Manual Power Management Enabling	Health	68%	45%	\$0.009	0.43	0.14	0.04	4	4.49	0.44	\$0.010	\$105	5.40	6.21	0.45	1.27
612	PC Network Power Management Enabling	Health	68%	45%	\$0.004	0.43	0.14	0.04	4	4.49	0.44	\$0.005	\$52	10.80	12.41	0.22	1.27
620	Base Monitor, CRT	Health	0%	0%	\$0.000	0.35	0.35	0.05	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
621	Energy Star or Better Monitor	Health	56%	56%	\$0.000	0.75	0.33	0.05	4	0.57	0.09	\$0.000	\$0	-	-	0.00	N/A
622	Monitor Power Management Enabling	Health	54%	35%	\$0.008	0.52	0.24	0.05	4	2.25	0.22	\$0.010	\$106	5.34	6.14	0.45	1.27

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY			Energy	Peak	Total		Peak		Technical	System	Levelized Cost	Levelized Cost	Total		Customer	
Measure	Measure	Building	Savings	Reduction	Costs/	Base	Watts/	Service	Potential	Peak Tech.	of Conserved	of Avoided	Resource	Participant	Payback	Revenue
Number		Type	Fraction	Fraction	Sq Ft	EUI	Sq Ft	Life (yrs)	GWH	Potential	Energy	Peak Capacity	Cost Test	Test	(Years)	Test
630	Base Monitor, LCD	Health	0%	0%	\$0.000	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
631	Energy Star or Better Monitor	Health	2%	2%	\$0.000	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	N/A
632	Monitor Power Management Enabling	Health	28%	18%	\$0.000	0.00	0.00	4	0.00	0.00	\$0.333	\$3,374	0.17	0.19	14.32	1.27
640	Base Copier	Health	0%	0%	\$0.000	0.23	0.23	0.03	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A
641	Energy Star or Better Copier	Health	21%	21%	\$0.000	0.28	0.22	0.03	6	0.15	\$0.000	\$0	-	-	0.00	N/A
642	Copier Power Management Enabling	Health	19%	13%	\$0.009	0.24	0.20	0.03	6	0.63	\$0.045	\$455	1.24	1.35	2.78	1.27
650	Base Laser Printer	Health	0%	0%	\$0.000	0.41	0.41	0.06	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A
651	Printer Power Management Enabling	Health	49%	32%	\$0.025	0.55	0.28	0.06	5	2.54	\$0.026	\$260	2.18	2.43	1.35	1.27
800	Base Water Heating	Health	0%	0%	\$0.000	1.98	1.98	0.24	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A
801	Demand controlled circulating systems	Health	5%	5%	\$0.004	2.02	1.92	0.24	15	0.09	\$0.005	\$41	11.99	9.65	0.66	1.37
803	High Efficiency Water Heater (electric)	Health	2%	2%	\$0.003	1.99	1.95	0.24	15	0.07	\$0.010	\$80	6.09	4.90	1.29	1.37
804	Hot Water Pipe Insulation	Health	2%	2%	\$0.006	1.99	1.95	0.24	15	0.04	\$0.016	\$131	3.72	3.00	2.11	1.37
805	Tankless Water Heater	Health	10%	10%	\$0.030	1.99	1.79	0.22	20	0.26	\$0.015	\$118	4.13	3.03	2.21	1.37
910	Base Vending Machines	Health	0%	0%	\$0.000	0.11	0.11	0.02	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A
911	Vending Misers (cooled machines only)	Health	40%	26%	\$0.005	0.11	0.06	0.01	10	0.80	\$0.019	\$180	2.97	2.80	1.82	1.31
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAG	Hotel	0%	0%	\$0.314	3.21	3.21	0.52	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A
114	RET 4L4' Premium T8, 1EB	Hotel	31%	31%	\$0.373	3.26	2.23	0.36	26	4.79	\$0.033	\$202	1.81	1.22	5.49	1.48
115	RET 2L4' Premium T8, 1EB, Reflector	Hotel	66%	66%	\$0.500	3.21	1.10	0.18	26	2.60	\$0.021	\$132	2.78	1.87	3.58	1.48
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	Hotel	17%	20%	\$0.207	3.25	2.69	0.42	15	0.63	\$0.043	\$229	1.64	1.13	5.61	1.60
118	Continuous Dimming, 5L4' Fluorescent Fixtures	Hotel	43%	75%	\$2.150	3.21	1.84	0.13	18	2.53	\$0.158	\$558	0.54	0.29	22.92	1.94
120	Lighting Control Tuneup	Hotel	5%	1%	\$0.014	3.32	3.17	0.53	6	0.09	\$0.022	\$514	2.44	2.71	1.38	1.24
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAG	Hotel	0%	0%	\$0.350	3.21	3.21	0.52	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A
133	RET 2L4' Premium T8, 1EB	Hotel	31%	31%	\$0.514	3.26	2.23	0.36	26	1.27	\$0.045	\$278	1.31	0.89	7.56	1.48
134	RET 1L4' Premium T8, 1EB, Reflector OEM	Hotel	64%	64%	\$0.729	3.21	1.15	0.18	26	0.30	\$0.032	\$196	1.86	1.26	5.33	1.48
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	Hotel	17%	20%	\$0.207	3.25	2.69	0.42	15	0.15	\$0.043	\$229	1.64	1.13	5.61	1.60
137	Continuous Dimming, 10L4' Fluorescent Fixtures	Hotel	43%	75%	\$2.150	3.21	1.84	0.13	18	0.60	\$0.158	\$558	0.54	0.29	22.92	1.94
139	Lighting Control Tuneup	Hotel	5%	1%	\$0.014	3.32	3.17	0.53	6	0.02	\$0.022	\$514	2.44	2.71	1.38	1.24
160	Base Incandescent Flood, 75W to Screw-in CFL	Hotel	0%	0%	\$0.208	10.63	10.63	1.71	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A
161	CFL Screw-in 18W	Hotel	72%	72%	\$0.482	19.38	5.43	0.87	3	16.35	\$0.011	\$65	6.21	5.88	0.53	1.48
165	Base Incandescent Flood, 75W to Hardwired CFL	Hotel	0%	0%	\$0.208	10.63	10.63	1.71	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A
166	CFL Hardwired, Modular 18W	Hotel	72%	72%	\$2.186	19.38	5.43	0.87	7	5.45	\$0.030	\$186	2.18	1.94	2.22	1.48
175	Base High Bay Metal Halide, 400W	Hotel	0%	0%	\$0.719	3.30	3.30	0.53	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A
176	High Bay T5	Hotel	37%	37%	\$0.968	3.36	2.11	0.34	16	0.57	\$0.075	\$468	0.87	0.60	11.11	1.48
180	Base 4L4'T8, 1EB	Hotel	0%	0%	\$0.000	1.84	1.84	0.30	26	0.00	0.00	N/A	N/A	N/A	N/A	N/A
181	ROB 4L4' Premium T8, 1EB	Hotel	16%	16%	\$0.072	1.86	1.57	0.25	26	0.15	\$0.022	\$136	2.68	1.81	3.70	1.48
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	Hotel	20%	20%	\$0.285	1.88	1.50	0.24	15	0.04	\$0.088	\$549	0.74	0.55	11.55	1.48
183	Lighting Control Tuneup	Hotel	5%	1%	\$0.014	1.91	1.82	0.30	6	0.00	\$0.039	\$894	1.40	1.56	2.41	1.24
185	Base 2L4'T8, 1EB	Hotel	0%	0%	\$0.000	1.84	1.84	0.30	26	0.00	0.00	N/A	N/A	N/A	N/A	N/A
186	ROB 2L4' Premium T8, 1EB	Hotel	17%	17%	\$0.064	1.86	1.54	0.25	26	0.74	\$0.018	\$111	3.28	2.21	3.03	1.48
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	Hotel	20%	20%	\$0.178	1.88	1.50	0.24	15	0.17	\$0.055	\$343	1.18	0.88	7.22	1.48
188	Lighting Control Tuneup	Hotel	5%	1%	\$0.014	1.91	1.82	0.30	6	0.02	\$0.039	\$894	1.40	1.56	2.41	1.24
190	Base Exit Sign	Hotel	0%	0%	\$0.000	0.03	0.03	0.01	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A
191	LED Exit Sign	Hotel	81%	81%	\$0.014	0.04	0.01	0.00	16	0.72	\$0.048	\$301	1.35	0.98	6.59	1.48
220	Base Outdoor Mercury Vapor 400W Lamp	Hotel	0%	0%	\$0.000	0.68	0.68	0.03	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A
221	High Pressure Sodium 250W Lamp	Hotel	35%	35%	\$0.063	0.78	0.51	0.02	5	3.77	\$0.060	\$1,218	0.90	1.04	3.14	1.22
222	Outdoor Lighting Controls (Photocell/Timeclock)	Hotel	23%	0%	\$0.011	0.87	0.66	0.04	5	0.39	\$0.015	N/A	3.39	4.29	0.76	1.12
300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Hotel	0%	0%	\$0.613	2.18	2.18	1.52	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Hotel	12%	12%	\$0.097	1.95	1.71	1.20	20	1.64	\$0.040	\$58	2.82	1.09	6.13	2.58
302	Window Film (Standard)	Hotel	7%	7%	\$0.052	2.23	2.08	1.45	10	0.55	\$0.053	\$75	2.16	1.03	4.94	2.58
303	EMS - Chiller	Hotel	10%	10%	\$0.167	2.40	2.16	1.51	10	0.13	\$0.109	\$157	1.04	0.50	10.27	2.58
304	Cool Roof - Chiller	Hotel	0%	0%	\$0.350	2.18	2.17	1.52	10	0.03	\$0.435	N/A	0.02	0.01	604.33	2.58
305	Chiller Tune Up/Diagnostics	Hotel	7%	4%	\$0.100	2.26	2.10	1.52	10	0.42	\$0.099	\$249	0.87	0.55	9.26	1.95
306	VSD for Chiller Pumps and Towers	Hotel	10%	10%	\$0.117	2.27	2.04	1.43	15	0.73	\$0.058	\$83	1.95	0.83	7.62	2.58

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																			
Measure Number	Measure	Building Type	Energy Savings	Peak Reduction	Total Costs/ Sq Ft	Base	Peak	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue				
			Fraction	Fraction	Costs/ Sq Ft	EUI	Watts/ Sq Ft	Potential	Peak Tech.	of Conserved	of Avoided	Resource				Test	Payback	Test	
307	EMS Optimization	Hotel	4%	1%	\$0.030	2.23	2.14	1.54	5	0.24	0.05	\$0.092	\$434	0.75	0.68	4.83	1.57		
308	Economizer	Hotel	35%	11%	\$0.474	3.16	2.04	1.97	15	0.49	0.10	\$0.048	\$225	1.45	1.01	6.25	1.57		
310	Base DX Packaged System, EER=10.3, 10 tons	Hotel	0%	0%	\$1.872	3.78	3.78	2.64	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
311	DX Tune Up/ Advanced Diagnostics	Hotel	5%	4%	\$0.125	3.91	3.72	2.63	10	0.69	0.38	\$0.107	\$192	0.94	0.51	10.05	2.29		
312	DX Packaged System, EER=10.9, 10 tons	Hotel	6%	6%	\$0.075	3.27	3.09	2.16	15	2.73	1.91	\$0.047	\$67	2.41	1.03	6.16	2.58		
313	Window Film (Standard)	Hotel	7%	7%	\$0.052	3.87	3.60	2.51	10	2.07	1.44	\$0.030	\$43	3.75	1.79	2.85	2.58		
314	Evaporative Pre-Cooler	Hotel	13%	13%	\$0.817	3.78	3.29	2.30	10	1.87	1.30	\$0.261	\$374	0.43	0.21	24.56	2.58		
315	Prog. Thermostat - DX	Hotel	4%	1%	\$0.057	3.83	3.68	2.64	10	1.20	0.26	\$0.057	\$268	1.22	0.96	5.34	1.57		
316	Cool Roof - DX	Hotel	0%	0%	\$0.350	3.78	3.77	2.63	10	0.11	0.00	\$3.713	N/A	0.03	0.01	348.65	2.58		
317	Optimize Controls	Hotel	4%	1%	\$0.040	3.89	3.73	2.68	5	0.60	0.13	\$0.070	\$331	0.99	0.89	3.69	1.57		
318	Economizer	Hotel	3%	1%	\$0.474	3.84	3.72	2.66	15	0.50	0.11	\$0.422	\$1,994	0.16	0.11	55.26	1.57		
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	Hotel	0%	0%	\$0.063	0.67	0.67	0.09	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
401	Fan Motor, 5hp, 1800rpm, 89.5%	Hotel	2%	2%	\$0.024	0.67	0.65	0.09	15	0.30	0.04	\$0.182	\$1,345	0.34	0.27	23.79	1.39		
402	Variable Speed Drive Control, 5 HP	Hotel	28%	8%	\$0.464	0.68	0.49	0.08	15	0.13	0.00	\$0.274	\$7,604	0.19	0.18	35.82	1.18		
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	Hotel	0%	0%	\$0.050	0.62	0.62	0.08	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
411	Fan Motor, 15hp, 1800rpm, 92.4%	Hotel	2%	2%	\$0.013	0.62	0.61	0.08	15	0.05	0.01	\$0.154	\$1,140	0.40	0.31	20.18	1.39		
412	Variable Speed Drive Control, 15 HP	Hotel	28%	8%	\$0.270	0.67	0.48	0.08	15	0.05	0.00	\$0.162	\$4,497	0.32	0.30	21.19	1.18		
413	Air Handler Optimization, 15 HP	Hotel	9%	3%	\$0.030	0.64	0.58	0.08	8	0.18	0.01	\$0.094	\$2,597	0.56	0.61	7.43	1.18		
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	Hotel	0%	0%	\$0.043	0.61	0.61	0.08	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
421	Fan Motor, 40hp, 1800rpm, 94.1%	Hotel	1%	1%	\$0.012	0.61	0.60	0.08	15	0.01	0.00	\$0.186	\$1,373	0.33	0.26	24.29	1.39		
422	Variable Speed Drive Control, 40 HP	Hotel	28%	8%	\$0.184	0.66	0.47	0.08	15	0.08	0.00	\$0.112	\$3,123	0.46	0.43	14.71	1.18		
423	Air Handler Optimization, 40 HP	Hotel	9%	3%	\$0.030	0.63	0.57	0.08	8	0.06	0.00	\$0.095	\$2,641	0.55	0.60	7.55	1.18		
610	Base Desktop PC	Hotel	0%	0%	\$0.000	0.03	0.03	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
611	PC Manual Power Management Enabling	Hotel	68%	45%	\$0.001	0.04	0.01	0.00	4	0.39	0.04	\$0.010	\$105	5.40	6.21	0.45	1.27		
612	PC Network Power Management Enabling	Hotel	68%	45%	\$0.000	0.04	0.01	0.00	4	0.39	0.04	\$0.005	\$52	10.80	12.41	0.22	1.27		
620	Base Monitor, CRT	Hotel	0%	0%	\$0.000	0.03	0.03	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
621	Energy Star or Better Monitor	Hotel	56%	56%	\$0.000	0.07	0.03	0.00	4	0.05	0.01	\$0.000	\$0	-	-	0.00	N/A		
622	Monitor Power Management Enabling	Hotel	54%	35%	\$0.001	0.04	0.02	0.00	4	0.20	0.02	\$0.010	\$106	5.34	6.14	0.45	1.27		
630	Base Monitor, LCD	Hotel	0%	0%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
631	Energy Star or Better Monitor	Hotel	2%	2%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	N/A		
632	Monitor Power Management Enabling	Hotel	28%	18%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.333	\$3,374	0.17	0.19	14.32	1.27		
640	Base Copier	Hotel	0%	0%	\$0.000	0.02	0.02	0.00	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
641	Energy Star or Better Copier	Hotel	21%	21%	\$0.000	0.02	0.01	0.00	6	0.01	0.00	\$0.000	\$0	-	-	0.00	N/A		
642	Copier Power Management Enabling	Hotel	19%	13%	\$0.001	0.02	0.01	0.00	6	0.04	0.00	\$0.045	\$455	1.24	1.35	2.78	1.27		
650	Base Laser Printer	Hotel	0%	0%	\$0.000	0.04	0.04	0.01	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
651	Printer Power Management Enabling	Hotel	49%	32%	\$0.002	0.05	0.03	0.01	5	0.24	0.02	\$0.026	\$260	2.18	2.43	1.35	1.27		
800	Base Water Heating	Hotel	0%	0%	\$0.000	2.83	2.83	0.35	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
801	Demand controlled circulating systems	Hotel	5%	5%	\$0.011	2.88	2.74	0.34	15	0.64	0.08	\$0.009	\$71	6.85	5.51	1.15	1.37		
803	High Efficiency Water Heater (electric)	Hotel	2%	2%	\$0.005	2.84	2.78	0.34	15	0.49	0.06	\$0.010	\$80	6.09	4.90	1.29	1.37		
804	Hot Water Pipe Insulation	Hotel	2%	2%	\$0.008	2.85	2.79	0.34	15	0.29	0.04	\$0.016	\$131	3.72	3.00	2.11	1.37		
805	Tankless Water Heater	Hotel	10%	10%	\$0.043	2.85	2.56	0.32	20	1.83	0.23	\$0.015	\$118	4.13	3.03	2.21	1.37		
910	Base Vending Machines	Hotel	0%	0%	\$0.000	0.19	0.19	0.03	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
911	Vending Misers (cooled machines only)	Hotel	40%	26%	\$0.009	0.23	0.14	0.03	10	0.94	0.10	\$0.016	\$146	3.67	3.46	1.47	1.31		
110	Base Fluorescent Fixture, 4L4'T12, 34W, 2EEMAC	Miscellaneous	0%	0%	\$0.440	4.45	4.45	0.72	17	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
114	RET 4L4' Premium T8, 1EB	Miscellaneous	31%	31%	\$0.523	4.52	3.10	0.50	26	162.58	26.15	\$0.033	\$202	1.81	1.22	5.49	1.48		
115	RET 2L4' Premium T8, 1EB, Reflector	Miscellaneous	66%	66%	\$0.701	4.45	1.53	0.25	26	88.12	14.18	\$0.021	\$132	2.78	1.87	3.58	1.48		
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	Miscellaneous	17%	20%	\$0.289	4.52	3.74	0.58	15	21.43	4.01	\$0.043	\$229	1.64	1.13	5.61	1.60		
118	Continuous Dimming, 5L4' Fluorescent Fixtures	Miscellaneous	43%	75%	\$3.014	4.45	2.55	0.18	18	85.89	24.27	\$0.158	\$558	0.54	0.29	22.92	1.94		
120	Lighting Control Tuneup	Miscellaneous	5%	1%	\$0.014	4.61	4.40	0.73	6	2.00	0.09	\$0.016	\$370	3.38	3.76	1.00	1.24		
130	Base Fluorescent Fixture, 2L4'T12, 34W, 1EEMAC	Miscellaneous	0%	0%	\$0.490	4.45	4.45	0.72	17	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
133	RET 2L4' Premium T8, 1EB	Miscellaneous	31%	31%	\$0.720	4.52	3.10	0.50	26	31.01	4.99	\$0.045	\$278	1.31	0.89	7.56	1.48		
134	RET 1L4' Premium T8, 1EB, Reflector OEM	Miscellaneous	64%	64%	\$1.022	4.45	1.59	0.26	26	7.31	1.18	\$0.032	\$196	1.86	1.26	5.33	1.48		
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	Miscellaneous	17%	20%	\$0.289	4.52	3.74	0.58	15	3.63	0.68	\$0.043	\$229	1.64	1.13	5.61	1.60		

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EU	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
137	Continuous Dimming, 10L4' Fluorescent Fixtures	Miscellaneous	43%	75%	\$3.014	4.45	2.55	0.18	18	14.56	4.11	\$0.158	\$558	0.54	0.29	22.92	1.94
139	Lighting Control Tuneup	Miscellaneous	5%	1%	\$0.014	4.61	4.40	0.73	6	0.34	0.01	\$0.016	\$370	3.38	3.76	1.00	1.24
150	Base Fluorescent Fixture, 2L8'T12, 60W, 1EEMAG	Miscellaneous	0%	0%	\$0.650	4.45	4.45	0.72	17	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
152	RET 2 - 2L4' Premium T8, 1EB	Miscellaneous	27%	27%	\$0.843	4.51	3.30	0.53	26	12.24	1.97	\$0.062	\$382	0.96	0.64	10.39	1.48
153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	Miscellaneous	63%	63%	\$1.196	4.45	1.63	0.26	26	12.89	2.07	\$0.037	\$233	1.57	1.06	6.32	1.48
155	Occupancy Sensor, 4L8' Fluorescent Fixtures	Miscellaneous	17%	20%	\$0.339	4.52	3.74	0.58	15	2.17	0.41	\$0.050	\$268	1.41	0.96	6.57	1.60
156	Continuous Dimming, 5L8' Fluorescent Fixtures	Miscellaneous	43%	75%	\$3.525	4.45	2.55	0.18	18	8.68	2.45	\$0.185	\$653	0.46	0.25	26.81	1.94
160	Base Incandescent Flood, 75W to Screw-in CFL	Miscellaneous	0%	0%	\$0.292	14.75	14.75	2.37	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
161	CFL Screw-in 18W	Miscellaneous	72%	72%	\$0.676	14.95	4.18	0.67	3	290.91	46.80	\$0.019	\$118	3.45	3.27	0.95	1.48
165	Base Incandescent Flood, 75W to Hardwired CFL	Miscellaneous	0%	0%	\$0.292	14.75	14.75	2.37	1	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
166	CFL Hardwired, Modular 18W	Miscellaneous	72%	72%	\$3.065	14.95	4.18	0.67	7	96.97	15.60	\$0.054	\$334	1.21	1.08	4.00	1.48
175	Base High Bay Metal Halide, 400W	Miscellaneous	0%	0%	\$1.008	4.58	4.58	0.74	9	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
176	High Bay T5	Miscellaneous	37%	37%	\$1.357	4.66	2.92	0.47	17	20.17	3.24	\$0.079	\$492	0.82	0.56	11.81	1.48
180	Base 4L4'T8, 1EB	Miscellaneous	0%	0%	\$0.000	2.56	2.56	0.41	26	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
181	ROB 4L4' Premium T8, 1EB	Miscellaneous	16%	16%	\$0.101	2.58	2.17	0.35	26	2.57	0.41	\$0.022	\$136	2.68	1.81	3.70	1.48
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	Miscellaneous	20%	20%	\$0.399	2.60	2.08	0.33	15	0.63	0.10	\$0.088	\$549	0.74	0.55	11.55	1.48
183	Lighting Control Tuneup	Miscellaneous	5%	1%	\$0.014	2.65	2.53	0.42	6	0.05	0.00	\$0.028	\$644	1.95	2.16	1.74	1.24
185	Base 2L4'T8, 1EB	Miscellaneous	0%	0%	\$0.000	2.56	2.56	0.41	26	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
186	ROB 2L4' Premium T8, 1EB	Miscellaneous	17%	17%	\$0.090	2.58	2.14	0.34	26	6.41	1.03	\$0.018	\$111	3.28	2.21	3.03	1.48
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	Miscellaneous	20%	20%	\$0.250	2.60	2.08	0.33	15	1.45	0.23	\$0.055	\$343	1.18	0.88	7.22	1.48
188	Lighting Control Tuneup	Miscellaneous	5%	1%	\$0.014	2.65	2.53	0.42	6	0.12	0.01	\$0.028	\$644	1.95	2.16	1.74	1.24
190	Base Exit Sign	Miscellaneous	0%	0%	\$0.000	0.02	0.02	0.00	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
191	LED Exit Sign	Miscellaneous	81%	81%	\$0.007	0.02	0.00	0.00	16	3.90	0.63	\$0.052	\$325	1.25	0.91	7.12	1.48
220	Base Outdoor Mercury Vapor 400W Lamp	Miscellaneous	0%	0%	\$0.000	1.15	1.15	0.06	5	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
221	High Pressure Sodium 250W Lamp	Miscellaneous	35%	35%	\$0.110	1.31	0.85	0.04	5	10.88	0.53	\$0.061	\$1,250	0.88	1.02	3.22	1.22
222	Outdoor Lighting Controls (Photocell/Timeclock)	Miscellaneous	23%	0%	\$0.020	1.46	1.12	0.07	5	1.12	0.00	\$0.015	N/A	3.30	4.18	0.78	1.12
300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	Miscellaneous	0%	0%	\$0.848	1.61	1.61	1.12	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Miscellaneous	12%	12%	\$0.135	1.44	1.26	0.88	20	6.63	4.63	\$0.076	\$108	1.50	0.58	11.50	2.58
302	Window Film (Standard)	Miscellaneous	2%	2%	\$0.087	1.62	1.58	1.10	10	0.95	0.66	\$0.345	\$493	0.33	0.16	32.35	2.58
303	EMS - Chiller	Miscellaneous	10%	10%	\$0.231	1.77	1.60	1.11	10	0.51	0.36	\$0.205	\$294	0.55	0.26	19.27	2.58
304	Cool Roof - Chiller	Miscellaneous	13%	13%	\$0.350	1.63	1.41	0.99	10	3.72	2.60	\$0.262	\$375	0.43	0.21	24.57	2.58
305	Chiller Tune Up/Diagnostics	Miscellaneous	7%	4%	\$0.100	1.67	1.55	1.12	10	1.69	0.67	\$0.134	\$338	0.64	0.41	12.55	1.95
306	VSD for Chiller Pumps and Towers	Miscellaneous	10%	10%	\$0.162	1.67	1.51	1.05	15	2.96	2.07	\$0.109	\$156	1.04	0.44	14.30	2.58
307	EMS Optimization	Miscellaneous	4%	1%	\$0.030	1.64	1.58	1.13	5	0.97	0.21	\$0.125	\$588	0.56	0.50	6.55	1.57
310	Base DX Packaged System, EER=10.3, 10 tons	Miscellaneous	0%	0%	\$2.591	2.79	2.79	1.95	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
311	DX Tune Up/ Advanced Diagnostics	Miscellaneous	5%	4%	\$0.125	2.88	2.74	1.94	10	5.62	3.13	\$0.145	\$261	0.69	0.37	13.63	2.29
312	DX Packaged System, EER=10.9, 10 tons	Miscellaneous	6%	6%	\$0.104	2.41	2.28	1.59	15	22.21	15.51	\$0.088	\$127	1.29	0.55	11.56	2.58
313	Window Film (Standard)	Miscellaneous	2%	2%	\$0.087	2.80	2.73	1.91	10	7.18	5.01	\$0.199	\$285	0.57	0.27	18.66	2.58
314	Evaporative Pre-Cooler	Miscellaneous	13%	13%	\$1.130	2.79	2.43	1.70	10	15.17	10.60	\$0.491	\$702	0.23	0.11	46.08	2.58
315	Prog. Thermostat - DX	Miscellaneous	4%	1%	\$0.079	2.83	2.71	1.95	10	9.79	2.07	\$0.107	\$504	0.65	0.51	10.02	1.57
316	Cool Roof - DX	Miscellaneous	13%	13%	\$0.350	2.82	2.45	1.71	10	28.22	19.71	\$0.151	\$216	0.75	0.36	14.18	2.58
317	Optimize Controls	Miscellaneous	4%	1%	\$0.040	2.87	2.75	1.98	5	4.90	1.04	\$0.095	\$449	0.73	0.65	5.00	1.57
318	Economizer	Miscellaneous	3%	1%	\$0.655	2.80	2.71	1.93	15	7.00	1.48	\$0.803	\$3,790	0.09	0.06	105.04	1.57
400	Base Fan Motor, 5hp, 1800rpm, 87.5%	Miscellaneous	0%	0%	\$0.063	1.25	1.25	0.17	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
401	Fan Motor, 5hp, 1800rpm, 89.5%	Miscellaneous	2%	2%	\$0.024	1.25	1.22	0.17	15	3.99	0.54	\$0.098	\$721	0.63	0.50	12.76	1.39
402	Variable Speed Drive Control, 5 HP	Miscellaneous	28%	8%	\$0.465	1.27	0.91	0.16	15	5.05	0.18	\$0.147	\$4,079	0.35	0.33	19.22	1.18
410	Base Fan Motor, 15hp, 1800rpm, 91.0%	Miscellaneous	0%	0%	\$0.050	1.16	1.16	0.16	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
411	Fan Motor, 15hp, 1800rpm, 92.4%	Miscellaneous	2%	2%	\$0.013	1.16	1.14	0.15	15	0.87	0.12	\$0.083	\$612	0.74	0.58	10.82	1.39
412	Variable Speed Drive Control, 15 HP	Miscellaneous	28%	8%	\$0.270	1.25	0.90	0.16	15	4.55	0.16	\$0.087	\$2,413	0.60	0.56	11.36	1.18
413	Air Handler Optimization, 15 HP	Miscellaneous	9%	3%	\$0.030	1.19	1.08	0.16	8	3.11	0.11	\$0.050	\$1,389	1.04	1.15	3.97	1.18
420	Base Fan Motor, 40hp, 1800rpm, 93.0%	Miscellaneous	0%	0%	\$0.044	1.14	1.14	0.15	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
421	Fan Motor, 40hp, 1800rpm, 94.1%	Miscellaneous	1%	1%	\$0.012	1.14	1.13	0.15	15	0.18	0.02	\$0.100	\$736	0.62	0.49	13.03	1.39
422	Variable Speed Drive Control, 40 HP	Miscellaneous	28%	8%	\$0.185	1.23	0.88	0.15	15	1.87	0.07	\$0.060	\$1,675	0.86	0.80	7.89	1.18

APPENDIX F

COMMERCIAL EXISTING CONSTRUCTION

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Sq Ft	Base EUI	Peak Watts/ Sq Ft	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWH	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
423	Air Handler Optimization, 40 HP	Miscellaneous	9%	3%	\$0.030	1.17	1.06	0.15	8	0.81	0.03	\$0.051	\$1,412	1.02	1.13	4.04	1.18
610	Base Desktop PC	Miscellaneous	0%	0%	\$0.000	0.47	0.47	0.07	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
611	PC Manual Power Management Enabling	Miscellaneous	68%	45%	\$0.012	0.57	0.18	0.05	4	58.03	5.73	\$0.010	\$105	5.40	6.21	0.45	1.27
612	PC Network Power Management Enabling	Miscellaneous	68%	45%	\$0.006	0.57	0.18	0.05	4	58.03	5.73	\$0.005	\$52	10.80	12.41	0.22	1.27
620	Base Monitor, CRT	Miscellaneous	0%	0%	\$0.000	0.46	0.46	0.07	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
621	Energy Star or Better Monitor	Miscellaneous	56%	56%	\$0.000	0.99	0.43	0.07	4	7.38	1.11	\$0.000	\$0	-	-	0.00	N/A
622	Monitor Power Management Enabling	Miscellaneous	54%	35%	\$0.011	0.68	0.31	0.07	4	29.07	2.87	\$0.010	\$106	5.34	6.14	0.45	1.27
630	Base Monitor, LCD	Miscellaneous	0%	0%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
631	Energy Star or Better Monitor	Miscellaneous	2%	2%	\$0.000	0.00	0.00	0.00	4	0.00	0.00	\$0.000	\$0	-	-	0.00	N/A
632	Monitor Power Management Enabling	Miscellaneous	28%	18%	\$0.001	0.00	0.00	0.00	4	0.05	0.00	\$0.333	\$3,374	0.17	0.19	14.32	1.27
640	Base Copier	Miscellaneous	0%	0%	\$0.000	0.24	0.24	0.04	6	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
641	Energy Star or Better Copier	Miscellaneous	21%	21%	\$0.000	0.30	0.24	0.04	6	1.65	0.25	\$0.000	\$0	-	-	0.00	N/A
642	Copier Power Management Enabling	Miscellaneous	19%	13%	\$0.010	0.26	0.21	0.03	6	6.76	0.67	\$0.045	\$455	1.24	1.35	2.78	1.27

APPENDIX F

COMMERCIAL NEW CONSTRUCTION

NON-ADDITIVE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY

Measure Number	Measure	Building Type	Energy	Peak	Total	Base	Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Participant	Customer	Revenue	
			Savings Fraction	Reduction Fraction	Costs/ Sq Ft												EU/ EU
100	Base Lighting	Office	0%	0%	\$0.000	5.68	5.68	0.97	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
101	Lighting 15% More Efficient Design	Office	15%	15%	\$0.100	5.68	4.83	0.82	20	5.66	0.96	\$0.011	\$67	5.72	3.86	1.73	1.48
102	Lighting 25% More Efficient Design	Office	25%	25%	\$0.250	5.68	4.26	0.73	20	7.94	1.35	\$0.017	\$100	3.82	2.57	2.60	1.48
300	Base Cooling and Ventilation	Office	0%	0%	\$0.000	4.47	4.47	2.45	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Cooling & Ventilation 10% More Efficient Design	Office	10%	10%	\$0.100	4.47	4.02	2.20	20	0.71	0.39	\$0.022	\$40	4.52	2.02	3.31	2.23
302	Cooling & Ventilation 30% More Efficient Design	Office	30%	30%	\$0.500	4.47	3.13	1.71	20	1.91	1.05	\$0.036	\$66	2.71	1.21	5.52	2.23
100	Base Lighting	Restaurant	0%	0%	\$0.000	1.60	1.60	0.26	28	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Lighting 15% More Efficient Design	Restaurant	15%	15%	\$0.100	1.60	1.36	0.22	20	0.22	0.04	\$0.041	\$252	1.61	1.09	6.16	1.48
102	Lighting 25% More Efficient Design	Restaurant	25%	25%	\$0.250	1.60	1.20	0.19	20	0.31	0.05	\$0.061	\$378	1.07	0.72	9.25	1.48
100	Base Lighting	Retail	0%	0%	\$0.000	2.63	2.63	0.42	27	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Lighting 15% More Efficient Design	Retail	15%	15%	\$0.100	2.63	2.23	0.36	20	2.34	0.38	\$0.025	\$153	2.65	1.79	3.75	1.48
102	Lighting 25% More Efficient Design	Retail	25%	25%	\$0.250	2.63	1.97	0.32	20	3.28	0.53	\$0.037	\$230	1.76	1.19	5.62	1.48
300	Base Cooling and Ventilation	Retail	0%	0%	\$0.000	3.21	3.21	2.24	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Cooling & Ventilation 10% More Efficient Design	Retail	10%	10%	\$0.100	3.21	2.89	2.02	20	0.03	0.02	\$0.030	\$43	3.75	1.45	4.61	2.58
302	Cooling & Ventilation 30% More Efficient Design	Retail	30%	30%	\$0.500	3.21	2.24	1.57	20	0.07	0.05	\$0.051	\$72	2.25	0.87	7.68	2.58
100	Base Lighting	FoodStore	0%	0%	\$0.000	5.18	5.18	0.83	16	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Lighting 15% More Efficient Design	FoodStore	15%	15%	\$0.100	5.18	4.40	0.71	20	0.58	0.09	\$0.013	\$78	5.22	3.52	1.90	1.48
102	Lighting 25% More Efficient Design	FoodStore	25%	25%	\$0.250	5.18	3.88	0.62	20	0.81	0.13	\$0.019	\$117	3.48	2.35	2.85	1.48
500	Base Refrigeration System	FoodStore	0%	0%	\$0.000	23.29	23.29	2.77	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
501	Refrigeration 10% More Efficient Design	FoodStore	10%	10%	\$0.500	23.41	21.07	2.51	10	1.75	0.21	\$0.034	\$283	1.76	1.62	3.16	1.34
502	Refrigeration 20% More Efficient Design	FoodStore	20%	20%	\$1.500	24.78	19.83	2.36	10	2.72	0.32	\$0.048	\$400	1.24	1.14	4.47	1.34
100	Base Lighting	Warehouse	0%	0%	\$0.000	1.61	1.61	0.26	25	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Lighting 15% More Efficient Design	Warehouse	15%	15%	\$0.100	1.61	1.37	0.22	20	0.80	0.13	\$0.040	\$250	1.62	1.09	6.12	1.48
102	Lighting 25% More Efficient Design	Warehouse	25%	25%	\$0.250	1.61	1.21	0.19	20	1.12	0.18	\$0.060	\$375	1.08	0.73	9.18	1.48
100	Base Lighting	School	0%	0%	\$0.000	3.37	3.37	0.54	28	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Lighting 15% More Efficient Design	School	15%	15%	\$0.100	3.37	2.86	0.46	20	0.94	0.15	\$0.019	\$120	3.39	2.29	2.92	1.48
102	Lighting 25% More Efficient Design	School	25%	25%	\$0.250	3.37	2.53	0.41	20	1.32	0.21	\$0.029	\$179	2.26	1.53	4.39	1.48
300	Base Cooling and Ventilation	School	0%	0%	\$0.000	4.21	4.21	2.94	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Cooling & Ventilation 10% More Efficient Design	School	10%	10%	\$0.100	4.21	3.79	2.65	20	0.18	0.13	\$0.023	\$33	4.92	1.91	3.51	2.58
302	Cooling & Ventilation 30% More Efficient Design	School	30%	30%	\$0.500	4.21	2.95	2.06	20	0.50	0.35	\$0.038	\$55	2.95	1.14	5.85	2.58
100	Base Lighting	College	0%	0%	\$0.000	2.64	2.64	0.42	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Lighting 15% More Efficient Design	College	15%	15%	\$0.100	2.64	2.24	0.36	20	0.40	0.06	\$0.025	\$153	2.66	1.79	3.73	1.48
102	Lighting 25% More Efficient Design	College	25%	25%	\$0.250	2.64	1.98	0.32	20	0.56	0.09	\$0.037	\$229	1.77	1.20	5.60	1.48
300	Base Cooling and Ventilation	College	0%	0%	\$0.000	4.21	4.21	2.94	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Cooling & Ventilation 10% More Efficient Design	College	10%	10%	\$0.100	4.21	3.79	2.65	20	0.08	0.05	\$0.023	\$33	4.92	1.91	3.51	2.58
302	Cooling & Ventilation 30% More Efficient Design	College	30%	30%	\$0.500	4.21	2.95	2.06	20	0.21	0.15	\$0.038	\$55	2.95	1.15	5.85	2.58
100	Base Lighting	Health	0%	0%	\$0.000	5.21	5.21	0.84	12	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Lighting 15% More Efficient Design	Health	15%	15%	\$0.100	5.21	4.43	0.71	20	0.72	0.12	\$0.012	\$77	5.24	3.54	1.89	1.48
102	Lighting 25% More Efficient Design	Health	25%	25%	\$0.250	5.21	3.90	0.63	20	1.01	0.16	\$0.019	\$116	3.50	2.36	2.84	1.48
300	Base Cooling and Ventilation	Health	0%	0%	\$0.000	3.95	3.95	2.76	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Cooling & Ventilation 10% More Efficient Design	Health	10%	10%	\$0.100	3.95	3.56	2.49	20	0.21	0.14	\$0.025	\$35	4.62	1.79	3.74	2.58
302	Cooling & Ventilation 30% More Efficient Design	Health	30%	30%	\$0.500	3.95	2.77	1.93	20	0.55	0.39	\$0.041	\$59	2.77	1.07	6.23	2.58
100	Base Lighting	Hotel	0%	0%	\$0.000	1.84	1.84	0.30	26	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Lighting 15% More Efficient Design	Hotel	15%	15%	\$0.100	1.84	1.57	0.25	20	0.26	0.04	\$0.035	\$218	1.86	1.25	5.34	1.48
102	Lighting 25% More Efficient Design	Hotel	25%	25%	\$0.250	1.84	1.38	0.22	20	0.36	0.06	\$0.053	\$328	1.24	0.84	8.02	1.48
300	Base Cooling and Ventilation	Hotel	0%	0%	\$0.000	4.68	4.68	3.27	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Cooling & Ventilation 10% More Efficient Design	Hotel	10%	10%	\$0.100	4.68	4.21	2.94	20	0.12	0.08	\$0.021	\$30	5.47	2.12	3.16	2.58
302	Cooling & Ventilation 30% More Efficient Design	Hotel	30%	30%	\$0.500	4.68	3.28	2.29	20	0.32	0.22	\$0.035	\$50	3.28	1.27	5.26	2.58
100	Base Lighting	Miscellaneous	0%	0%	\$0.000	2.56	2.56	0.41	26	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Lighting 15% More Efficient Design	Miscellaneous	15%	15%	\$0.100	2.56	2.18	0.35	20	3.49	0.56	\$0.025	\$157	2.58	1.74	3.85	1.48
102	Lighting 25% More Efficient Design	Miscellaneous	25%	25%	\$0.250	2.56	1.92	0.31	20	4.90	0.79	\$0.038	\$236	1.72	1.16	5.78	1.48
300	Base Cooling and Ventilation	Miscellaneous	0%	0%	\$0.000	4.04	4.04	2.82	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
301	Cooling & Ventilation 10% More Efficient Design	Miscellaneous	10%	10%	\$0.100	4.04	3.64	2.54	20	0.55	0.39	\$0.024	\$34	4.73	1.83	3.66	2.58
302	Cooling & Ventilation 30% More Efficient Design	Miscellaneous	30%	30%	\$0.500	4.04	2.83	1.98	20	1.50	1.05	\$0.040	\$57	2.84	1.10	6.09	2.58

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/ Base kWh	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
					Base \$/kWh	Base EUI	Base EUI											
100	Base Compressed Air	SIC20	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
101	Compressed Air-O&M	SIC20	17%	17%	\$0.010	1.13	0.94	0.12	10	4.74	0.62	\$0.008	\$64	7.24	4.11	1.12	2.18	
102	Compressed Air - Controls	SIC20	12%	12%	\$0.017	1.19	1.05	0.14	10	1.19	0.15	\$0.019	\$145	3.20	1.81	2.54	2.18	
103	Compressed Air - System Optimization	SIC20	20%	20%	\$0.016	1.21	0.97	0.13	10	4.00	0.52	\$0.010	\$80	5.79	3.28	1.40	2.18	
104	Compressed Air- Sizing	SIC20	9%	9%	\$0.004	1.15	1.05	0.14	10	1.37	0.18	\$0.007	\$53	8.81	5.00	0.92	2.18	
105	Comp Air - Replace 1-5 HP motor	SIC20	6%	6%	\$0.053	1.10	1.03	0.13	14	0.09	0.01	\$0.101	\$778	0.60	0.31	18.08	2.18	
106	Comp Air - ASD (1-5 hp)	SIC20	6%	1%	\$0.077	1.09	1.02	0.14	14	0.10	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78	
107	Comp Air - Motor practices-1 (1-5 HP)	SIC20	5%	5%	\$0.021	1.09	1.03	0.13	14	0.08	0.01	\$0.048	\$368	1.26	0.65	8.56	2.18	
108	Comp Air - Replace 6-100 HP motor	SIC20	3%	4%	\$0.030	1.10	1.06	0.14	10	0.28	0.04	\$0.121	\$929	0.50	0.28	16.25	2.18	
109	Comp Air - ASD (6-100 hp)	SIC20	6%	1%	\$0.003	1.09	1.02	0.14	10	0.76	0.01	\$0.006	\$499	7.80	5.41	0.85	1.78	
110	Comp Air - Motor practices-1 (6-100 HP)	SIC20	2%	2%	\$0.005	1.09	1.06	0.14	10	0.31	0.04	\$0.032	\$246	1.89	1.07	4.30	2.18	
111	Comp Air - Replace 100+ HP motor	SIC20	3%	3%	\$0.009	1.11	1.07	0.14	6	0.26	0.03	\$0.062	\$475	0.98	0.62	5.48	2.18	
112	Comp Air - ASD (100+ hp)	SIC20	6%	1%	\$0.006	1.09	1.02	0.14	6	1.27	0.02	\$0.021	\$1,657	2.35	1.81	1.87	1.78	
113	Comp Air - Motor practices-1 (100+ HP)	SIC20	1%	2%	\$0.002	1.09	1.07	0.14	6	0.32	0.04	\$0.031	\$236	1.96	1.24	2.73	2.18	
116	Energy Star Transformers	SIC20	20%	20%	\$0.070	1.24	0.99	0.13	25	0.07	0.01	\$0.025	\$194	2.19	1.01	6.01	2.18	
200	Base Fans	SIC20	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
201	Fans - O&M	SIC20	2%	2%	\$0.001	1.10	1.08	0.14	10	0.40	0.05	\$0.007	\$57	8.28	4.78	0.96	2.14	
202	Fans - Controls	SIC20	30%	30%	\$0.092	1.40	0.98	0.12	10	3.82	0.48	\$0.035	\$274	1.72	0.99	4.65	2.14	
203	Fans - System Optimization	SIC20	20%	10%	\$0.060	1.31	1.05	0.15	10	1.45	0.09	\$0.035	\$571	1.51	0.97	4.77	1.92	
204	Fans- Improve components	SIC20	5%	5%	\$0.005	1.13	1.08	0.14	10	0.41	0.05	\$0.014	\$110	4.27	2.46	1.87	2.14	
205	Fans - Replace 1-5 HP motor	SIC20	6%	6%	\$0.053	1.10	1.03	0.13	14	0.09	0.01	\$0.101	\$803	0.59	0.31	18.08	2.14	
206	Fans - ASD (1-5 hp)	SIC20	6%	1%	\$0.077	1.09	1.02	0.14	14	0.11	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76	
207	Fans - Motor practices-1 (1-5 HP)	SIC20	5%	5%	\$0.021	1.09	1.03	0.13	14	0.09	0.01	\$0.048	\$380	1.24	0.65	8.56	2.14	
208	Fans - Replace 6-100 HP motor	SIC20	3%	4%	\$0.030	1.10	1.07	0.13	10	0.25	0.04	\$0.152	\$961	0.44	0.23	20.42	2.38	
209	Fans - ASD (6-100 hp)	SIC20	3%	1%	\$0.003	1.09	1.06	0.14	10	0.36	0.01	\$0.015	\$515	4.38	2.33	1.98	2.32	
210	Fans - Motor practices-1 (6-100 HP)	SIC20	2%	2%	\$0.005	1.09	1.06	0.13	10	0.34	0.04	\$0.032	\$254	1.86	1.07	4.30	2.14	
211	Fans - Replace 100+ HP motor	SIC20	3%	3%	\$0.009	1.11	1.07	0.14	6	0.28	0.04	\$0.062	\$490	0.96	0.62	5.48	2.14	
212	Fans - ASD (100+ hp)	SIC20	5%	1%	\$0.006	1.09	1.04	0.14	6	1.09	0.02	\$0.027	\$1,710	1.98	1.42	2.38	1.92	
213	Fans - Motor practices-1 (100+ HP)	SIC20	1%	2%	\$0.002	1.09	1.08	0.14	6	0.16	0.04	\$0.065	\$244	1.30	0.58	5.81	3.06	
217	Energy Star Transformers	SIC20	20%	20%	\$0.070	1.24	0.99	0.12	25	0.07	0.01	\$0.025	\$200	2.15	1.01	6.01	2.14	
300	Base Pumps	SIC20	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
301	Pumps - O&M	SIC20	10%	10%	\$0.005	1.16	1.04	0.13	10	2.95	0.37	\$0.007	\$54	8.72	5.03	0.92	2.14	
302	Pumps - Controls	SIC20	30%	30%	\$0.027	1.35	0.95	0.12	10	9.05	1.14	\$0.010	\$83	5.66	3.26	1.41	2.14	
303	Pumps - System Optimization	SIC20	33%	33%	\$0.066	1.41	0.95	0.12	10	8.93	1.13	\$0.022	\$177	2.66	1.54	3.00	2.14	
304	Pumps - Sizing	SIC20	5%	20%	\$0.020	1.14	1.07	0.11	10	0.79	0.37	\$0.051	\$110	2.14	0.68	6.81	3.90	
305	Pumps - Replace 1-5 HP motor	SIC20	6%	6%	\$0.053	1.10	1.03	0.13	14	0.17	0.02	\$0.101	\$803	0.59	0.31	18.08	2.14	
306	Pumps - ASD (1-5 hp)	SIC20	6%	1%	\$0.077	1.09	1.02	0.14	14	0.20	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76	
307	Pumps - Motor practices-1 (1-5 HP)	SIC20	5%	5%	\$0.021	1.09	1.03	0.13	14	0.16	0.02	\$0.048	\$380	1.24	0.65	8.56	2.14	
308	Pumps - Replace 6-100 HP motor	SIC20	3%	4%	\$0.030	1.10	1.06	0.13	10	0.54	0.07	\$0.121	\$958	0.49	0.28	16.25	2.14	
309	Pumps - ASD (6-100 hp)	SIC20	6%	1%	\$0.003	1.09	1.02	0.14	10	1.48	0.02	\$0.006	\$515	7.71	5.42	0.85	1.76	
310	Pumps - Motor practices-1 (6-100 HP)	SIC20	2%	2%	\$0.005	1.09	1.06	0.13	10	0.59	0.07	\$0.032	\$254	1.86	1.07	4.30	2.14	
311	Pumps - Replace 100+ HP motor	SIC20	3%	3%	\$0.009	1.11	1.07	0.14	6	0.49	0.06	\$0.062	\$490	0.96	0.62	5.48	2.14	
312	Pumps - ASD (100+ hp)	SIC20	6%	1%	\$0.006	1.09	1.02	0.14	6	2.45	0.03	\$0.021	\$1,710	2.32	1.82	1.86	1.76	
313	Pumps - Motor practices-1 (100+ HP)	SIC20	1%	2%	\$0.002	1.09	1.07	0.14	6	0.62	0.08	\$0.031	\$244	1.93	1.24	2.73	2.14	
316	Energy Star Transformers	SIC20	20%	20%	\$0.070	1.24	0.99	0.12	25	0.13	0.02	\$0.025	\$200	2.15	1.01	6.01	2.14	
400	Base Drives	SIC20	0%	0%	\$0.000	1.09	1.09	0.14	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
401	Bakery - Process (Mixing) - O&M	SIC20	10%	10%	\$0.005	1.12	1.01	0.13	10	1.02	0.13	\$0.007	\$56	8.45	4.88	0.94	2.14	
431	Energy Star Transformers	SIC20	20%	20%	\$0.070	1.24	0.99	0.12	25	0.03	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14	
500	Base Heating	SIC20	0%	0%	\$0.000	1.09	1.09	0.14	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
501	Bakery - Process	SIC20	37%	37%	\$0.050	1.47	0.92	0.12	15	5.00	0.63	\$0.010	\$83	5.70	2.93	1.95	2.14	

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy	Peak	Total			Peak	Service	Technical	System	Levelized Cost	Levelized Cost	Total	Customer		Revenue
			Savings Fraction	Reduction Fraction	Costs/kWh	Base kWh	Base EUI	Watts/kWh	Life (yrs)	Potential GWH	Peak Tech. Potential MW	of Conserved Energy \$/kWh	of Avoided Peak Capacity \$/kW	Resource Cost Test (TRC)	Participant Test	Payback (Years)	Test
512	Energy Star Transformers	SIC20	20%	20%	\$0.070	1.24	0.99	0.12	25	0.06	0.01	\$0.025	\$200	2.15	1.01	6.01	2.14
550	Base Refrigeration	SIC20	0%	0%	\$0.000	1.09	1.09	0.14	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
551	Efficient Refrigeration - Operations	SIC20	12%	12%	\$0.007	1.20	1.06	0.13	10	3.12	0.39	\$0.008	\$62	7.54	4.35	1.06	2.14
552	Optimization Refrigeration	SIC20	26%	26%	\$0.109	1.39	1.03	0.13	15	5.56	0.70	\$0.034	\$270	1.74	0.89	6.39	2.14
553	Energy Star Transformers	SIC20	20%	20%	\$0.070	1.24	0.99	0.12	25	0.20	0.02	\$0.025	\$200	2.15	1.01	6.01	2.14
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC20	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC20	12%	12%	\$0.028	0.97	0.85	0.58	20	0.77	0.52	\$0.024	\$35	4.68	1.17	5.15	3.99
702	Window Film - Chiller	SIC20	10%	10%	\$0.052	1.15	1.03	0.69	10	0.29	0.20	\$0.070	\$103	1.59	0.49	9.36	3.99
703	EMS - Chiller	SIC20	10%	10%	\$0.081	1.13	1.02	0.69	10	0.47	0.32	\$0.113	\$167	0.98	0.30	15.17	3.99
704	Cool Roof - Chiller	SIC20	10%	10%	\$0.141	1.13	1.02	0.69	10	0.21	0.14	\$0.204	\$302	0.54	0.17	27.40	3.99
705	Chiller Tune Up/Diagnostics	SIC20	3%	8%	\$0.051	1.11	1.07	0.69	10	0.03	0.05	\$0.211	\$133	0.97	0.16	28.42	7.41
706	Cooling Circ. Pumps - VSD	SIC20	6%	6%	\$0.088	1.10	1.04	0.70	15	0.24	0.16	\$0.150	\$222	0.74	0.20	28.03	3.99
707	Energy Star Transformers	SIC20	20%	20%	\$0.064	1.24	0.99	0.67	25	0.01	0.01	\$0.023	\$34	4.42	1.11	5.46	3.99
710	Base DX Packaged System, EER=10.3, 10 tons	SIC20	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
711	DX Tune Up/ Advanced Diagnostics	SIC20	10%	10%	\$0.061	1.14	1.03	0.70	3	0.40	0.27	\$0.240	\$355	0.46	0.17	11.35	3.99
712	DX Packaged System, EER=10.9, 10 tons	SIC20	6%	6%	\$0.041	0.94	0.89	0.60	15	0.48	0.32	\$0.089	\$131	1.25	0.34	16.61	3.99
713	Window Film - DX	SIC20	10%	10%	\$0.030	1.17	1.05	0.71	10	0.26	0.17	\$0.040	\$59	2.79	0.86	5.34	3.99
714	Evaporative Pre-Cooler	SIC20	10%	10%	\$0.231	1.09	0.98	0.66	10	0.24	0.16	\$0.332	\$492	0.33	0.10	44.69	3.99
715	Prog. Thermostat - DX	SIC20	8%	3%	\$0.016	1.14	1.04	0.75	10	0.30	0.06	\$0.027	\$132	2.52	1.27	3.61	2.44
716	Cool Roof - DX	SIC20	10%	10%	\$0.082	1.13	1.02	0.69	10	0.31	0.21	\$0.119	\$177	0.93	0.29	16.03	3.99
717	Energy Star Transformers	SIC20	20%	20%	\$0.064	1.24	0.99	0.67	25	0.02	0.01	\$0.023	\$34	4.42	1.11	5.46	3.99
800	Base Lighting	SIC20	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
801	RET 2L4' Premium T8, 1EB	SIC20	31%	31%	\$0.126	1.14	0.78	0.11	15	5.81	0.85	\$0.040	\$270	1.57	0.77	7.41	2.24
802	CFL Hardwired, Modular 36W	SIC20	72%	72%	\$0.130	1.56	0.44	0.06	4	2.86	0.42	\$0.040	\$271	1.57	1.02	2.45	2.24
803	Metal Halide, 50W	SIC20	58%	58%	\$0.745	2.36	0.99	0.15	5	0.15	0.02	\$0.153	\$1,043	0.41	0.26	11.50	2.24
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC20	17%	20%	\$0.051	1.12	0.94	0.13	9	0.75	0.13	\$0.046	\$260	1.48	0.77	5.73	2.45
805	Energy Star Transformers	SIC20	20%	20%	\$0.064	1.24	0.99	0.14	25	0.05	0.01	\$0.023	\$156	2.48	1.11	5.46	2.24
900	Base Other	SIC20	0%	0%	\$0.000	1.09	1.09	0.14	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
901	Replace V-belts	SIC20	0%	0%	\$0.000	1.09	1.09	0.14	5	0.01	0.00	\$0.043	\$342	1.38	0.91	3.25	2.14
903	Energy Star Transformers	SIC20	20%	20%	\$0.070	1.24	0.99	0.12	25	0.05	0.01	\$0.025	\$200	2.15	1.01	6.01	2.14
100	Base Compressed Air	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
101	Compressed Air-O&M	SIC22/23	17%	17%	\$0.010	1.13	0.94	0.12	10	0.14	0.02	\$0.008	\$64	7.24	4.11	1.12	2.18
102	Compressed Air - Controls	SIC22/23	12%	12%	\$0.017	1.19	1.05	0.14	10	0.03	0.00	\$0.019	\$145	3.20	1.81	2.54	2.18
103	Compressed Air - System Optimization	SIC22/23	20%	20%	\$0.016	1.21	0.97	0.13	10	0.12	0.01	\$0.010	\$80	5.79	3.28	1.40	2.18
104	Compressed Air- Sizing	SIC22/23	9%	9%	\$0.004	1.15	1.05	0.14	10	0.04	0.01	\$0.007	\$53	8.81	5.00	0.92	2.18
105	Comp Air - Replace 1-5 HP motor	SIC22/23	6%	6%	\$0.053	1.10	1.03	0.13	14	0.00	0.00	\$0.101	\$778	0.60	0.31	18.08	2.18
106	Comp Air - ASD (1-5 hp)	SIC22/23	6%	1%	\$0.077	1.09	1.02	0.14	14	0.00	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78
107	Comp Air - Motor practices-1 (1-5 HP)	SIC22/23	5%	5%	\$0.021	1.09	1.03	0.13	14	0.00	0.00	\$0.048	\$368	1.26	0.65	8.56	2.18
108	Comp Air - Replace 6-100 HP motor	SIC22/23	3%	4%	\$0.030	1.10	1.06	0.14	10	0.01	0.00	\$0.121	\$929	0.50	0.28	16.25	2.18
109	Comp Air - ASD (6-100 hp)	SIC22/23	6%	1%	\$0.003	1.09	1.02	0.14	10	0.02	0.00	\$0.006	\$499	7.80	5.41	0.85	1.78
110	Comp Air - Motor practices-1 (6-100 HP)	SIC22/23	2%	2%	\$0.005	1.09	1.06	0.14	10	0.01	0.00	\$0.032	\$246	1.89	1.07	4.30	2.18
111	Comp Air - Replace 100+ HP motor	SIC22/23	3%	3%	\$0.009	1.11	1.07	0.14	6	0.01	0.00	\$0.062	\$475	0.98	0.62	5.48	2.18
112	Comp Air - ASD (100+ hp)	SIC22/23	6%	1%	\$0.006	1.09	1.02	0.14	6	0.04	0.00	\$0.021	\$1,657	2.35	1.81	1.87	1.78
113	Comp Air - Motor practices-1 (100+ HP)	SIC22/23	1%	2%	\$0.002	1.09	1.07	0.14	6	0.01	0.00	\$0.031	\$236	1.96	1.24	2.73	2.18
116	Energy Star Transformers	SIC22/23	20%	20%	\$0.070	1.24	0.99	0.13	25	0.00	0.00	\$0.025	\$194	2.19	1.01	6.01	2.18
200	Base Fans	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A
201	Fans - O&M	SIC22/23	2%	2%	\$0.001	1.10	1.08	0.14	10	0.02	0.00	\$0.007	\$57	8.28	4.78	0.96	2.14
202	Fans - Controls	SIC22/23	30%	30%	\$0.092	1.40	0.98	0.12	10	0.19	0.02	\$0.035	\$274	1.72	0.99	4.65	2.14
203	Fans - System Optimization	SIC22/23	20%	10%	\$0.060	1.31	1.05	0.15	10	0.07	0.00	\$0.035	\$571	1.51	0.97	4.77	1.92
204	Fans- Improve components	SIC22/23	5%	5%	\$0.005	1.13	1.08	0.14	10	0.02	0.00	\$0.014	\$110	4.27	2.46	1.87	2.14

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																			
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/			Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test
					Base kWh	Base EUI	EUI	Base kWh	Life	Base kWh									
205	Fans - Replace 1-5 HP motor	SIC22/23	6%	6%	\$0.053	1.10	1.03	0.13	14	0.00	0.00	\$0.101	\$803	0.59	0.31	18.08	2.14		
206	Fans - ASD (1-5 hp)	SIC22/23	6%	1%	\$0.077	1.09	1.02	0.14	14	0.01	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76		
207	Fans - Motor practices-1 (1-5 HP)	SIC22/23	5%	5%	\$0.021	1.09	1.03	0.13	14	0.00	0.00	\$0.048	\$380	1.24	0.65	8.56	2.14		
208	Fans - Replace 6-100 HP motor	SIC22/23	3%	4%	\$0.030	1.10	1.07	0.13	10	0.01	0.00	\$0.152	\$961	0.44	0.23	20.42	2.38		
209	Fans - ASD (6-100 hp)	SIC22/23	3%	1%	\$0.003	1.09	1.06	0.14	10	0.02	0.00	\$0.015	\$515	4.38	2.33	1.98	2.32		
210	Fans - Motor practices-1 (6-100 HP)	SIC22/23	2%	2%	\$0.005	1.09	1.06	0.13	10	0.02	0.00	\$0.032	\$254	1.86	1.07	4.30	2.14		
211	Fans - Replace 100+ HP motor	SIC22/23	3%	3%	\$0.009	1.11	1.07	0.14	6	0.01	0.00	\$0.062	\$490	0.96	0.62	5.48	2.14		
212	Fans - ASD (100+ hp)	SIC22/23	5%	1%	\$0.006	1.09	1.04	0.14	6	0.05	0.00	\$0.027	\$1,710	1.98	1.42	2.38	1.92		
213	Fans - Motor practices-1 (100+ HP)	SIC22/23	1%	2%	\$0.002	1.09	1.08	0.14	6	0.01	0.00	\$0.065	\$244	1.30	0.58	5.81	3.06		
217	Energy Star Transformers	SIC22/23	20%	20%	\$0.070	1.24	0.99	0.12	25	0.00	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
300	Base Pumps	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
301	Pumps - O&M	SIC22/23	10%	10%	\$0.005	1.16	1.04	0.13	10	0.11	0.01	\$0.007	\$54	8.72	5.03	0.92	2.14		
302	Pumps - Controls	SIC22/23	30%	30%	\$0.027	1.35	0.95	0.12	10	0.34	0.04	\$0.010	\$83	5.66	3.26	1.41	2.14		
303	Pumps - System Optimization	SIC22/23	33%	33%	\$0.066	1.41	0.95	0.12	10	0.33	0.04	\$0.022	\$177	2.66	1.54	3.00	2.14		
304	Pumps - Sizing	SIC22/23	5%	20%	\$0.020	1.14	1.07	0.11	10	0.03	0.01	\$0.051	\$110	2.14	0.68	6.81	3.90		
305	Pumps - Replace 1-5 HP motor	SIC22/23	6%	6%	\$0.053	1.10	1.03	0.13	14	0.01	0.00	\$0.101	\$803	0.59	0.31	18.08	2.14		
306	Pumps - ASD (1-5 hp)	SIC22/23	6%	1%	\$0.077	1.09	1.02	0.14	14	0.01	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76		
307	Pumps - Motor practices-1 (1-5 HP)	SIC22/23	5%	5%	\$0.021	1.09	1.03	0.13	14	0.01	0.00	\$0.048	\$380	1.24	0.65	8.56	2.14		
308	Pumps - Replace 6-100 HP motor	SIC22/23	3%	4%	\$0.030	1.10	1.06	0.13	10	0.02	0.00	\$0.121	\$958	0.49	0.28	16.25	2.14		
309	Pumps - ASD (6-100 hp)	SIC22/23	6%	1%	\$0.003	1.09	1.02	0.14	10	0.05	0.00	\$0.006	\$515	7.71	5.42	0.85	1.76		
310	Pumps - Motor practices-1 (6-100 HP)	SIC22/23	2%	2%	\$0.005	1.09	1.06	0.13	10	0.02	0.00	\$0.032	\$254	1.86	1.07	4.30	2.14		
311	Pumps - Replace 100+ HP motor	SIC22/23	3%	3%	\$0.009	1.11	1.07	0.14	6	0.02	0.00	\$0.062	\$490	0.96	0.62	5.48	2.14		
312	Pumps - ASD (100+ hp)	SIC22/23	6%	1%	\$0.006	1.09	1.02	0.14	6	0.09	0.00	\$0.021	\$1,710	2.32	1.82	1.86	1.76		
313	Pumps - Motor practices-1 (100+ HP)	SIC22/23	1%	2%	\$0.002	1.09	1.07	0.14	6	0.02	0.00	\$0.031	\$244	1.93	1.24	2.73	2.14		
316	Energy Star Transformers	SIC22/23	20%	20%	\$0.070	1.24	0.99	0.12	25	0.00	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
400	Base Drives	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.14	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
402	O&M/drives spinning machines	SIC22/23	16%	16%	\$0.032	1.20	1.01	0.13	10	0.39	0.05	\$0.026	\$208	2.27	1.31	3.52	2.14		
431	Energy Star Transformers	SIC22/23	20%	20%	\$0.070	1.24	0.99	0.12	25	0.02	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
500	Base Heating	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.14	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
502	Drying (UV/IR)	SIC22/23	25%	15%	\$0.075	1.36	1.02	0.15	8	0.08	0.01	\$0.041	\$542	1.35	0.89	4.61	1.97		
512	Energy Star Transformers	SIC22/23	20%	20%	\$0.070	1.24	0.99	0.12	25	0.00	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC22/23	12%	12%	\$0.028	0.97	0.85	0.58	20	0.18	0.12	\$0.024	\$35	4.68	1.17	5.15	3.99		
702	Window Film - Chiller	SIC22/23	10%	10%	\$0.052	1.15	1.03	0.69	10	0.07	0.05	\$0.070	\$103	1.59	0.49	9.36	3.99		
703	EMS - Chiller	SIC22/23	10%	10%	\$0.081	1.13	1.02	0.69	10	0.11	0.07	\$0.113	\$167	0.98	0.30	15.17	3.99		
704	Cool Roof - Chiller	SIC22/23	10%	10%	\$0.141	1.13	1.02	0.69	10	0.05	0.03	\$0.204	\$302	0.54	0.17	27.40	3.99		
705	Chiller Tune Up/Diagnostics	SIC22/23	3%	8%	\$0.051	1.11	1.07	0.69	10	0.01	0.01	\$0.211	\$133	0.97	0.16	28.42	7.41		
706	Cooling Circ. Pumps - VSD	SIC22/23	6%	6%	\$0.088	1.10	1.04	0.70	15	0.06	0.04	\$0.150	\$222	0.74	0.20	28.03	3.99		
707	Energy Star Transformers	SIC22/23	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99		
710	Base DX Packaged System, EER=10.3, 10 tons	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
711	DX Tune Up/ Advanced Diagnostics	SIC22/23	10%	10%	\$0.061	1.14	1.03	0.70	3	0.04	0.03	\$0.240	\$355	0.46	0.17	11.35	3.99		
712	DX Packaged System, EER=10.9, 10 tons	SIC22/23	6%	6%	\$0.041	0.94	0.89	0.60	15	0.05	0.03	\$0.089	\$131	1.25	0.34	16.61	3.99		
713	Window Film - DX	SIC22/23	10%	10%	\$0.030	1.17	1.05	0.71	10	0.03	0.02	\$0.040	\$59	2.79	0.86	5.34	3.99		
714	Evaporative Pre-Cooler	SIC22/23	10%	10%	\$0.231	1.09	0.98	0.66	10	0.02	0.02	\$0.332	\$492	0.33	0.10	44.69	3.99		
715	Prog. Thermostat - DX	SIC22/23	8%	3%	\$0.016	1.14	1.04	0.75	10	0.03	0.01	\$0.027	\$132	2.52	1.27	3.61	2.44		
716	Cool Roof - DX	SIC22/23	10%	10%	\$0.082	1.13	1.02	0.69	10	0.03	0.02	\$0.119	\$177	0.93	0.29	16.03	3.99		
717	Energy Star Transformers	SIC22/23	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99		
800	Base Lighting	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
801	RET 2L4' Premium T8, 1EB	SIC22/23	31%	31%	\$0.126	1.19	0.81	0.12	15	0.54	0.08	\$0.038	\$260	1.63	0.80	7.15	2.24		
802	CFL Hardwired, Modular 36W	SIC22/23	72%	72%	\$0.130	1.56	0.44	0.06	4	0.12	0.02	\$0.040	\$271	1.57	1.02	2.45	2.24		

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																			
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/			Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test
					Base kWh	Base EUI	Base EUI	Base kWh	Base EUI	Base EUI									
803	Metal Halide, 50W	SIC22/23	58%	58%	\$0.745	2.11	0.89	0.13	5	0.03	0.00	\$0.171	\$1,167	0.36	0.23	12.87	2.24		
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC22/23	17%	20%	\$0.051	1.12	0.94	0.13	9	0.07	0.01	\$0.046	\$260	1.48	0.77	5.73	2.45		
805	Energy Star Transformers	SIC22/23	20%	20%	\$0.064	1.24	0.99	0.14	25	0.00	0.00	\$0.023	\$156	2.48	1.11	5.46	2.24		
900	Base Other	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.14	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
901	Replace V-belts	SIC22/23	0%	0%	\$0.000	1.09	1.09	0.14	5	0.00	0.00	\$0.043	\$342	1.38	0.91	3.25	2.14		
902	Membranes for wastewater	SIC22/23	10%	10%	\$0.035	1.19	1.07	0.13	15	0.01	0.00	\$0.033	\$264	1.78	0.92	6.24	2.14		
903	Energy Star Transformers	SIC22/23	20%	20%	\$0.070	1.24	0.99	0.12	25	0.00	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
100	Base Compressed Air	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
101	Compressed Air-O&M	SIC24/25	17%	17%	\$0.010	1.13	0.94	0.12	10	0.44	0.06	\$0.008	\$64	7.24	4.11	1.12	2.18		
102	Compressed Air - Controls	SIC24/25	12%	12%	\$0.017	1.19	1.05	0.14	10	0.11	0.01	\$0.019	\$145	3.20	1.81	2.54	2.18		
103	Compressed Air - System Optimization	SIC24/25	20%	20%	\$0.016	1.21	0.97	0.13	10	0.37	0.05	\$0.010	\$80	5.79	3.28	1.40	2.18		
104	Compressed Air- Sizing	SIC24/25	9%	9%	\$0.004	1.15	1.05	0.14	10	0.13	0.02	\$0.007	\$53	8.81	5.00	0.92	2.18		
105	Comp Air - Replace 1-5 HP motor	SIC24/25	6%	6%	\$0.053	1.10	1.03	0.13	14	0.01	0.00	\$0.101	\$778	0.60	0.31	18.08	2.18		
106	Comp Air - ASD (1-5 hp)	SIC24/25	6%	1%	\$0.077	1.09	1.02	0.14	14	0.01	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78		
107	Comp Air - Motor practices-1 (1-5 HP)	SIC24/25	5%	5%	\$0.021	1.09	1.03	0.13	14	0.01	0.00	\$0.048	\$368	1.26	0.65	8.56	2.18		
108	Comp Air - Replace 6-100 HP motor	SIC24/25	3%	4%	\$0.030	1.10	1.06	0.14	10	0.03	0.00	\$0.121	\$929	0.50	0.28	16.25	2.18		
109	Comp Air - ASD (6-100 hp)	SIC24/25	6%	1%	\$0.003	1.09	1.02	0.14	10	0.07	0.00	\$0.006	\$499	7.80	5.41	0.85	1.78		
110	Comp Air - Motor practices-1 (6-100 HP)	SIC24/25	2%	2%	\$0.005	1.09	1.06	0.14	10	0.03	0.00	\$0.032	\$246	1.89	1.07	4.30	2.18		
111	Comp Air - Replace 100+ HP motor	SIC24/25	3%	3%	\$0.009	1.11	1.07	0.14	6	0.02	0.00	\$0.062	\$475	0.98	0.62	5.48	2.18		
112	Comp Air - ASD (100+ hp)	SIC24/25	6%	1%	\$0.006	1.09	1.02	0.14	6	0.12	0.00	\$0.021	\$1,657	2.35	1.81	1.87	1.78		
113	Comp Air - Motor practices-1 (100+ HP)	SIC24/25	1%	2%	\$0.002	1.09	1.07	0.14	6	0.03	0.00	\$0.031	\$236	1.96	1.24	2.73	2.18		
116	Energy Star Transformers	SIC24/25	20%	20%	\$0.070	1.24	0.99	0.13	25	0.01	0.00	\$0.025	\$194	2.19	1.01	6.01	2.18		
200	Base Fans	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
201	Fans - O&M	SIC24/25	2%	2%	\$0.001	1.10	1.08	0.14	10	0.06	0.01	\$0.007	\$57	8.28	4.78	0.96	2.14		
202	Fans - Controls	SIC24/25	30%	30%	\$0.092	1.40	0.98	0.12	10	0.61	0.08	\$0.035	\$274	1.72	0.99	4.65	2.14		
203	Fans - System Optimization	SIC24/25	20%	10%	\$0.060	1.31	1.05	0.15	10	0.23	0.01	\$0.035	\$571	1.51	0.97	4.77	1.92		
204	Fans- Improve components	SIC24/25	5%	5%	\$0.005	1.13	1.08	0.14	10	0.07	0.01	\$0.014	\$110	4.27	2.46	1.87	2.14		
205	Fans - Replace 1-5 HP motor	SIC24/25	6%	6%	\$0.053	1.10	1.03	0.13	14	0.02	0.00	\$0.101	\$803	0.59	0.31	18.08	2.14		
206	Fans - ASD (1-5 hp)	SIC24/25	6%	1%	\$0.077	1.09	1.02	0.14	14	0.02	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76		
207	Fans - Motor practices-1 (1-5 HP)	SIC24/25	5%	5%	\$0.021	1.09	1.03	0.13	14	0.01	0.00	\$0.048	\$380	1.24	0.65	8.56	2.14		
208	Fans - Replace 6-100 HP motor	SIC24/25	3%	4%	\$0.030	1.10	1.07	0.13	10	0.04	0.01	\$0.152	\$961	0.44	0.23	20.42	2.38		
209	Fans - ASD (6-100 hp)	SIC24/25	3%	1%	\$0.003	1.09	1.06	0.14	10	0.06	0.00	\$0.015	\$515	4.38	2.33	1.98	2.32		
210	Fans - Motor practices-1 (6-100 HP)	SIC24/25	2%	2%	\$0.005	1.09	1.06	0.13	10	0.05	0.01	\$0.032	\$254	1.86	1.07	4.30	2.14		
211	Fans - Replace 100+ HP motor	SIC24/25	3%	3%	\$0.009	1.11	1.07	0.14	6	0.04	0.01	\$0.062	\$490	0.96	0.62	5.48	2.14		
212	Fans - ASD (100+ hp)	SIC24/25	5%	1%	\$0.006	1.09	1.04	0.14	6	0.17	0.00	\$0.027	\$1,710	1.98	1.42	2.38	1.92		
213	Fans - Motor practices-1 (100+ HP)	SIC24/25	1%	2%	\$0.002	1.09	1.08	0.14	6	0.03	0.01	\$0.065	\$244	1.30	0.58	5.81	3.06		
214	Optimize drying process	SIC24/25	20%	20%	\$0.050	1.21	0.97	0.12	10	0.70	0.09	\$0.033	\$259	1.82	1.05	4.39	2.14		
217	Energy Star Transformers	SIC24/25	20%	20%	\$0.070	1.24	0.99	0.12	25	0.01	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
300	Base Pumps	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
301	Pumps - O&M	SIC24/25	10%	10%	\$0.005	1.16	1.04	0.13	10	0.35	0.04	\$0.007	\$54	8.72	5.03	0.92	2.14		
302	Pumps - Controls	SIC24/25	30%	30%	\$0.027	1.35	0.95	0.12	10	1.07	0.14	\$0.010	\$83	5.66	3.26	1.41	2.14		
303	Pumps - System Optimization	SIC24/25	33%	33%	\$0.066	1.41	0.95	0.12	10	1.06	0.13	\$0.022	\$177	2.66	1.54	3.00	2.14		
304	Pumps - Sizing	SIC24/25	5%	20%	\$0.020	1.14	1.07	0.11	10	0.09	0.04	\$0.051	\$110	2.14	0.68	6.81	3.90		
305	Pumps - Replace 1-5 HP motor	SIC24/25	6%	6%	\$0.053	1.10	1.03	0.13	14	0.02	0.00	\$0.101	\$803	0.59	0.31	18.08	2.14		
306	Pumps - ASD (1-5 hp)	SIC24/25	6%	1%	\$0.077	1.09	1.02	0.14	14	0.02	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76		
307	Pumps - Motor practices-1 (1-5 HP)	SIC24/25	5%	5%	\$0.021	1.09	1.03	0.13	14	0.02	0.00	\$0.048	\$380	1.24	0.65	8.56	2.14		
308	Pumps - Replace 6-100 HP motor	SIC24/25	3%	4%	\$0.030	1.10	1.06	0.13	10	0.06	0.01	\$0.121	\$958	0.49	0.28	16.25	2.14		
309	Pumps - ASD (6-100 hp)	SIC24/25	6%	1%	\$0.003	1.09	1.02	0.14	10	0.17	0.00	\$0.006	\$515	7.71	5.42	0.85	1.76		
310	Pumps - Motor practices-1 (6-100 HP)	SIC24/25	2%	2%	\$0.005	1.09	1.06	0.13	10	0.07	0.01	\$0.032	\$254	1.86	1.07	4.30	2.14		
311	Pumps - Replace 100+ HP motor	SIC24/25	3%	3%	\$0.009	1.11	1.07	0.14	6	0.06	0.01	\$0.062	\$490	0.96	0.62	5.48	2.14		

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Base kWh	Base EUI	EUI	Peak Watts/ Base kWh	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
312	Pumps - ASD (100+ hp)	SIC24/25	6%	1%	\$0.006	1.09	1.02	0.14	6	0.29	0.00	\$0.021	\$1,710	2.32	1.82	1.86	1.76	
313	Pumps - Motor practices-1 (100+ HP)	SIC24/25	1%	2%	\$0.002	1.09	1.07	0.14	6	0.07	0.01	\$0.031	\$244	1.93	1.24	2.73	2.14	
316	Energy Star Transformers	SIC24/25	20%	20%	\$0.070	1.24	0.99	0.12	25	0.01	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14	
400	Base Drives	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.14	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
403	Air conveying systems	SIC24/25	39%	10%	\$0.038	1.53	0.94	0.17	14	1.22	0.04	\$0.008	\$233	6.70	4.13	1.35	1.82	
404	Replace V-Belts	SIC24/25	6%	6%	\$0.006	1.12	1.05	0.13	10	0.64	0.08	\$0.014	\$111	4.23	2.44	1.89	2.14	
405	Drives - EE motor	SIC24/25	3%	4%	\$0.006	1.11	1.07	0.14	10	0.42	0.05	\$0.026	\$202	2.33	1.34	3.43	2.14	
431	Energy Star Transformers	SIC24/25	20%	20%	\$0.070	1.24	0.99	0.12	25	0.05	0.01	\$0.025	\$200	2.15	1.01	6.01	2.14	
500	Base Heating	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.14	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
503	Heat Pumps - Drying	SIC24/25	22%	22%	\$0.176	1.32	1.03	0.13	15	0.21	0.03	\$0.069	\$544	0.87	0.44	12.85	2.14	
512	Energy Star Transformers	SIC24/25	20%	20%	\$0.070	1.24	0.99	0.12	25	0.01	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14	
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC24/25	12%	12%	\$0.028	0.97	0.85	0.58	20	0.16	0.11	\$0.024	\$35	4.68	1.17	5.15	3.99	
702	Window Film - Chiller	SIC24/25	10%	10%	\$0.052	1.15	1.03	0.69	10	0.06	0.04	\$0.070	\$103	1.59	0.49	9.36	3.99	
703	EMS - Chiller	SIC24/25	10%	10%	\$0.081	1.13	1.02	0.69	10	0.10	0.07	\$0.113	\$167	0.98	0.30	15.17	3.99	
704	Cool Roof - Chiller	SIC24/25	10%	10%	\$0.141	1.13	1.02	0.69	10	0.04	0.03	\$0.204	\$302	0.54	0.17	27.40	3.99	
705	Chiller Tune Up/Diagnostics	SIC24/25	3%	8%	\$0.051	1.11	1.07	0.69	10	0.01	0.01	\$0.211	\$133	0.97	0.16	28.42	7.41	
706	Cooling Circ. Pumps - VSD	SIC24/25	6%	6%	\$0.088	1.10	1.04	0.70	15	0.05	0.03	\$0.150	\$222	0.74	0.20	28.03	3.99	
707	Energy Star Transformers	SIC24/25	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99	
710	Base DX Packaged System, EER=10.3, 10 tons	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
711	DX Tune Up/ Advanced Diagnostics	SIC24/25	10%	10%	\$0.061	1.14	1.03	0.70	3	0.06	0.04	\$0.240	\$355	0.46	0.17	11.35	3.99	
712	DX Packaged System, EER=10.9, 10 tons	SIC24/25	6%	6%	\$0.041	0.94	0.89	0.60	15	0.08	0.05	\$0.089	\$131	1.25	0.34	16.61	3.99	
713	Window Film - DX	SIC24/25	10%	10%	\$0.030	1.17	1.05	0.71	10	0.04	0.03	\$0.040	\$59	2.79	0.86	5.34	3.99	
714	Evaporative Pre-Cooler	SIC24/25	10%	10%	\$0.231	1.09	0.98	0.66	10	0.04	0.03	\$0.332	\$492	0.33	0.10	44.69	3.99	
715	Prog. Thermostat - DX	SIC24/25	8%	3%	\$0.016	1.14	1.04	0.75	10	0.05	0.01	\$0.027	\$132	2.52	1.27	3.61	2.44	
716	Cool Roof - DX	SIC24/25	10%	10%	\$0.082	1.13	1.02	0.69	10	0.05	0.03	\$0.119	\$177	0.93	0.29	16.03	3.99	
717	Energy Star Transformers	SIC24/25	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99	
800	Base Lighting	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
801	RET 2L4' Premium T8, 1EB	SIC24/25	31%	31%	\$0.126	1.14	0.78	0.11	15	0.84	0.12	\$0.040	\$271	1.56	0.77	7.44	2.24	
802	CFL Hardwired, Modular 36W	SIC24/25	72%	72%	\$0.130	1.56	0.44	0.06	4	0.17	0.02	\$0.040	\$271	1.57	1.02	2.45	2.24	
803	Metal Halide, 50W	SIC24/25	58%	58%	\$0.745	2.21	0.93	0.14	5	0.03	0.00	\$0.163	\$1,114	0.38	0.24	12.28	2.24	
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC24/25	17%	20%	\$0.051	1.12	0.94	0.13	9	0.10	0.02	\$0.046	\$260	1.48	0.77	5.73	2.45	
805	Energy Star Transformers	SIC24/25	20%	20%	\$0.064	1.24	0.99	0.14	25	0.01	0.00	\$0.023	\$156	2.48	1.11	5.46	2.24	
900	Base Other	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.14	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
901	Replace V-belts	SIC24/25	0%	0%	\$0.000	1.09	1.09	0.14	5	0.00	0.00	\$0.043	\$342	1.38	0.91	3.25	2.14	
903	Energy Star Transformers	SIC24/25	20%	20%	\$0.070	1.24	0.99	0.12	25	0.01	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14	
100	Base Compressed Air	SIC26	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
101	Compressed Air-O&M	SIC26	17%	17%	\$0.010	1.13	0.94	0.12	10	0.39	0.05	\$0.008	\$64	7.24	4.11	1.12	2.18	
102	Compressed Air - Controls	SIC26	12%	12%	\$0.017	1.19	1.05	0.14	10	0.10	0.01	\$0.019	\$145	3.20	1.81	2.54	2.18	
103	Compressed Air - System Optimization	SIC26	20%	20%	\$0.016	1.21	0.97	0.13	10	0.33	0.04	\$0.010	\$80	5.79	3.28	1.40	2.18	
104	Compressed Air- Sizing	SIC26	9%	9%	\$0.004	1.15	1.05	0.14	10	0.11	0.01	\$0.007	\$53	8.81	5.00	0.92	2.18	
105	Comp Air - Replace 1-5 HP motor	SIC26	6%	6%	\$0.053	1.10	1.03	0.13	14	0.01	0.00	\$0.101	\$778	0.60	0.31	18.08	2.18	
106	Comp Air - ASD (1-5 hp)	SIC26	6%	1%	\$0.077	1.09	1.02	0.14	14	0.01	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78	
107	Comp Air - Motor practices-1 (1-5 HP)	SIC26	5%	5%	\$0.021	1.09	1.03	0.13	14	0.01	0.00	\$0.048	\$368	1.26	0.65	8.56	2.18	
108	Comp Air - Replace 6-100 HP motor	SIC26	3%	4%	\$0.030	1.10	1.06	0.14	10	0.02	0.00	\$0.121	\$929	0.50	0.28	16.25	2.18	
109	Comp Air - ASD (6-100 hp)	SIC26	6%	1%	\$0.003	1.09	1.02	0.14	10	0.06	0.00	\$0.006	\$499	7.80	5.41	0.85	1.78	
110	Comp Air - Motor practices-1 (6-100 HP)	SIC26	2%	2%	\$0.005	1.09	1.06	0.14	10	0.03	0.00	\$0.032	\$246	1.89	1.07	4.30	2.18	
111	Comp Air - Replace 100+ HP motor	SIC26	3%	3%	\$0.009	1.11	1.07	0.14	6	0.02	0.00	\$0.062	\$475	0.98	0.62	5.48	2.18	
112	Comp Air - ASD (100+ hp)	SIC26	6%	1%	\$0.006	1.09	1.02	0.14	6	0.10	0.00	\$0.021	\$1,657	2.35	1.81	1.87	1.78	
113	Comp Air - Motor practices-1 (100+ HP)	SIC26	1%	2%	\$0.002	1.09	1.07	0.14	6	0.03	0.00	\$0.031	\$236	1.96	1.24	2.73	2.18	

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/		Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test
					Base kWh	Base EUI	Base EUI	Base kWh	Base kWh									
116	Energy Star Transformers	SIC26	20%	20%	\$0.070	1.24	0.99	0.13	25	0.01	0.00	\$0.025	\$194	2.19	1.01	6.01	2.18	
200	Base Fans	SIC26	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
201	Fans - O&M	SIC26	2%	2%	\$0.001	1.10	1.08	0.14	10	0.12	0.02	\$0.007	\$57	8.28	4.78	0.96	2.14	
202	Fans - Controls	SIC26	30%	30%	\$0.092	1.40	0.98	0.12	10	1.16	0.15	\$0.035	\$274	1.72	0.99	4.65	2.14	
203	Fans - System Optimization	SIC26	20%	10%	\$0.060	1.31	1.05	0.15	10	0.44	0.03	\$0.035	\$571	1.51	0.97	4.77	1.92	
204	Fans- Improve components	SIC26	5%	5%	\$0.005	1.13	1.08	0.14	10	0.13	0.02	\$0.014	\$110	4.27	2.46	1.87	2.14	
205	Fans - Replace 1-5 HP motor	SIC26	6%	6%	\$0.053	1.10	1.03	0.13	14	0.03	0.00	\$0.101	\$803	0.59	0.31	18.08	2.14	
206	Fans - ASD (1-5 hp)	SIC26	6%	1%	\$0.077	1.09	1.02	0.14	14	0.03	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76	
207	Fans - Motor practices-1 (1-5 HP)	SIC26	5%	5%	\$0.021	1.09	1.03	0.13	14	0.03	0.00	\$0.048	\$380	1.24	0.65	8.56	2.14	
208	Fans - Replace 6-100 HP motor	SIC26	3%	4%	\$0.030	1.10	1.07	0.13	10	0.08	0.01	\$0.152	\$961	0.44	0.23	20.42	2.38	
209	Fans - ASD (6-100 hp)	SIC26	3%	1%	\$0.003	1.09	1.06	0.14	10	0.11	0.00	\$0.015	\$515	4.38	2.33	1.98	2.32	
210	Fans - Motor practices-1 (6-100 HP)	SIC26	2%	2%	\$0.005	1.09	1.06	0.13	10	0.10	0.01	\$0.032	\$254	1.86	1.07	4.30	2.14	
211	Fans - Replace 100+ HP motor	SIC26	3%	3%	\$0.009	1.11	1.07	0.14	6	0.09	0.01	\$0.062	\$490	0.96	0.62	5.48	2.14	
212	Fans - ASD (100+ hp)	SIC26	5%	1%	\$0.006	1.09	1.04	0.14	6	0.33	0.01	\$0.027	\$1,710	1.98	1.42	2.38	1.92	
213	Fans - Motor practices-1 (100+ HP)	SIC26	1%	2%	\$0.002	1.09	1.08	0.14	6	0.05	0.01	\$0.065	\$244	1.30	0.58	5.81	3.06	
217	Energy Star Transformers	SIC26	20%	20%	\$0.070	1.24	0.99	0.12	25	0.02	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14	
300	Base Pumps	SIC26	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
301	Pumps - O&M	SIC26	10%	10%	\$0.005	1.16	1.04	0.13	10	0.85	0.11	\$0.007	\$54	8.72	5.03	0.92	2.14	
302	Pumps - Controls	SIC26	30%	30%	\$0.027	1.35	0.95	0.12	10	2.61	0.33	\$0.010	\$83	5.66	3.26	1.41	2.14	
303	Pumps - System Optimization	SIC26	33%	33%	\$0.066	1.41	0.95	0.12	10	2.57	0.32	\$0.022	\$177	2.66	1.54	3.00	2.14	
304	Pumps - Sizing	SIC26	5%	20%	\$0.020	1.14	1.07	0.11	10	0.23	0.11	\$0.051	\$110	2.14	0.68	6.81	3.90	
305	Pumps - Replace 1-5 HP motor	SIC26	6%	6%	\$0.053	1.10	1.03	0.13	14	0.05	0.01	\$0.101	\$803	0.59	0.31	18.08	2.14	
306	Pumps - ASD (1-5 hp)	SIC26	6%	1%	\$0.077	1.09	1.02	0.14	14	0.06	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76	
307	Pumps - Motor practices-1 (1-5 HP)	SIC26	5%	5%	\$0.021	1.09	1.03	0.13	14	0.05	0.01	\$0.048	\$380	1.24	0.65	8.56	2.14	
308	Pumps - Replace 6-100 HP motor	SIC26	3%	4%	\$0.030	1.10	1.06	0.13	10	0.16	0.02	\$0.121	\$958	0.49	0.28	16.25	2.14	
309	Pumps - ASD (6-100 hp)	SIC26	6%	1%	\$0.003	1.09	1.02	0.14	10	0.43	0.01	\$0.006	\$515	7.71	5.42	0.85	1.76	
310	Pumps - Motor practices-1 (6-100 HP)	SIC26	2%	2%	\$0.005	1.09	1.06	0.13	10	0.17	0.02	\$0.032	\$254	1.86	1.07	4.30	2.14	
311	Pumps - Replace 100+ HP motor	SIC26	3%	3%	\$0.009	1.11	1.07	0.14	6	0.14	0.02	\$0.062	\$490	0.96	0.62	5.48	2.14	
312	Pumps - ASD (100+ hp)	SIC26	6%	1%	\$0.006	1.09	1.02	0.14	6	0.71	0.01	\$0.021	\$1,710	2.32	1.82	1.86	1.76	
313	Pumps - Motor practices-1 (100+ HP)	SIC26	1%	2%	\$0.002	1.09	1.07	0.14	6	0.18	0.02	\$0.031	\$244	1.93	1.24	2.73	2.14	
316	Energy Star Transformers	SIC26	20%	20%	\$0.070	1.24	0.99	0.12	25	0.04	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14	
400	Base Drives	SIC26	0%	0%	\$0.000	1.09	1.09	0.14	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
405	Drives - EE motor	SIC26	3%	3%	\$0.006	1.10	1.07	0.13	10	0.45	0.06	\$0.026	\$204	2.31	1.33	3.46	2.14	
406	Gap Forming papermachine	SIC26	8%	8%	\$0.008	1.17	1.08	0.14	20	0.22	0.03	\$0.008	\$66	7.15	3.34	1.81	2.14	
407	High Consistency forming	SIC26	8%	8%	\$0.008	1.17	1.08	0.14	20	0.21	0.03	\$0.008	\$66	7.13	3.33	1.81	2.14	
408	Optimization control PM	SIC26	5%	5%	\$0.013	1.11	1.06	0.13	10	0.67	0.08	\$0.035	\$280	1.68	0.97	4.75	2.14	
431	Energy Star Transformers	SIC26	20%	20%	\$0.070	1.24	0.99	0.12	25	0.05	0.01	\$0.025	\$200	2.15	1.01	6.01	2.14	
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC26	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC26	12%	12%	\$0.028	0.97	0.85	0.58	20	0.07	0.05	\$0.024	\$35	4.68	1.17	5.15	3.99	
702	Window Film - Chiller	SIC26	10%	10%	\$0.052	1.15	1.03	0.69	10	0.03	0.02	\$0.070	\$103	1.59	0.49	9.36	3.99	
703	EMS - Chiller	SIC26	10%	10%	\$0.081	1.13	1.02	0.69	10	0.04	0.03	\$0.113	\$167	0.98	0.30	15.17	3.99	
704	Cool Roof - Chiller	SIC26	10%	10%	\$0.141	1.13	1.02	0.69	10	0.02	0.01	\$0.204	\$302	0.54	0.17	27.40	3.99	
705	Chiller Tune Up/Diagnostics	SIC26	3%	8%	\$0.051	1.11	1.07	0.69	10	0.00	0.00	\$0.211	\$133	0.97	0.16	28.42	7.41	
706	Cooling Circ. Pumps - VSD	SIC26	6%	6%	\$0.088	1.10	1.04	0.70	15	0.02	0.01	\$0.150	\$222	0.74	0.20	28.03	3.99	
707	Energy Star Transformers	SIC26	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99	
710	Base DX Packaged System, EER=10.3, 10 tons	SIC26	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
711	DX Tune Up/ Advanced Diagnostics	SIC26	10%	10%	\$0.061	1.14	1.03	0.70	3	0.04	0.03	\$0.240	\$355	0.46	0.17	11.35	3.99	
712	DX Packaged System, EER=10.9, 10 tons	SIC26	6%	6%	\$0.041	0.94	0.89	0.60	15	0.05	0.04	\$0.089	\$131	1.25	0.34	16.61	3.99	
713	Window Film - DX	SIC26	10%	10%	\$0.030	1.17	1.05	0.71	10	0.03	0.02	\$0.040	\$59	2.79	0.86	5.34	3.99	
714	Evaporative Pre-Cooler	SIC26	10%	10%	\$0.231	1.09	0.98	0.66	10	0.03	0.02	\$0.332	\$492	0.33	0.10	44.69	3.99	

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																			
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/			Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test
					Base kWh	Base EUI	EUI	Base kWh	Base EUI	EUI									
715	Prog. Thermostat - DX	SIC26	8%	3%	\$0.016	1.14	1.04	0.75	10	0.03	0.01	\$0.027	\$132	2.52	1.27	3.61	2.44		
716	Cool Roof - DX	SIC26	10%	10%	\$0.082	1.13	1.02	0.69	10	0.03	0.02	\$0.119	\$177	0.93	0.29	16.03	3.99		
717	Energy Star Transformers	SIC26	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99		
800	Base Lighting	SIC26	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
801	RET 2L4' Premium T8, 1EB	SIC26	31%	31%	\$0.126	1.16	0.80	0.12	15	0.46	0.07	\$0.039	\$265	1.60	0.78	7.28	2.24		
802	CFL Hardwired, Modular 36W	SIC26	72%	72%	\$0.130	1.56	0.44	0.06	4	0.20	0.03	\$0.040	\$271	1.57	1.02	2.45	2.24		
803	Metal Halide, 50W	SIC26	58%	58%	\$0.745	2.42	1.02	0.15	5	0.01	0.00	\$0.149	\$1,017	0.42	0.26	11.21	2.24		
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC26	17%	20%	\$0.051	1.12	0.94	0.13	9	0.06	0.01	\$0.046	\$260	1.48	0.77	5.73	2.45		
805	Energy Star Transformers	SIC26	20%	20%	\$0.064	1.24	0.99	0.14	25	0.00	0.00	\$0.023	\$156	2.48	1.11	5.46	2.24		
900	Base Other	SIC26	0%	0%	\$0.000	1.09	1.09	0.14	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
901	Replace V-belts	SIC26	0%	0%	\$0.000	1.09	1.09	0.14	5	0.00	0.00	\$0.043	\$342	1.38	0.91	3.25	2.14		
903	Energy Star Transformers	SIC26	20%	20%	\$0.070	1.24	0.99	0.12	25	0.01	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
100	Base Compressed Air	SIC27	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
101	Compressed Air-O&M	SIC27	17%	17%	\$0.010	1.13	0.94	0.12	10	0.80	0.10	\$0.008	\$64	7.24	4.11	1.12	2.18		
102	Compressed Air - Controls	SIC27	12%	12%	\$0.017	1.19	1.05	0.14	10	0.20	0.03	\$0.019	\$145	3.20	1.81	2.54	2.18		
103	Compressed Air - System Optimization	SIC27	20%	20%	\$0.016	1.21	0.97	0.13	10	0.68	0.09	\$0.010	\$80	5.79	3.28	1.40	2.18		
104	Compressed Air- Sizing	SIC27	9%	9%	\$0.004	1.15	1.05	0.14	10	0.23	0.03	\$0.007	\$53	8.81	5.00	0.92	2.18		
105	Comp Air - Replace 1-5 HP motor	SIC27	6%	6%	\$0.053	1.10	1.03	0.13	14	0.01	0.00	\$0.101	\$778	0.60	0.31	18.08	2.18		
106	Comp Air - ASD (1-5 hp)	SIC27	6%	1%	\$0.077	1.09	1.02	0.14	14	0.02	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78		
107	Comp Air - Motor practices-1 (1-5 HP)	SIC27	5%	5%	\$0.021	1.09	1.03	0.13	14	0.01	0.00	\$0.048	\$368	1.26	0.65	8.56	2.18		
108	Comp Air - Replace 6-100 HP motor	SIC27	3%	4%	\$0.030	1.10	1.06	0.14	10	0.05	0.01	\$0.121	\$929	0.50	0.28	16.25	2.18		
109	Comp Air - ASD (6-100 hp)	SIC27	6%	1%	\$0.003	1.09	1.02	0.14	10	0.13	0.00	\$0.006	\$499	7.80	5.41	0.85	1.78		
110	Comp Air - Motor practices-1 (6-100 HP)	SIC27	2%	2%	\$0.005	1.09	1.06	0.14	10	0.05	0.01	\$0.032	\$246	1.89	1.07	4.30	2.18		
111	Comp Air - Replace 100+ HP motor	SIC27	3%	3%	\$0.009	1.11	1.07	0.14	6	0.04	0.01	\$0.062	\$475	0.98	0.62	5.48	2.18		
112	Comp Air - ASD (100+ hp)	SIC27	6%	1%	\$0.006	1.09	1.02	0.14	6	0.22	0.00	\$0.021	\$1,657	2.35	1.81	1.87	1.78		
113	Comp Air - Motor practices-1 (100+ HP)	SIC27	1%	2%	\$0.002	1.09	1.07	0.14	6	0.05	0.01	\$0.031	\$236	1.96	1.24	2.73	2.18		
116	Energy Star Transformers	SIC27	20%	20%	\$0.070	1.24	0.99	0.13	25	0.01	0.00	\$0.025	\$194	2.19	1.01	6.01	2.18		
200	Base Fans	SIC27	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
201	Fans - O&M	SIC27	2%	2%	\$0.001	1.10	1.08	0.14	10	0.12	0.01	\$0.007	\$57	8.28	4.78	0.96	2.14		
202	Fans - Controls	SIC27	30%	30%	\$0.092	1.40	0.98	0.12	10	1.12	0.14	\$0.035	\$274	1.72	0.99	4.65	2.14		
203	Fans - System Optimization	SIC27	20%	10%	\$0.060	1.31	1.05	0.15	10	0.43	0.03	\$0.035	\$571	1.51	0.97	4.77	1.92		
204	Fans- Improve components	SIC27	5%	5%	\$0.005	1.13	1.08	0.14	10	0.12	0.02	\$0.014	\$110	4.27	2.46	1.87	2.14		
205	Fans - Replace 1-5 HP motor	SIC27	6%	6%	\$0.053	1.10	1.03	0.13	14	0.03	0.00	\$0.101	\$803	0.59	0.31	18.08	2.14		
206	Fans - ASD (1-5 hp)	SIC27	6%	1%	\$0.077	1.09	1.02	0.14	14	0.03	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76		
207	Fans - Motor practices-1 (1-5 HP)	SIC27	5%	5%	\$0.021	1.09	1.03	0.13	14	0.03	0.00	\$0.048	\$380	1.24	0.65	8.56	2.14		
208	Fans - Replace 6-100 HP motor	SIC27	3%	4%	\$0.030	1.10	1.07	0.13	10	0.07	0.01	\$0.152	\$961	0.44	0.23	20.42	2.38		
209	Fans - ASD (6-100 hp)	SIC27	3%	1%	\$0.003	1.09	1.06	0.14	10	0.11	0.00	\$0.015	\$515	4.38	2.33	1.98	2.32		
210	Fans - Motor practices-1 (6-100 HP)	SIC27	2%	2%	\$0.005	1.09	1.06	0.13	10	0.10	0.01	\$0.032	\$254	1.86	1.07	4.30	2.14		
211	Fans - Replace 100+ HP motor	SIC27	3%	3%	\$0.009	1.11	1.07	0.14	6	0.08	0.01	\$0.062	\$490	0.96	0.62	5.48	2.14		
212	Fans - ASD (100+ hp)	SIC27	5%	1%	\$0.006	1.09	1.04	0.14	6	0.32	0.01	\$0.027	\$1,710	1.98	1.42	2.38	1.92		
213	Fans - Motor practices-1 (100+ HP)	SIC27	1%	2%	\$0.002	1.09	1.08	0.14	6	0.05	0.01	\$0.065	\$244	1.30	0.58	5.81	3.06		
217	Energy Star Transformers	SIC27	20%	20%	\$0.070	1.24	0.99	0.12	25	0.02	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
300	Base Pumps	SIC27	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
301	Pumps - O&M	SIC27	10%	10%	\$0.005	1.16	1.04	0.13	10	0.65	0.08	\$0.007	\$54	8.72	5.03	0.92	2.14		
302	Pumps - Controls	SIC27	30%	30%	\$0.027	1.35	0.95	0.12	10	1.98	0.25	\$0.010	\$83	5.66	3.26	1.41	2.14		
303	Pumps - System Optimization	SIC27	33%	33%	\$0.066	1.41	0.95	0.12	10	1.95	0.25	\$0.022	\$177	2.66	1.54	3.00	2.14		
304	Pumps - Sizing	SIC27	5%	20%	\$0.020	1.14	1.07	0.11	10	0.17	0.08	\$0.051	\$110	2.14	0.68	6.81	3.90		
305	Pumps - Replace 1-5 HP motor	SIC27	6%	6%	\$0.053	1.10	1.03	0.13	14	0.04	0.00	\$0.101	\$803	0.59	0.31	18.08	2.14		
306	Pumps - ASD (1-5 hp)	SIC27	6%	1%	\$0.077	1.09	1.02	0.14	14	0.04	0.00	\$0.140	\$11,419	0.35	0.22	25.03	1.76		
307	Pumps - Motor practices-1 (1-5 HP)	SIC27	5%	5%	\$0.021	1.09	1.03	0.13	14	0.03	0.00	\$0.048	\$380	1.24	0.65	8.56	2.14		

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																			
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/			Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/KWH	Levelized Cost of Avoided Peak Capacity \$/KW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test
					Base kWh	Base EUI	Base EUI	Base kWh	Base kWh	Base kWh									
308	Pumps - Replace 6-100 HP motor	SIC27	3%	4%	\$0.030	1.10	1.06	0.13	10	0.12	0.02	\$0.121	\$958	0.49	0.28	16.25	2.14		
309	Pumps - ASD (6-100 hp)	SIC27	6%	1%	\$0.003	1.09	1.02	0.14	10	0.32	0.00	\$0.006	\$515	7.71	5.42	0.85	1.76		
310	Pumps - Motor practices-1 (6-100 HP)	SIC27	2%	2%	\$0.005	1.09	1.06	0.13	10	0.13	0.02	\$0.032	\$254	1.86	1.07	4.30	2.14		
311	Pumps - Replace 100+ HP motor	SIC27	3%	3%	\$0.009	1.11	1.07	0.14	6	0.11	0.01	\$0.062	\$490	0.96	0.62	5.48	2.14		
312	Pumps - ASD (100+ hp)	SIC27	6%	1%	\$0.006	1.09	1.02	0.14	6	0.54	0.01	\$0.021	\$1,710	2.32	1.82	1.86	1.76		
313	Pumps - Motor practices-1 (100+ HP)	SIC27	1%	2%	\$0.002	1.09	1.07	0.14	6	0.13	0.02	\$0.031	\$244	1.93	1.24	2.73	2.14		
316	Energy Star Transformers	SIC27	20%	20%	\$0.070	1.24	0.99	0.12	25	0.03	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
400	Base Drives	SIC27	0%	0%	\$0.000	1.09	1.09	0.14	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
409	Efficient practices printing press	SIC27	10%	10%	\$0.010	1.14	1.03	0.13	20	2.87	0.36	\$0.008	\$67	6.99	3.27	1.85	2.14		
410	Efficient Printing press (fewer cylinders)	SIC27	20%	20%	\$0.060	1.29	1.04	0.13	10	2.60	0.33	\$0.037	\$290	1.62	0.94	4.92	2.14		
411	Light cylinders	SIC27	10%	10%	\$0.070	1.18	1.06	0.13	10	1.19	0.15	\$0.093	\$741	0.64	0.37	12.56	2.14		
412	Efficient drives	SIC27	3%	4%	\$0.006	1.11	1.08	0.14	10	0.59	0.07	\$0.023	\$179	2.63	1.52	3.04	2.14		
431	Energy Star Transformers	SIC27	20%	20%	\$0.070	1.24	0.99	0.12	25	0.10	0.01	\$0.025	\$200	2.15	1.01	6.01	2.14		
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC27	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC27	12%	12%	\$0.028	0.97	0.85	0.58	20	1.46	0.99	\$0.024	\$35	4.68	1.17	5.15	3.99		
702	Window Film - Chiller	SIC27	10%	10%	\$0.052	1.15	1.03	0.69	10	0.56	0.38	\$0.070	\$103	1.59	0.49	9.36	3.99		
703	EMS - Chiller	SIC27	10%	10%	\$0.081	1.13	1.02	0.69	10	0.89	0.60	\$0.113	\$167	0.98	0.30	15.17	3.99		
704	Cool Roof - Chiller	SIC27	10%	10%	\$0.141	1.13	1.02	0.69	10	0.40	0.27	\$0.204	\$302	0.54	0.17	27.40	3.99		
705	Chiller Tune Up/Diagnostics	SIC27	3%	8%	\$0.051	1.11	1.07	0.69	10	0.06	0.09	\$0.211	\$133	0.97	0.16	28.42	7.41		
706	Cooling Circ. Pumps - VSD	SIC27	6%	6%	\$0.088	1.10	1.04	0.70	15	0.46	0.31	\$0.150	\$222	0.74	0.20	28.03	3.99		
707	Energy Star Transformers	SIC27	20%	20%	\$0.064	1.24	0.99	0.67	25	0.02	0.02	\$0.023	\$34	4.42	1.11	5.46	3.99		
710	Base DX Packaged System, EER=10.3, 10 tons	SIC27	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
711	DX Tune Up/ Advanced Diagnostics	SIC27	10%	10%	\$0.061	1.14	1.03	0.70	3	0.73	0.49	\$0.240	\$355	0.46	0.17	11.35	3.99		
712	DX Packaged System, EER=10.9, 10 tons	SIC27	6%	6%	\$0.041	0.94	0.89	0.60	15	0.88	0.59	\$0.089	\$131	1.25	0.34	16.61	3.99		
713	Window Film - DX	SIC27	10%	10%	\$0.030	1.17	1.05	0.71	10	0.47	0.32	\$0.040	\$59	2.79	0.86	5.34	3.99		
714	Evaporative Pre-Cooler	SIC27	10%	10%	\$0.231	1.09	0.98	0.66	10	0.44	0.30	\$0.332	\$492	0.33	0.10	44.69	3.99		
715	Prog. Thermostat - DX	SIC27	8%	3%	\$0.016	1.14	1.04	0.75	10	0.54	0.11	\$0.027	\$132	2.52	1.27	3.61	2.44		
716	Cool Roof - DX	SIC27	10%	10%	\$0.082	1.13	1.02	0.69	10	0.56	0.38	\$0.119	\$177	0.93	0.29	16.03	3.99		
717	Energy Star Transformers	SIC27	20%	20%	\$0.064	1.24	0.99	0.67	25	0.03	0.02	\$0.023	\$34	4.42	1.11	5.46	3.99		
800	Base Lighting	SIC27	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
801	RET 2L4' Premium T8, 1EB	SIC27	31%	31%	\$0.126	1.15	0.79	0.12	15	10.42	1.53	\$0.039	\$268	1.58	0.78	7.37	2.24		
802	CFL Hardwired, Modular 36W	SIC27	72%	72%	\$0.130	1.56	0.44	0.06	4	0.60	0.09	\$0.040	\$271	1.57	1.02	2.45	2.24		
803	Metal Halide, 50W	SIC27	58%	58%	\$0.745	2.49	1.05	0.15	5	0.02	0.00	\$0.145	\$989	0.43	0.27	10.90	2.24		
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC27	17%	20%	\$0.051	1.12	0.94	0.13	9	1.09	0.19	\$0.046	\$260	1.48	0.77	5.73	2.45		
805	Energy Star Transformers	SIC27	20%	20%	\$0.064	1.24	0.99	0.14	25	0.07	0.01	\$0.023	\$156	2.48	1.11	5.46	2.24		
900	Base Other	SIC27	0%	0%	\$0.000	1.09	1.09	0.14	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
901	Replace V-belts	SIC27	0%	0%	\$0.000	1.09	1.09	0.14	5	0.00	0.00	\$0.043	\$342	1.38	0.91	3.25	2.14		
903	Energy Star Transformers	SIC27	20%	20%	\$0.070	1.24	0.99	0.12	25	0.02	0.00	\$0.025	\$200	2.15	1.01	6.01	2.14		
100	Base Compressed Air	SIC28	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
101	Compressed Air-O&M	SIC28	17%	17%	\$0.010	1.13	0.94	0.12	10	0.46	0.06	\$0.008	\$64	7.24	4.11	1.12	2.18		
102	Compressed Air - Controls	SIC28	12%	12%	\$0.017	1.19	1.05	0.14	10	0.12	0.02	\$0.019	\$145	3.20	1.81	2.54	2.18		
103	Compressed Air - System Optimization	SIC28	20%	20%	\$0.016	1.21	0.97	0.13	10	0.39	0.05	\$0.010	\$80	5.79	3.28	1.40	2.18		
104	Compressed Air- Sizing	SIC28	9%	9%	\$0.004	1.15	1.05	0.14	10	0.13	0.02	\$0.007	\$53	8.81	5.00	0.92	2.18		
105	Comp Air - Replace 1-5 HP motor	SIC28	6%	6%	\$0.053	1.10	1.03	0.13	14	0.01	0.00	\$0.101	\$778	0.60	0.31	18.08	2.18		
106	Comp Air - ASD (1-5 hp)	SIC28	6%	1%	\$0.077	1.09	1.02	0.14	14	0.01	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78		
107	Comp Air - Motor practices-1 (1-5 HP)	SIC28	5%	5%	\$0.021	1.09	1.03	0.13	14	0.01	0.00	\$0.048	\$368	1.26	0.65	8.56	2.18		
108	Comp Air - Replace 6-100 HP motor	SIC28	3%	4%	\$0.030	1.10	1.06	0.14	10	0.03	0.00	\$0.121	\$929	0.50	0.28	16.25	2.18		
109	Comp Air - ASD (6-100 hp)	SIC28	6%	1%	\$0.003	1.09	1.02	0.14	10	0.07	0.00	\$0.006	\$499	7.80	5.41	0.85	1.78		
110	Comp Air - Motor practices-1 (6-100 HP)	SIC28	2%	2%	\$0.005	1.09	1.06	0.14	10	0.03	0.00	\$0.032	\$246	1.89	1.07	4.30	2.18		
111	Comp Air - Replace 100+ HP motor	SIC28	3%	3%	\$0.009	1.11	1.07	0.14	6	0.02	0.00	\$0.062	\$475	0.98	0.62	5.48	2.18		

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																			
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/			Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test
					Base kWh	Base EUI	Base EUI	Base kWh	Base EUI	Base EUI									
112	Comp Air - ASD (100+ hp)	SIC28	6%	1%	\$0.006	1.09	1.02	0.14	6	0.12	0.00	\$0.021	\$1,657	2.35	1.81	1.87	1.78		
113	Comp Air - Motor practices-1 (100+ HP)	SIC28	1%	2%	\$0.002	1.09	1.07	0.14	6	0.03	0.00	\$0.031	\$236	1.96	1.24	2.73	2.18		
116	Energy Star Transformers	SIC28	20%	20%	\$0.070	1.24	0.99	0.13	25	0.01	0.00	\$0.025	\$194	2.19	1.01	6.01	2.18		
200	Base Fans	SIC28	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
201	Fans - O&M	SIC28	2%	2%	\$0.001	1.10	1.08	0.13	10	0.09	0.01	\$0.007	\$60	8.18	4.78	0.96	2.11		
202	Fans - Controls	SIC28	30%	30%	\$0.092	1.40	0.98	0.12	10	0.86	0.10	\$0.035	\$289	1.70	0.99	4.65	2.11		
203	Fans - System Optimization	SIC28	20%	10%	\$0.060	1.31	1.05	0.14	10	0.33	0.02	\$0.035	\$602	1.50	0.97	4.76	1.91		
204	Fans- Improve components	SIC28	5%	5%	\$0.005	1.13	1.08	0.13	10	0.09	0.01	\$0.014	\$116	4.22	2.46	1.87	2.11		
205	Fans - Replace 1-5 HP motor	SIC28	6%	6%	\$0.053	1.10	1.03	0.12	14	0.02	0.00	\$0.101	\$846	0.58	0.31	18.08	2.11		
206	Fans - ASD (1-5 hp)	SIC28	6%	1%	\$0.077	1.09	1.02	0.13	14	0.03	0.00	\$0.140	\$12,037	0.35	0.22	24.93	1.75		
207	Fans - Motor practices-1 (1-5 HP)	SIC28	5%	5%	\$0.021	1.09	1.03	0.12	14	0.02	0.00	\$0.048	\$401	1.22	0.65	8.56	2.11		
208	Fans - Replace 6-100 HP motor	SIC28	3%	4%	\$0.030	1.10	1.07	0.13	10	0.05	0.01	\$0.153	\$1,013	0.43	0.22	20.64	2.36		
209	Fans - ASD (6-100 hp)	SIC28	3%	1%	\$0.003	1.09	1.06	0.13	10	0.08	0.00	\$0.015	\$543	4.32	2.28	2.02	2.34		
210	Fans - Motor practices-1 (6-100 HP)	SIC28	2%	2%	\$0.005	1.09	1.06	0.13	10	0.08	0.01	\$0.032	\$267	1.83	1.07	4.30	2.11		
211	Fans - Replace 100+ HP motor	SIC28	3%	3%	\$0.009	1.11	1.07	0.13	6	0.06	0.01	\$0.062	\$517	0.95	0.62	5.48	2.11		
212	Fans - ASD (100+ hp)	SIC28	5%	1%	\$0.006	1.09	1.04	0.13	6	0.24	0.00	\$0.027	\$1,803	1.97	1.41	2.39	1.91		
213	Fans - Motor practices-1 (100+ HP)	SIC28	1%	2%	\$0.002	1.09	1.08	0.13	6	0.04	0.01	\$0.067	\$257	1.26	0.57	5.95	3.05		
217	Energy Star Transformers	SIC28	20%	20%	\$0.070	1.24	0.99	0.12	25	0.02	0.00	\$0.025	\$211	2.13	1.01	6.01	2.11		
300	Base Pumps	SIC28	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
301	Pumps - O&M	SIC28	10%	10%	\$0.005	1.16	1.04	0.12	10	1.53	0.18	\$0.007	\$57	8.61	5.03	0.92	2.11		
302	Pumps - Controls	SIC28	30%	30%	\$0.027	1.35	0.95	0.11	10	4.70	0.56	\$0.010	\$88	5.59	3.26	1.41	2.11		
303	Pumps - System Optimization	SIC28	33%	33%	\$0.066	1.41	0.95	0.11	10	4.64	0.55	\$0.022	\$186	2.63	1.54	3.00	2.11		
304	Pumps - Sizing	SIC28	5%	20%	\$0.020	1.14	1.07	0.11	10	0.40	0.18	\$0.052	\$116	2.08	0.66	6.94	3.87		
305	Pumps - Replace 1-5 HP motor	SIC28	6%	6%	\$0.053	1.10	1.03	0.12	14	0.09	0.01	\$0.101	\$846	0.58	0.31	18.08	2.11		
306	Pumps - ASD (1-5 hp)	SIC28	6%	1%	\$0.077	1.09	1.02	0.13	14	0.10	0.00	\$0.140	\$12,037	0.35	0.22	24.93	1.75		
307	Pumps - Motor practices-1 (1-5 HP)	SIC28	5%	5%	\$0.021	1.09	1.03	0.12	14	0.08	0.01	\$0.048	\$401	1.22	0.65	8.56	2.11		
308	Pumps - Replace 6-100 HP motor	SIC28	3%	4%	\$0.030	1.10	1.06	0.13	10	0.28	0.03	\$0.121	\$1,010	0.49	0.28	16.25	2.11		
309	Pumps - ASD (6-100 hp)	SIC28	6%	1%	\$0.003	1.09	1.02	0.13	10	0.77	0.01	\$0.006	\$543	7.71	5.44	0.85	1.75		
310	Pumps - Motor practices-1 (6-100 HP)	SIC28	2%	2%	\$0.005	1.09	1.06	0.13	10	0.31	0.04	\$0.032	\$267	1.83	1.07	4.30	2.11		
311	Pumps - Replace 100+ HP motor	SIC28	3%	3%	\$0.009	1.11	1.07	0.13	6	0.26	0.03	\$0.062	\$517	0.95	0.62	5.48	2.11		
312	Pumps - ASD (100+ hp)	SIC28	6%	1%	\$0.006	1.09	1.02	0.13	6	1.28	0.01	\$0.021	\$1,803	2.32	1.82	1.85	1.75		
313	Pumps - Motor practices-1 (100+ HP)	SIC28	1%	2%	\$0.002	1.09	1.07	0.13	6	0.32	0.04	\$0.031	\$257	1.91	1.24	2.73	2.11		
316	Energy Star Transformers	SIC28	20%	20%	\$0.070	1.24	0.99	0.12	25	0.07	0.01	\$0.025	\$211	2.13	1.01	6.01	2.11		
400	Base Drives	SIC28	0%	0%	\$0.000	1.09	1.09	0.13	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
413	Clean Room - Controls	SIC28	10%	10%	\$0.022	1.14	1.03	0.12	10	0.45	0.05	\$0.030	\$253	1.94	1.13	4.07	2.11		
414	Clean Room - New Designs	SIC28	30%	30%	\$0.132	1.43	1.00	0.12	10	0.68	0.08	\$0.048	\$405	1.21	0.71	6.51	2.11		
415	Drives - Process Controls (batch + site)	SIC28	8%	8%	\$0.024	1.13	1.04	0.12	10	1.03	0.12	\$0.042	\$349	1.41	0.82	5.61	2.11		
416	Process Drives - ASD	SIC28	1%	1%	\$0.002	1.09	1.08	0.13	10	0.12	0.01	\$0.045	\$376	1.30	0.76	6.04	2.11		
431	Energy Star Transformers	SIC28	20%	20%	\$0.070	1.24	0.99	0.12	25	0.05	0.01	\$0.025	\$211	2.13	1.01	6.01	2.11		
600	Base Other Process	SIC28	0%	0%	\$0.000	1.09	1.09	0.13	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
601	Other Process Controls (batch + site)	SIC28	8%	8%	\$0.024	1.13	1.04	0.12	10	0.51	0.06	\$0.042	\$349	1.41	0.82	5.61	2.11		
608	Energy Star Transformers	SIC28	20%	20%	\$0.070	1.24	0.99	0.12	25	0.03	0.00	\$0.025	\$211	2.13	1.01	6.01	2.11		
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC28	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC28	12%	12%	\$0.028	0.97	0.85	0.58	20	0.08	0.06	\$0.024	\$35	4.68	1.17	5.15	3.99		
702	Window Film - Chiller	SIC28	10%	10%	\$0.052	1.15	1.03	0.69	10	0.03	0.02	\$0.070	\$103	1.59	0.49	9.36	3.99		
703	EMS - Chiller	SIC28	10%	10%	\$0.081	1.13	1.02	0.69	10	0.05	0.03	\$0.113	\$167	0.98	0.30	15.17	3.99		
704	Cool Roof - Chiller	SIC28	10%	10%	\$0.141	1.13	1.02	0.69	10	0.02	0.02	\$0.204	\$302	0.54	0.17	27.40	3.99		
705	Chiller Tune Up/Diagnostics	SIC28	3%	8%	\$0.051	1.11	1.07	0.69	10	0.00	0.01	\$0.211	\$133	0.97	0.16	28.42	7.41		
706	Cooling Circ. Pumps - VSD	SIC28	6%	6%	\$0.088	1.10	1.04	0.70	15	0.03	0.02	\$0.150	\$222	0.74	0.20	28.03	3.99		
707	Energy Star Transformers	SIC28	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99		

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/ Base kWh	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
					Base kWh	Base EUI	EUI											
710	Base DX Packaged System, EER=10.3, 10 tons	SIC28	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
711	DX Tune Up/ Advanced Diagnostics	SIC28	10%	10%	\$0.061	1.14	1.03	0.70	3	0.11	0.07	\$0.240	\$355	0.46	0.17	11.35	3.99	
712	DX Packaged System, EER=10.9, 10 tons	SIC28	6%	6%	\$0.041	0.94	0.89	0.60	15	0.13	0.09	\$0.089	\$131	1.25	0.34	16.61	3.99	
713	Window Film - DX	SIC28	10%	10%	\$0.030	1.17	1.05	0.71	10	0.07	0.05	\$0.040	\$59	2.79	0.86	5.34	3.99	
714	Evaporative Pre-Cooler	SIC28	10%	10%	\$0.231	1.09	0.98	0.66	10	0.06	0.04	\$0.332	\$492	0.33	0.10	44.69	3.99	
715	Prog. Thermostat - DX	SIC28	8%	3%	\$0.016	1.14	1.04	0.75	10	0.08	0.02	\$0.027	\$132	2.52	1.27	3.61	2.44	
716	Cool Roof - DX	SIC28	10%	10%	\$0.082	1.13	1.02	0.69	10	0.08	0.06	\$0.119	\$177	0.93	0.29	16.03	3.99	
717	Energy Star Transformers	SIC28	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99	
800	Base Lighting	SIC28	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
801	RET 2L4' Premium T8, 1EB	SIC28	31%	31%	\$0.126	1.15	0.79	0.12	15	1.55	0.23	\$0.039	\$269	1.58	0.77	7.39	2.24	
802	CFL Hardwired, Modular 36W	SIC28	72%	72%	\$0.130	1.56	0.44	0.06	4	0.45	0.07	\$0.040	\$271	1.57	1.02	2.45	2.24	
803	Metal Halide, 50W	SIC28	58%	58%	\$0.745	1.97	0.83	0.12	5	0.21	0.03	\$0.183	\$1,251	0.34	0.21	13.80	2.24	
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC28	17%	20%	\$0.051	1.12	0.94	0.13	9	0.20	0.04	\$0.046	\$260	1.48	0.77	5.73	2.45	
805	Energy Star Transformers	SIC28	20%	20%	\$0.064	1.24	0.99	0.14	25	0.01	0.00	\$0.023	\$156	2.48	1.11	5.46	2.24	
900	Base Other	SIC28	0%	0%	\$0.000	1.09	1.09	0.13	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
903	Energy Star Transformers	SIC28	20%	20%	\$0.070	1.24	0.99	0.12	25	0.00	0.00	\$0.025	\$211	2.13	1.01	6.01	2.11	
100	Base Compressed Air	SIC29	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
101	Compressed Air-O&M	SIC29	17%	17%	\$0.010	1.13	0.94	0.12	10	4.21	0.55	\$0.008	\$64	7.24	4.11	1.12	2.18	
102	Compressed Air - Controls	SIC29	12%	12%	\$0.017	1.19	1.05	0.14	10	1.06	0.14	\$0.019	\$145	3.20	1.81	2.54	2.18	
103	Compressed Air - System Optimization	SIC29	20%	20%	\$0.016	1.21	0.97	0.13	10	3.56	0.46	\$0.010	\$80	5.79	3.28	1.40	2.18	
104	Compressed Air- Sizing	SIC29	9%	9%	\$0.004	1.15	1.05	0.14	10	1.22	0.16	\$0.007	\$53	8.81	5.00	0.92	2.18	
105	Comp Air - Replace 1-5 HP motor	SIC29	6%	6%	\$0.053	1.10	1.03	0.13	14	0.08	0.01	\$0.101	\$778	0.60	0.31	18.08	2.18	
106	Comp Air - ASD (1-5 hp)	SIC29	6%	1%	\$0.077	1.09	1.02	0.14	14	0.09	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78	
107	Comp Air - Motor practices-1 (1-5 HP)	SIC29	5%	5%	\$0.021	1.09	1.03	0.13	14	0.07	0.01	\$0.048	\$368	1.26	0.65	8.56	2.18	
108	Comp Air - Replace 6-100 HP motor	SIC29	3%	4%	\$0.030	1.10	1.06	0.14	10	0.25	0.03	\$0.121	\$929	0.50	0.28	16.25	2.18	
109	Comp Air - ASD (6-100 hp)	SIC29	6%	1%	\$0.003	1.09	1.02	0.14	10	0.68	0.01	\$0.006	\$499	7.80	5.41	0.85	1.78	
110	Comp Air - Motor practices-1 (6-100 HP)	SIC29	2%	2%	\$0.005	1.09	1.06	0.14	10	0.27	0.04	\$0.032	\$246	1.89	1.07	4.30	2.18	
111	Comp Air - Replace 100+ HP motor	SIC29	3%	3%	\$0.009	1.11	1.07	0.14	6	0.23	0.03	\$0.062	\$475	0.98	0.62	5.48	2.18	
112	Comp Air - ASD (100+ hp)	SIC29	6%	1%	\$0.006	1.09	1.02	0.14	6	1.13	0.01	\$0.021	\$1,657	2.35	1.81	1.87	1.78	
113	Comp Air - Motor practices-1 (100+ HP)	SIC29	1%	2%	\$0.002	1.09	1.07	0.14	6	0.28	0.04	\$0.031	\$236	1.96	1.24	2.73	2.18	
114	Power recovery	SIC29	1%	1%	\$0.003	1.10	1.08	0.14	10	0.08	0.01	\$0.043	\$331	1.40	0.79	5.80	2.18	
115	Refinery Controls	SIC29	2%	3%	\$0.004	1.10	1.07	0.14	10	0.41	0.05	\$0.022	\$167	2.78	1.58	2.92	2.18	
116	Energy Star Transformers	SIC29	20%	20%	\$0.070	1.24	0.99	0.13	25	0.06	0.01	\$0.025	\$194	2.19	1.01	6.01	2.18	
200	Base Fans	SIC29	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
201	Fans - O&M	SIC29	2%	2%	\$0.001	1.10	1.08	0.13	10	0.19	0.02	\$0.007	\$60	8.18	4.78	0.96	2.11	
202	Fans - Controls	SIC29	30%	30%	\$0.092	1.40	0.98	0.12	10	1.86	0.22	\$0.035	\$289	1.70	0.99	4.65	2.11	
203	Fans - System Optimization	SIC29	20%	10%	\$0.060	1.31	1.05	0.14	10	0.71	0.04	\$0.035	\$602	1.50	0.97	4.76	1.91	
204	Fans- Improve components	SIC29	5%	5%	\$0.005	1.13	1.08	0.13	10	0.20	0.02	\$0.014	\$116	4.22	2.46	1.87	2.11	
205	Fans - Replace 1-5 HP motor	SIC29	6%	6%	\$0.053	1.10	1.03	0.12	14	0.05	0.01	\$0.101	\$846	0.58	0.31	18.08	2.11	
206	Fans - ASD (1-5 hp)	SIC29	6%	1%	\$0.077	1.09	1.02	0.13	14	0.06	0.00	\$0.140	\$12,037	0.35	0.22	24.93	1.75	
207	Fans - Motor practices-1 (1-5 HP)	SIC29	5%	5%	\$0.021	1.09	1.03	0.12	14	0.04	0.01	\$0.048	\$401	1.22	0.65	8.56	2.11	
208	Fans - Replace 6-100 HP motor	SIC29	3%	4%	\$0.030	1.10	1.07	0.13	10	0.12	0.02	\$0.153	\$1,013	0.43	0.22	20.64	2.36	
209	Fans - ASD (6-100 hp)	SIC29	3%	1%	\$0.003	1.09	1.06	0.13	10	0.17	0.00	\$0.015	\$543	4.32	2.28	2.02	2.34	
210	Fans - Motor practices-1 (6-100 HP)	SIC29	2%	2%	\$0.005	1.09	1.06	0.13	10	0.16	0.02	\$0.032	\$267	1.83	1.07	4.30	2.11	
211	Fans - Replace 100+ HP motor	SIC29	3%	3%	\$0.009	1.11	1.07	0.13	6	0.14	0.02	\$0.062	\$517	0.95	0.62	5.48	2.11	
212	Fans - ASD (100+ hp)	SIC29	5%	1%	\$0.006	1.09	1.04	0.13	6	0.53	0.01	\$0.027	\$1,803	1.97	1.41	2.39	1.91	
213	Fans - Motor practices-1 (100+ HP)	SIC29	1%	2%	\$0.002	1.09	1.08	0.13	6	0.08	0.02	\$0.067	\$257	1.26	0.57	5.95	3.05	
215	Power recovery	SIC29	1%	1%	\$0.003	1.10	1.08	0.13	10	0.05	0.01	\$0.043	\$360	1.36	0.79	5.80	2.11	
216	Refinery Controls	SIC29	2%	3%	\$0.004	1.10	1.07	0.13	10	0.24	0.03	\$0.022	\$182	2.70	1.58	2.92	2.11	
217	Energy Star Transformers	SIC29	20%	20%	\$0.070	1.24	0.99	0.12	25	0.03	0.00	\$0.025	\$211	2.13	1.01	6.01	2.11	

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/ kWh	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
					Base kWh	Base EUI	EUI											
300	Base Pumps	SIC29	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
301	Pumps - O&M	SIC29	10%	10%	\$0.005	1.16	1.04	0.12	10	5.45	0.65	\$0.007	\$57	8.61	5.03	0.92	2.11	
302	Pumps - Controls	SIC29	30%	30%	\$0.027	1.35	0.95	0.11	10	16.72	2.00	\$0.010	\$88	5.59	3.26	1.41	2.11	
303	Pumps - System Optimization	SIC29	33%	33%	\$0.066	1.41	0.95	0.11	10	16.50	1.97	\$0.022	\$186	2.63	1.54	3.00	2.11	
304	Pumps - Sizing	SIC29	5%	20%	\$0.020	1.14	1.07	0.11	10	1.44	0.64	\$0.052	\$116	2.08	0.66	6.94	3.87	
305	Pumps - Replace 1-5 HP motor	SIC29	6%	6%	\$0.053	1.10	1.03	0.12	14	0.31	0.04	\$0.101	\$846	0.58	0.31	18.08	2.11	
306	Pumps - ASD (1-5 hp)	SIC29	6%	1%	\$0.077	1.09	1.02	0.13	14	0.37	0.00	\$0.140	\$12,037	0.35	0.22	24.93	1.75	
307	Pumps - Motor practices-1 (1-5 HP)	SIC29	5%	5%	\$0.021	1.09	1.03	0.12	14	0.30	0.04	\$0.048	\$401	1.22	0.65	8.56	2.11	
308	Pumps - Replace 6-100 HP motor	SIC29	3%	4%	\$0.030	1.10	1.06	0.13	10	1.01	0.12	\$0.121	\$1,010	0.49	0.28	16.25	2.11	
309	Pumps - ASD (6-100 hp)	SIC29	6%	1%	\$0.003	1.09	1.02	0.13	10	2.74	0.03	\$0.006	\$543	7.71	5.44	0.85	1.75	
310	Pumps - Motor practices-1 (6-100 HP)	SIC29	2%	2%	\$0.005	1.09	1.06	0.13	10	1.10	0.13	\$0.032	\$267	1.83	1.07	4.30	2.11	
311	Pumps - Replace 100+ HP motor	SIC29	3%	3%	\$0.009	1.11	1.07	0.13	6	0.91	0.11	\$0.062	\$517	0.95	0.62	5.48	2.11	
312	Pumps - ASD (100+ hp)	SIC29	6%	1%	\$0.006	1.09	1.02	0.13	6	4.55	0.05	\$0.021	\$1,803	2.32	1.82	1.85	1.75	
313	Pumps - Motor practices-1 (100+ HP)	SIC29	1%	2%	\$0.002	1.09	1.07	0.13	6	1.14	0.14	\$0.031	\$257	1.91	1.24	2.73	2.11	
314	Power recovery	SIC29	1%	1%	\$0.003	1.10	1.08	0.13	10	0.32	0.04	\$0.043	\$360	1.36	0.79	5.80	2.11	
315	Refinery Controls	SIC29	2%	3%	\$0.004	1.10	1.07	0.13	10	1.62	0.19	\$0.022	\$182	2.70	1.58	2.92	2.11	
316	Energy Star Transformers	SIC29	20%	20%	\$0.070	1.24	0.99	0.12	25	0.23	0.03	\$0.025	\$211	2.13	1.01	6.01	2.11	
600	Base Other Process	SIC29	0%	0%	\$0.000	1.09	1.09	0.13	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
602	Efficient desalter	SIC29	20%	20%	\$0.040	1.21	0.97	0.12	10	0.01	0.00	\$0.026	\$218	2.25	1.31	3.51	2.11	
606	Power recovery	SIC29	1%	1%	\$0.003	1.10	1.08	0.13	10	0.00	0.00	\$0.043	\$360	1.36	0.79	5.80	2.11	
607	Refinery Controls	SIC29	2%	3%	\$0.004	1.10	1.07	0.13	10	0.00	0.00	\$0.022	\$182	2.70	1.58	2.92	2.11	
608	Energy Star Transformers	SIC29	20%	20%	\$0.070	1.24	0.99	0.12	25	0.00	0.00	\$0.025	\$211	2.13	1.01	6.01	2.11	
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC29	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC29	12%	12%	\$0.028	0.97	0.85	0.58	20	0.12	0.08	\$0.024	\$35	4.68	1.17	5.15	3.99	
702	Window Film - Chiller	SIC29	10%	10%	\$0.052	1.15	1.03	0.69	10	0.05	0.03	\$0.070	\$103	1.59	0.49	9.36	3.99	
703	EMS - Chiller	SIC29	10%	10%	\$0.081	1.13	1.02	0.69	10	0.08	0.05	\$0.113	\$167	0.98	0.30	15.17	3.99	
704	Cool Roof - Chiller	SIC29	10%	10%	\$0.141	1.13	1.02	0.69	10	0.03	0.02	\$0.204	\$302	0.54	0.17	27.40	3.99	
705	Chiller Tune Up/Diagnostics	SIC29	3%	8%	\$0.051	1.11	1.07	0.69	10	0.00	0.01	\$0.211	\$133	0.97	0.16	28.42	7.41	
706	Cooling Circ. Pumps - VSD	SIC29	6%	6%	\$0.088	1.10	1.04	0.70	15	0.04	0.03	\$0.150	\$222	0.74	0.20	28.03	3.99	
707	Energy Star Transformers	SIC29	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99	
710	Base DX Packaged System, EER=10.3, 10 tons	SIC29	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
711	DX Tune Up/ Advanced Diagnostics	SIC29	10%	10%	\$0.061	1.14	1.03	0.70	3	0.15	0.10	\$0.240	\$355	0.46	0.17	11.35	3.99	
712	DX Packaged System, EER=10.9, 10 tons	SIC29	6%	6%	\$0.041	0.94	0.89	0.60	15	0.19	0.13	\$0.089	\$131	1.25	0.34	16.61	3.99	
713	Window Film - DX	SIC29	10%	10%	\$0.030	1.17	1.05	0.71	10	0.10	0.07	\$0.040	\$59	2.79	0.86	5.34	3.99	
714	Evaporative Pre-Cooler	SIC29	10%	10%	\$0.231	1.09	0.98	0.66	10	0.09	0.06	\$0.332	\$492	0.33	0.10	44.69	3.99	
715	Prog. Thermostat - DX	SIC29	8%	3%	\$0.016	1.14	1.04	0.75	10	0.12	0.02	\$0.027	\$132	2.52	1.27	3.61	2.44	
716	Cool Roof - DX	SIC29	10%	10%	\$0.082	1.13	1.02	0.69	10	0.12	0.08	\$0.119	\$177	0.93	0.29	16.03	3.99	
717	Energy Star Transformers	SIC29	20%	20%	\$0.064	1.24	0.99	0.67	25	0.01	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99	
800	Base Lighting	SIC29	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
801	RET 2L4' Premium T8, 1EB	SIC29	31%	31%	\$0.126	1.15	0.79	0.12	15	1.55	0.23	\$0.039	\$269	1.58	0.77	7.39	2.24	
802	CFL Hardwired, Modular 36W	SIC29	72%	72%	\$0.130	1.56	0.44	0.06	4	0.46	0.07	\$0.040	\$271	1.57	1.02	2.45	2.24	
803	Metal Halide, 50W	SIC29	58%	58%	\$0.745	1.97	0.83	0.12	5	0.21	0.03	\$0.183	\$1,251	0.34	0.21	13.80	2.24	
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC29	17%	20%	\$0.051	1.12	0.94	0.13	9	0.20	0.04	\$0.046	\$260	1.48	0.77	5.73	2.45	
805	Energy Star Transformers	SIC29	20%	20%	\$0.064	1.24	0.99	0.14	25	0.01	0.00	\$0.023	\$156	2.48	1.11	5.46	2.24	
900	Base Other	SIC29	0%	0%	\$0.000	1.09	1.09	0.13	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
901	Replace V-belts	SIC29	0%	0%	\$0.000	1.09	1.09	0.13	5	0.00	0.00	\$0.043	\$360	1.36	0.91	3.25	2.11	
903	Energy Star Transformers	SIC29	20%	20%	\$0.070	1.24	0.99	0.12	25	0.00	0.00	\$0.025	\$211	2.13	1.01	6.01	2.11	
100	Base Compressed Air	SIC30	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
101	Compressed Air-O&M	SIC30	17%	17%	\$0.010	1.13	0.94	0.12	10	0.51	0.07	\$0.008	\$64	7.24	4.11	1.12	2.18	
102	Compressed Air - Controls	SIC30	12%	12%	\$0.017	1.19	1.05	0.14	10	0.13	0.02	\$0.019	\$145	3.20	1.81	2.54	2.18	

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																			
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/			Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test
					Base kWh	Base EUI	Base EUI	Base kWh	Base EUI	Base EUI									
103	Compressed Air - System Optimization	SIC30	20%	20%	\$0.016	1.21	0.97	0.13	10	0.43	0.06	\$0.010	\$80	5.79	3.28	1.40	2.18		
104	Compressed Air- Sizing	SIC30	9%	9%	\$0.004	1.15	1.05	0.14	10	0.15	0.02	\$0.007	\$53	8.81	5.00	0.92	2.18		
105	Comp Air - Replace 1-5 HP motor	SIC30	6%	6%	\$0.053	1.10	1.03	0.13	14	0.01	0.00	\$0.101	\$778	0.60	0.31	18.08	2.18		
106	Comp Air - ASD (1-5 hp)	SIC30	6%	1%	\$0.077	1.09	1.02	0.14	14	0.01	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78		
107	Comp Air - Motor practices-1 (1-5 HP)	SIC30	5%	5%	\$0.021	1.09	1.03	0.13	14	0.01	0.00	\$0.048	\$368	1.26	0.65	8.56	2.18		
108	Comp Air - Replace 6-100 HP motor	SIC30	3%	4%	\$0.030	1.10	1.06	0.14	10	0.03	0.00	\$0.121	\$929	0.50	0.28	16.25	2.18		
109	Comp Air - ASD (6-100 hp)	SIC30	6%	1%	\$0.003	1.09	1.02	0.14	10	0.08	0.00	\$0.006	\$499	7.80	5.41	0.85	1.78		
110	Comp Air - Motor practices-1 (6-100 HP)	SIC30	2%	2%	\$0.005	1.09	1.06	0.14	10	0.03	0.00	\$0.032	\$246	1.89	1.07	4.30	2.18		
111	Comp Air - Replace 100+ HP motor	SIC30	3%	3%	\$0.009	1.11	1.07	0.14	6	0.03	0.00	\$0.062	\$475	0.98	0.62	5.48	2.18		
112	Comp Air - ASD (100+ hp)	SIC30	6%	1%	\$0.006	1.09	1.02	0.14	6	0.14	0.00	\$0.021	\$1,657	2.35	1.81	1.87	1.78		
113	Comp Air - Motor practices-1 (100+ HP)	SIC30	1%	2%	\$0.002	1.09	1.07	0.14	6	0.03	0.00	\$0.031	\$236	1.96	1.24	2.73	2.18		
116	Energy Star Transformers	SIC30	20%	20%	\$0.070	1.24	0.99	0.13	25	0.01	0.00	\$0.025	\$194	2.19	1.01	6.01	2.18		
200	Base Fans	SIC30	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
201	Fans - O&M	SIC30	2%	2%	\$0.001	1.10	1.08	0.13	10	0.07	0.01	\$0.007	\$60	8.18	4.78	0.96	2.11		
202	Fans - Controls	SIC30	30%	30%	\$0.092	1.40	0.98	0.12	10	0.70	0.08	\$0.035	\$289	1.70	0.99	4.65	2.11		
203	Fans - System Optimization	SIC30	20%	10%	\$0.060	1.31	1.05	0.14	10	0.27	0.02	\$0.035	\$602	1.50	0.97	4.76	1.91		
204	Fans- Improve components	SIC30	5%	5%	\$0.005	1.13	1.08	0.13	10	0.08	0.01	\$0.014	\$116	4.22	2.46	1.87	2.11		
205	Fans - Replace 1-5 HP motor	SIC30	6%	6%	\$0.053	1.10	1.03	0.12	14	0.02	0.00	\$0.101	\$846	0.58	0.31	18.08	2.11		
206	Fans - ASD (1-5 hp)	SIC30	6%	1%	\$0.077	1.09	1.02	0.13	14	0.02	0.00	\$0.140	\$12,037	0.35	0.22	24.93	1.75		
207	Fans - Motor practices-1 (1-5 HP)	SIC30	5%	5%	\$0.021	1.09	1.03	0.12	14	0.02	0.00	\$0.048	\$401	1.22	0.65	8.56	2.11		
208	Fans - Replace 6-100 HP motor	SIC30	3%	4%	\$0.030	1.10	1.07	0.13	10	0.05	0.01	\$0.153	\$1,013	0.43	0.22	20.64	2.36		
209	Fans - ASD (6-100 hp)	SIC30	3%	1%	\$0.003	1.09	1.06	0.13	10	0.07	0.00	\$0.015	\$543	4.32	2.28	2.02	2.34		
210	Fans - Motor practices-1 (6-100 HP)	SIC30	2%	2%	\$0.005	1.09	1.06	0.13	10	0.06	0.01	\$0.032	\$267	1.83	1.07	4.30	2.11		
211	Fans - Replace 100+ HP motor	SIC30	3%	3%	\$0.009	1.11	1.07	0.13	6	0.05	0.01	\$0.062	\$517	0.95	0.62	5.48	2.11		
212	Fans - ASD (100+ hp)	SIC30	5%	1%	\$0.006	1.09	1.04	0.13	6	0.20	0.00	\$0.027	\$1,803	1.97	1.41	2.39	1.91		
213	Fans - Motor practices-1 (100+ HP)	SIC30	1%	2%	\$0.002	1.09	1.08	0.13	6	0.03	0.01	\$0.067	\$257	1.26	0.57	5.95	3.05		
217	Energy Star Transformers	SIC30	20%	20%	\$0.070	1.24	0.99	0.12	25	0.01	0.00	\$0.025	\$211	2.13	1.01	6.01	2.11		
300	Base Pumps	SIC30	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
301	Pumps - O&M	SIC30	10%	10%	\$0.005	1.16	1.04	0.12	10	0.41	0.05	\$0.007	\$57	8.61	5.03	0.92	2.11		
302	Pumps - Controls	SIC30	30%	30%	\$0.027	1.35	0.95	0.11	10	1.25	0.15	\$0.010	\$88	5.59	3.26	1.41	2.11		
303	Pumps - System Optimization	SIC30	33%	33%	\$0.066	1.41	0.95	0.11	10	1.23	0.15	\$0.022	\$186	2.63	1.54	3.00	2.11		
304	Pumps - Sizing	SIC30	5%	20%	\$0.020	1.14	1.07	0.11	10	0.11	0.05	\$0.052	\$116	2.08	0.66	6.94	3.87		
305	Pumps - Replace 1-5 HP motor	SIC30	6%	6%	\$0.053	1.10	1.03	0.12	14	0.02	0.00	\$0.101	\$846	0.58	0.31	18.08	2.11		
306	Pumps - ASD (1-5 hp)	SIC30	6%	1%	\$0.077	1.09	1.02	0.13	14	0.03	0.00	\$0.140	\$12,037	0.35	0.22	24.93	1.75		
307	Pumps - Motor practices-1 (1-5 HP)	SIC30	5%	5%	\$0.021	1.09	1.03	0.12	14	0.02	0.00	\$0.048	\$401	1.22	0.65	8.56	2.11		
308	Pumps - Replace 6-100 HP motor	SIC30	3%	4%	\$0.030	1.10	1.06	0.13	10	0.07	0.01	\$0.121	\$1,010	0.49	0.28	16.25	2.11		
309	Pumps - ASD (6-100 hp)	SIC30	6%	1%	\$0.003	1.09	1.02	0.13	10	0.20	0.00	\$0.006	\$543	7.71	5.44	0.85	1.75		
310	Pumps - Motor practices-1 (6-100 HP)	SIC30	2%	2%	\$0.005	1.09	1.06	0.13	10	0.08	0.01	\$0.032	\$267	1.83	1.07	4.30	2.11		
311	Pumps - Replace 100+ HP motor	SIC30	3%	3%	\$0.009	1.11	1.07	0.13	6	0.07	0.01	\$0.062	\$517	0.95	0.62	5.48	2.11		
312	Pumps - ASD (100+ hp)	SIC30	6%	1%	\$0.006	1.09	1.02	0.13	6	0.34	0.00	\$0.021	\$1,803	2.32	1.82	1.85	1.75		
313	Pumps - Motor practices-1 (100+ HP)	SIC30	1%	2%	\$0.002	1.09	1.07	0.13	6	0.08	0.01	\$0.031	\$257	1.91	1.24	2.73	2.11		
316	Energy Star Transformers	SIC30	20%	20%	\$0.070	1.24	0.99	0.12	25	0.02	0.00	\$0.025	\$211	2.13	1.01	6.01	2.11		
400	Base Drives	SIC30	0%	0%	\$0.000	1.09	1.09	0.13	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
417	O&M - Extruders/Injection Moulding	SIC30	10%	10%	\$0.005	1.14	1.03	0.12	12	1.81	0.22	\$0.006	\$49	10.03	5.61	0.93	2.11		
418	Extruders/injection Moulding-multipump	SIC30	30%	30%	\$0.099	1.43	1.00	0.12	12	2.71	0.32	\$0.031	\$258	1.90	1.06	4.88	2.11		
419	Direct drive Extruders	SIC30	50%	50%	\$0.308	1.98	0.99	0.12	12	1.56	0.19	\$0.042	\$348	1.41	0.79	6.60	2.11		
420	Injection Moulding - Impulse Cooling	SIC30	21%	21%	\$0.069	1.29	1.02	0.12	12	1.07	0.13	\$0.034	\$286	1.71	0.96	5.42	2.11		
421	Injection Moulding - Direct drive	SIC30	20%	20%	\$0.097	1.28	1.02	0.12	12	1.01	0.12	\$0.051	\$423	1.16	0.65	8.01	2.11		
431	Energy Star Transformers	SIC30	20%	20%	\$0.070	1.24	0.99	0.12	25	0.06	0.01	\$0.025	\$211	2.13	1.01	6.01	2.11		
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC30	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/ Base kWh	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
					Base kWh	Base EUI	EUI											
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC30	12%	12%	\$0.028	0.97	0.85	0.58	20	0.14	0.09	\$0.024	\$35	4.68	1.17	5.15	3.99	
702	Window Film - Chiller	SIC30	10%	10%	\$0.052	1.15	1.03	0.69	10	0.05	0.04	\$0.070	\$103	1.59	0.49	9.36	3.99	
703	EMS - Chiller	SIC30	10%	10%	\$0.081	1.13	1.02	0.69	10	0.08	0.06	\$0.113	\$167	0.98	0.30	15.17	3.99	
704	Cool Roof - Chiller	SIC30	10%	10%	\$0.141	1.13	1.02	0.69	10	0.04	0.03	\$0.204	\$302	0.54	0.17	27.40	3.99	
705	Chiller Tune Up/Diagnostics	SIC30	3%	8%	\$0.051	1.11	1.07	0.69	10	0.01	0.01	\$0.211	\$133	0.97	0.16	28.42	7.41	
706	Cooling Circ. Pumps - VSD	SIC30	6%	6%	\$0.088	1.10	1.04	0.70	15	0.04	0.03	\$0.150	\$222	0.74	0.20	28.03	3.99	
707	Energy Star Transformers	SIC30	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99	
710	Base DX Packaged System, EER=10.3, 10 tons	SIC30	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
711	DX Tune Up/ Advanced Diagnostics	SIC30	10%	10%	\$0.061	1.14	1.03	0.70	3	0.08	0.06	\$0.240	\$355	0.46	0.17	11.35	3.99	
712	DX Packaged System, EER=10.9, 10 tons	SIC30	6%	6%	\$0.041	0.94	0.89	0.60	15	0.10	0.07	\$0.089	\$131	1.25	0.34	16.61	3.99	
713	Window Film - DX	SIC30	10%	10%	\$0.030	1.17	1.05	0.71	10	0.05	0.04	\$0.040	\$59	2.79	0.86	5.34	3.99	
714	Evaporative Pre-Cooler	SIC30	10%	10%	\$0.231	1.09	0.98	0.66	10	0.05	0.03	\$0.332	\$492	0.33	0.10	44.69	3.99	
715	Prog. Thermostat - DX	SIC30	8%	3%	\$0.016	1.14	1.04	0.75	10	0.06	0.01	\$0.027	\$132	2.52	1.27	3.61	2.44	
716	Cool Roof - DX	SIC30	10%	10%	\$0.082	1.13	1.02	0.69	10	0.06	0.04	\$0.119	\$177	0.93	0.29	16.03	3.99	
717	Energy Star Transformers	SIC30	20%	20%	\$0.064	1.24	0.99	0.67	25	0.00	0.00	\$0.023	\$34	4.42	1.11	5.46	3.99	
800	Base Lighting	SIC30	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
801	RET 2L4' Premium T8, 1EB	SIC30	31%	31%	\$0.126	1.14	0.78	0.11	15	2.36	0.35	\$0.040	\$270	1.57	0.77	7.42	2.24	
802	CFL Hardwired, Modular 36W	SIC30	72%	72%	\$0.130	1.56	0.44	0.06	4	1.12	0.16	\$0.040	\$271	1.57	1.02	2.45	2.24	
803	Metal Halide, 50W	SIC30	58%	58%	\$0.745	2.32	0.98	0.14	5	0.02	0.00	\$0.156	\$1,062	0.40	0.25	11.71	2.24	
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC30	17%	20%	\$0.051	1.12	0.94	0.13	9	0.29	0.05	\$0.046	\$260	1.48	0.77	5.73	2.45	
805	Energy Star Transformers	SIC30	20%	20%	\$0.064	1.24	0.99	0.14	25	0.02	0.00	\$0.023	\$156	2.48	1.11	5.46	2.24	
900	Base Other	SIC30	0%	0%	\$0.000	1.09	1.09	0.13	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
901	Replace V-belts	SIC30	0%	0%	\$0.000	1.09	1.09	0.13	5	0.00	0.00	\$0.043	\$360	1.36	0.91	3.25	2.11	
903	Energy Star Transformers	SIC30	20%	20%	\$0.070	1.24	0.99	0.12	25	0.01	0.00	\$0.025	\$211	2.13	1.01	6.01	2.11	
100	Base Compressed Air	SIC32	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
101	Compressed Air-O&M	SIC32	17%	17%	\$0.010	1.13	0.94	0.12	10	2.51	0.33	\$0.008	\$64	7.24	4.11	1.12	2.18	
102	Compressed Air - Controls	SIC32	12%	12%	\$0.017	1.19	1.05	0.14	10	0.63	0.08	\$0.019	\$145	3.20	1.81	2.54	2.18	
103	Compressed Air - System Optimization	SIC32	20%	20%	\$0.016	1.21	0.97	0.13	10	2.12	0.28	\$0.010	\$80	5.79	3.28	1.40	2.18	
104	Compressed Air- Sizing	SIC32	9%	9%	\$0.004	1.15	1.05	0.14	10	0.73	0.09	\$0.007	\$53	8.81	5.00	0.92	2.18	
105	Comp Air - Replace 1-5 HP motor	SIC32	6%	6%	\$0.053	1.10	1.03	0.13	14	0.05	0.01	\$0.101	\$778	0.60	0.31	18.08	2.18	
106	Comp Air - ASD (1-5 hp)	SIC32	6%	1%	\$0.077	1.09	1.02	0.14	14	0.05	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78	
107	Comp Air - Motor practices-1 (1-5 HP)	SIC32	5%	5%	\$0.021	1.09	1.03	0.13	14	0.04	0.01	\$0.048	\$368	1.26	0.65	8.56	2.18	
108	Comp Air - Replace 6-100 HP motor	SIC32	3%	4%	\$0.030	1.10	1.06	0.14	10	0.15	0.02	\$0.121	\$929	0.50	0.28	16.25	2.18	
109	Comp Air - ASD (6-100 hp)	SIC32	6%	1%	\$0.003	1.09	1.02	0.14	10	0.40	0.01	\$0.006	\$499	7.80	5.41	0.85	1.78	
110	Comp Air - Motor practices-1 (6-100 HP)	SIC32	2%	2%	\$0.005	1.09	1.06	0.14	10	0.16	0.02	\$0.032	\$246	1.89	1.07	4.30	2.18	
111	Comp Air - Replace 100+ HP motor	SIC32	3%	3%	\$0.009	1.11	1.07	0.14	6	0.14	0.02	\$0.062	\$475	0.98	0.62	5.48	2.18	
112	Comp Air - ASD (100+ hp)	SIC32	6%	1%	\$0.006	1.09	1.02	0.14	6	0.67	0.01	\$0.021	\$1,657	2.35	1.81	1.87	1.78	
113	Comp Air - Motor practices-1 (100+ HP)	SIC32	1%	2%	\$0.002	1.09	1.07	0.14	6	0.17	0.02	\$0.031	\$236	1.96	1.24	2.73	2.18	
116	Energy Star Transformers	SIC32	20%	20%	\$0.070	1.24	0.99	0.13	25	0.03	0.00	\$0.025	\$194	2.19	1.01	6.01	2.18	
200	Base Fans	SIC32	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
201	Fans - O&M	SIC32	2%	2%	\$0.001	1.10	1.08	0.12	10	0.45	0.05	\$0.007	\$62	8.11	4.78	0.96	2.10	
202	Fans - Controls	SIC32	30%	30%	\$0.092	1.40	0.98	0.11	10	4.34	0.50	\$0.035	\$300	1.68	0.99	4.65	2.10	
203	Fans - System Optimization	SIC32	20%	10%	\$0.060	1.31	1.05	0.14	10	1.66	0.09	\$0.035	\$625	1.49	0.97	4.75	1.90	
204	Fans- Improve components	SIC32	5%	5%	\$0.005	1.13	1.08	0.12	10	0.47	0.05	\$0.014	\$121	4.18	2.46	1.87	2.10	
205	Fans - Replace 1-5 HP motor	SIC32	6%	6%	\$0.053	1.10	1.03	0.12	14	0.11	0.01	\$0.101	\$878	0.57	0.31	18.08	2.10	
206	Fans - ASD (1-5 hp)	SIC32	6%	1%	\$0.077	1.09	1.02	0.12	14	0.13	0.00	\$0.139	\$12,497	0.35	0.22	24.88	1.74	
207	Fans - Motor practices-1 (1-5 HP)	SIC32	5%	5%	\$0.021	1.09	1.03	0.12	14	0.10	0.01	\$0.048	\$416	1.21	0.65	8.56	2.10	
208	Fans - Replace 6-100 HP motor	SIC32	3%	4%	\$0.030	1.10	1.07	0.12	10	0.28	0.04	\$0.153	\$1,052	0.42	0.22	20.62	2.34	
209	Fans - ASD (6-100 hp)	SIC32	3%	1%	\$0.003	1.09	1.06	0.12	10	0.40	0.01	\$0.015	\$563	4.31	2.29	2.01	2.32	
210	Fans - Motor practices-1 (6-100 HP)	SIC32	2%	2%	\$0.005	1.09	1.06	0.12	10	0.38	0.04	\$0.032	\$278	1.82	1.07	4.30	2.10	

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Base kWh	Base EUI	EUI	Peak Watts/ Base kWh	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
211	Fans - Replace 100+ HP motor	SIC32	3%	3%	\$0.009	1.11	1.07	0.12	6	0.32	0.04	\$0.062	\$536	0.94	0.62	5.48	2.10	
212	Fans - ASD (100+ hp)	SIC32	5%	1%	\$0.006	1.09	1.04	0.12	6	1.24	0.02	\$0.027	\$1,872	1.97	1.42	2.39	1.90	
213	Fans - Motor practices-1 (100+ HP)	SIC32	1%	2%	\$0.002	1.09	1.08	0.12	6	0.18	0.05	\$0.067	\$267	1.24	0.57	5.95	3.01	
217	Energy Star Transformers	SIC32	20%	20%	\$0.070	1.24	0.99	0.11	25	0.08	0.01	\$0.025	\$219	2.11	1.01	6.01	2.10	
300	Base Pumps	SIC32	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
301	Pumps - O&M	SIC32	10%	10%	\$0.005	1.16	1.04	0.12	10	2.42	0.28	\$0.007	\$59	8.54	5.03	0.92	2.10	
302	Pumps - Controls	SIC32	30%	30%	\$0.027	1.35	0.95	0.11	10	7.42	0.86	\$0.010	\$91	5.54	3.26	1.41	2.10	
303	Pumps - System Optimization	SIC32	33%	33%	\$0.066	1.41	0.95	0.11	10	7.33	0.84	\$0.022	\$194	2.61	1.54	3.00	2.10	
304	Pumps - Sizing	SIC32	5%	20%	\$0.020	1.13	1.08	0.10	10	0.62	0.27	\$0.053	\$120	2.02	0.65	7.12	3.85	
305	Pumps - Replace 1-5 HP motor	SIC32	6%	6%	\$0.053	1.10	1.03	0.12	14	0.14	0.02	\$0.101	\$878	0.57	0.31	18.08	2.10	
306	Pumps - ASD (1-5 hp)	SIC32	6%	1%	\$0.077	1.09	1.02	0.12	14	0.16	0.00	\$0.139	\$12,497	0.35	0.22	24.88	1.74	
307	Pumps - Motor practices-1 (1-5 HP)	SIC32	5%	5%	\$0.021	1.09	1.03	0.12	14	0.13	0.02	\$0.048	\$416	1.21	0.65	8.56	2.10	
308	Pumps - Replace 6-100 HP motor	SIC32	3%	4%	\$0.030	1.10	1.06	0.12	10	0.45	0.05	\$0.121	\$1,049	0.48	0.28	16.25	2.10	
309	Pumps - ASD (6-100 hp)	SIC32	6%	1%	\$0.003	1.09	1.02	0.12	10	1.22	0.01	\$0.006	\$563	7.70	5.45	0.84	1.74	
310	Pumps - Motor practices-1 (6-100 HP)	SIC32	2%	2%	\$0.005	1.09	1.06	0.12	10	0.49	0.06	\$0.032	\$278	1.82	1.07	4.30	2.10	
311	Pumps - Replace 100+ HP motor	SIC32	3%	3%	\$0.009	1.11	1.07	0.12	6	0.41	0.05	\$0.062	\$536	0.94	0.62	5.48	2.10	
312	Pumps - ASD (100+ hp)	SIC32	6%	1%	\$0.006	1.09	1.02	0.12	6	2.02	0.02	\$0.021	\$1,872	2.32	1.83	1.85	1.74	
313	Pumps - Motor practices-1 (100+ HP)	SIC32	1%	2%	\$0.002	1.09	1.07	0.12	6	0.51	0.06	\$0.031	\$267	1.89	1.24	2.73	2.10	
316	Energy Star Transformers	SIC32	20%	20%	\$0.070	1.24	0.99	0.11	25	0.10	0.01	\$0.025	\$219	2.11	1.01	6.01	2.10	
400	Base Drives	SIC32	0%	0%	\$0.000	1.09	1.09	0.13	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
405	Drives - EE motor	SIC32	3%	4%	\$0.005	1.11	1.08	0.12	10	0.69	0.08	\$0.021	\$184	2.74	1.62	2.85	2.10	
415	Drives - Process Controls (batch + site)	SIC32	2%	2%	\$0.024	1.10	1.08	0.12	10	0.65	0.08	\$0.172	\$1,493	0.34	0.20	23.14	2.10	
422	Efficient grinding	SIC32	21%	21%	\$0.231	1.31	1.03	0.12	15	3.26	0.38	\$0.095	\$826	0.61	0.32	17.84	2.10	
423	Process control	SIC32	2%	2%	\$0.002	1.10	1.08	0.12	10	0.65	0.08	\$0.014	\$124	4.05	2.39	1.93	2.10	
424	Process optimization	SIC32	10%	10%	\$0.030	1.18	1.06	0.12	10	0.44	0.05	\$0.040	\$349	1.45	0.85	5.41	2.10	
431	Energy Star Transformers	SIC32	20%	20%	\$0.070	1.24	0.99	0.11	25	0.12	0.01	\$0.025	\$219	2.11	1.01	6.01	2.10	
500	Base Heating	SIC32	0%	0%	\$0.000	1.09	1.09	0.13	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
504	Top-heating (glass)	SIC32	4%	4%	\$0.004	1.11	1.06	0.12	8	0.38	0.04	\$0.017	\$146	3.47	2.15	1.91	2.10	
512	Energy Star Transformers	SIC32	20%	20%	\$0.070	1.24	0.99	0.11	25	0.14	0.02	\$0.025	\$219	2.11	1.01	6.01	2.10	
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC32	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC32	12%	12%	\$0.028	0.97	0.85	0.58	20	0.47	0.31	\$0.024	\$35	4.68	1.17	5.15	3.99	
702	Window Film - Chiller	SIC32	10%	10%	\$0.052	1.15	1.03	0.69	10	0.18	0.12	\$0.070	\$103	1.59	0.49	9.36	3.99	
703	EMS - Chiller	SIC32	10%	10%	\$0.081	1.13	1.02	0.69	10	0.28	0.19	\$0.113	\$167	0.98	0.30	15.17	3.99	
704	Cool Roof - Chiller	SIC32	10%	10%	\$0.141	1.13	1.02	0.69	10	0.13	0.09	\$0.204	\$302	0.54	0.17	27.40	3.99	
705	Chiller Tune Up/Diagnostics	SIC32	3%	8%	\$0.051	1.11	1.07	0.69	10	0.02	0.03	\$0.211	\$133	0.97	0.16	28.42	7.41	
706	Cooling Circ. Pumps - VSD	SIC32	6%	6%	\$0.088	1.10	1.04	0.70	15	0.15	0.10	\$0.150	\$222	0.74	0.20	28.03	3.99	
707	Energy Star Transformers	SIC32	20%	20%	\$0.064	1.24	0.99	0.67	25	0.01	0.01	\$0.023	\$34	4.42	1.11	5.46	3.99	
710	Base DX Packaged System, EER=10.3, 10 tons	SIC32	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
711	DX Tune Up/ Advanced Diagnostics	SIC32	10%	10%	\$0.061	1.14	1.03	0.70	3	0.32	0.21	\$0.240	\$355	0.46	0.17	11.35	3.99	
712	DX Packaged System, EER=10.9, 10 tons	SIC32	6%	6%	\$0.041	0.94	0.89	0.60	15	0.38	0.26	\$0.089	\$131	1.25	0.34	16.61	3.99	
713	Window Film - DX	SIC32	10%	10%	\$0.030	1.17	1.05	0.71	10	0.20	0.14	\$0.040	\$59	2.79	0.86	5.34	3.99	
714	Evaporative Pre-Cooler	SIC32	10%	10%	\$0.231	1.09	0.98	0.66	10	0.19	0.13	\$0.332	\$492	0.33	0.10	44.69	3.99	
715	Prog. Thermostat - DX	SIC32	8%	3%	\$0.016	1.14	1.04	0.75	10	0.24	0.05	\$0.027	\$132	2.52	1.27	3.61	2.44	
716	Cool Roof - DX	SIC32	10%	10%	\$0.082	1.13	1.02	0.69	10	0.25	0.17	\$0.119	\$177	0.93	0.29	16.03	3.99	
717	Energy Star Transformers	SIC32	20%	20%	\$0.064	1.24	0.99	0.67	25	0.01	0.01	\$0.023	\$34	4.42	1.11	5.46	3.99	
800	Base Lighting	SIC32	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
801	RET 2L4' Premium T8, 1EB	SIC32	31%	31%	\$0.126	1.13	0.77	0.11	15	3.08	0.45	\$0.040	\$274	1.55	0.76	7.52	2.24	
802	CFL Hardwired, Modular 36W	SIC32	72%	72%	\$0.130	1.56	0.44	0.06	4	2.11	0.31	\$0.040	\$271	1.57	1.02	2.45	2.24	
803	Metal Halide, 50W	SIC32	58%	58%	\$0.745	1.45	0.61	0.09	5	1.35	0.20	\$0.249	\$1,699	0.25	0.16	18.73	2.24	
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC32	17%	20%	\$0.051	1.12	0.94	0.13	9	0.47	0.08	\$0.046	\$260	1.48	0.77	5.73	2.45	

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																		
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/ Base kWh	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
					Base kWh	Base EUI	Base EUI											
805	Energy Star Transformers	SIC32	20%	20%	\$0.064	1.24	0.99	0.14	25	0.03	0.00	\$0.023	\$156	2.48	1.11	5.46	2.24	
900	Base Other	SIC32	0%	0%	\$0.000	1.09	1.09	0.13	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
901	Replace V-belts	SIC32	0%	0%	\$0.000	1.09	1.09	0.13	5	0.00	0.00	\$0.043	\$374	1.35	0.91	3.25	2.10	
903	Energy Star Transformers	SIC32	20%	20%	\$0.070	1.24	0.99	0.11	25	0.03	0.00	\$0.025	\$219	2.11	1.01	6.01	2.10	
100	Base Compressed Air	SIC33	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
101	Compressed Air-O&M	SIC33	17%	17%	\$0.010	1.13	0.94	0.12	10	7.18	0.93	\$0.008	\$64	7.24	4.11	1.12	2.18	
102	Compressed Air - Controls	SIC33	12%	12%	\$0.017	1.19	1.05	0.14	10	1.80	0.23	\$0.019	\$145	3.20	1.81	2.54	2.18	
103	Compressed Air - System Optimization	SIC33	20%	20%	\$0.016	1.21	0.97	0.13	10	6.06	0.79	\$0.010	\$80	5.79	3.28	1.40	2.18	
104	Compressed Air- Sizing	SIC33	9%	9%	\$0.004	1.15	1.05	0.14	10	2.08	0.27	\$0.007	\$53	8.81	5.00	0.92	2.18	
105	Comp Air - Replace 1-5 HP motor	SIC33	6%	6%	\$0.053	1.10	1.03	0.13	14	0.13	0.02	\$0.101	\$778	0.60	0.31	18.08	2.18	
106	Comp Air - ASD (1-5 hp)	SIC33	6%	1%	\$0.077	1.09	1.02	0.14	14	0.16	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78	
107	Comp Air - Motor practices-1 (1-5 HP)	SIC33	5%	5%	\$0.021	1.09	1.03	0.13	14	0.13	0.02	\$0.048	\$368	1.26	0.65	8.56	2.18	
108	Comp Air - Replace 6-100 HP motor	SIC33	3%	4%	\$0.030	1.10	1.06	0.14	10	0.43	0.06	\$0.121	\$929	0.50	0.28	16.25	2.18	
109	Comp Air - ASD (6-100 hp)	SIC33	6%	1%	\$0.003	1.09	1.02	0.14	10	1.16	0.01	\$0.006	\$499	7.80	5.41	0.85	1.78	
110	Comp Air - Motor practices-1 (6-100 HP)	SIC33	2%	2%	\$0.005	1.09	1.06	0.14	10	0.47	0.06	\$0.032	\$246	1.89	1.07	4.30	2.18	
111	Comp Air - Replace 100+ HP motor	SIC33	3%	3%	\$0.009	1.11	1.07	0.14	6	0.39	0.05	\$0.062	\$475	0.98	0.62	5.48	2.18	
112	Comp Air - ASD (100+ hp)	SIC33	6%	1%	\$0.006	1.09	1.02	0.14	6	1.92	0.02	\$0.021	\$1,657	2.35	1.81	1.87	1.78	
113	Comp Air - Motor practices-1 (100+ HP)	SIC33	1%	2%	\$0.002	1.09	1.07	0.14	6	0.49	0.06	\$0.031	\$236	1.96	1.24	2.73	2.18	
116	Energy Star Transformers	SIC33	20%	20%	\$0.070	1.24	0.99	0.13	25	0.10	0.01	\$0.025	\$194	2.19	1.01	6.01	2.18	
200	Base Fans	SIC33	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
201	Fans - O&M	SIC33	2%	2%	\$0.001	1.10	1.08	0.12	10	1.30	0.15	\$0.007	\$62	8.11	4.78	0.96	2.10	
202	Fans - Controls	SIC33	30%	30%	\$0.092	1.40	0.98	0.11	10	12.41	1.43	\$0.035	\$300	1.68	0.99	4.65	2.10	
203	Fans - System Optimization	SIC33	20%	10%	\$0.060	1.31	1.05	0.14	10	4.74	0.27	\$0.035	\$625	1.49	0.97	4.75	1.90	
204	Fans- Improve components	SIC33	5%	5%	\$0.005	1.13	1.08	0.12	10	1.34	0.15	\$0.014	\$121	4.18	2.46	1.87	2.10	
205	Fans - Replace 1-5 HP motor	SIC33	6%	6%	\$0.053	1.10	1.03	0.12	14	0.31	0.04	\$0.101	\$878	0.57	0.31	18.08	2.10	
206	Fans - ASD (1-5 hp)	SIC33	6%	1%	\$0.077	1.09	1.02	0.12	14	0.37	0.00	\$0.139	\$12,497	0.35	0.22	24.88	1.74	
207	Fans - Motor practices-1 (1-5 HP)	SIC33	5%	5%	\$0.021	1.09	1.03	0.12	14	0.30	0.03	\$0.048	\$416	1.21	0.65	8.56	2.10	
208	Fans - Replace 6-100 HP motor	SIC33	3%	4%	\$0.030	1.10	1.07	0.12	10	0.79	0.12	\$0.153	\$1,052	0.42	0.22	20.62	2.34	
209	Fans - ASD (6-100 hp)	SIC33	3%	1%	\$0.003	1.09	1.06	0.12	10	1.15	0.03	\$0.015	\$563	4.31	2.29	2.01	2.32	
210	Fans - Motor practices-1 (6-100 HP)	SIC33	2%	2%	\$0.005	1.09	1.06	0.12	10	1.10	0.13	\$0.032	\$278	1.82	1.07	4.30	2.10	
211	Fans - Replace 100+ HP motor	SIC33	3%	3%	\$0.009	1.11	1.07	0.12	6	0.91	0.11	\$0.062	\$536	0.94	0.62	5.48	2.10	
212	Fans - ASD (100+ hp)	SIC33	5%	1%	\$0.006	1.09	1.04	0.12	6	3.54	0.05	\$0.027	\$1,872	1.97	1.42	2.39	1.90	
213	Fans - Motor practices-1 (100+ HP)	SIC33	1%	2%	\$0.002	1.09	1.08	0.12	6	0.52	0.13	\$0.067	\$267	1.24	0.57	5.95	3.01	
217	Energy Star Transformers	SIC33	20%	20%	\$0.070	1.24	0.99	0.11	25	0.23	0.03	\$0.025	\$219	2.11	1.01	6.01	2.10	
300	Base Pumps	SIC33	0%	0%	\$0.000	1.09	1.09	0.13	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	
301	Pumps - O&M	SIC33	10%	10%	\$0.005	1.16	1.04	0.12	10	6.93	0.80	\$0.007	\$59	8.54	5.03	0.92	2.10	
302	Pumps - Controls	SIC33	30%	30%	\$0.027	1.35	0.95	0.11	10	21.23	2.45	\$0.010	\$91	5.54	3.26	1.41	2.10	
303	Pumps - System Optimization	SIC33	33%	33%	\$0.066	1.41	0.95	0.11	10	20.95	2.41	\$0.022	\$194	2.61	1.54	3.00	2.10	
304	Pumps - Sizing	SIC33	5%	20%	\$0.020	1.13	1.08	0.10	10	1.78	0.78	\$0.053	\$120	2.02	0.65	7.12	3.85	
305	Pumps - Replace 1-5 HP motor	SIC33	6%	6%	\$0.053	1.10	1.03	0.12	14	0.39	0.04	\$0.101	\$878	0.57	0.31	18.08	2.10	
306	Pumps - ASD (1-5 hp)	SIC33	6%	1%	\$0.077	1.09	1.02	0.12	14	0.47	0.01	\$0.139	\$12,497	0.35	0.22	24.88	1.74	
307	Pumps - Motor practices-1 (1-5 HP)	SIC33	5%	5%	\$0.021	1.09	1.03	0.12	14	0.38	0.04	\$0.048	\$416	1.21	0.65	8.56	2.10	
308	Pumps - Replace 6-100 HP motor	SIC33	3%	4%	\$0.030	1.10	1.06	0.12	10	1.28	0.15	\$0.121	\$1,049	0.48	0.28	16.25	2.10	
309	Pumps - ASD (6-100 hp)	SIC33	6%	1%	\$0.003	1.09	1.02	0.12	10	3.48	0.04	\$0.006	\$563	7.70	5.45	0.84	1.74	
310	Pumps - Motor practices-1 (6-100 HP)	SIC33	2%	2%	\$0.005	1.09	1.06	0.12	10	1.39	0.16	\$0.032	\$278	1.82	1.07	4.30	2.10	
311	Pumps - Replace 100+ HP motor	SIC33	3%	3%	\$0.009	1.11	1.07	0.12	6	1.16	0.13	\$0.062	\$536	0.94	0.62	5.48	2.10	
312	Pumps - ASD (100+ hp)	SIC33	6%	1%	\$0.006	1.09	1.02	0.12	6	5.79	0.06	\$0.021	\$1,872	2.32	1.83	1.85	1.74	
313	Pumps - Motor practices-1 (100+ HP)	SIC33	1%	2%	\$0.002	1.09	1.07	0.12	6	1.45	0.17	\$0.031	\$267	1.89	1.24	2.73	2.10	
316	Energy Star Transformers	SIC33	20%	20%	\$0.070	1.24	0.99	0.11	25	0.30	0.03	\$0.025	\$219	2.11	1.01	6.01	2.10	
400	Base Drives	SIC33	0%	0%	\$0.000	1.09	1.09	0.13	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A	

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

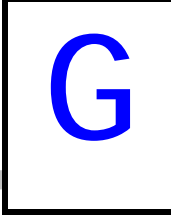
DSM ASSYST SUMMARY																			
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/			Peak Watts/			Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWh	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test
					kWh	Base	EUI	Base	kWh	Base									
415	Drives - Process Controls (batch + site)	SIC33	5%	5%	\$0.024	1.11	1.06	0.12	10	4.73	0.55	\$0.068	\$588	0.86	0.51	9.12	2.10		
425	Drives - Process Control	SIC33	5%	5%	\$0.015	1.11	1.06	0.12	15	4.73	0.55	\$0.030	\$264	1.91	1.00	5.70	2.10		
426	Efficient drives - rolling	SIC33	6%	6%	\$0.009	1.12	1.05	0.12	10	5.51	0.64	\$0.023	\$196	2.58	1.52	3.03	2.10		
431	Energy Star Transformers	SIC33	20%	20%	\$0.070	1.24	0.99	0.11	25	0.34	0.04	\$0.025	\$219	2.11	1.01	6.01	2.10		
500	Base Heating	SIC33	0%	0%	\$0.000	1.09	1.09	0.13	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
505	Efficient electric melting	SIC33	10%	10%	\$0.033	1.18	1.06	0.12	20	4.41	0.51	\$0.027	\$237	2.13	1.02	5.95	2.10		
506	Intelligent extruder (DOE)	SIC33	2%	2%	\$0.016	1.10	1.08	0.12	10	0.09	0.01	\$0.114	\$990	0.51	0.30	15.35	2.10		
507	Near Net Shape Casting	SIC33	12%	12%	\$0.012	1.19	1.05	0.12	15	1.20	0.14	\$0.009	\$82	6.14	3.22	1.77	2.10		
508	Heating - Process Control	SIC33	5%	5%	\$0.015	1.11	1.06	0.12	15	4.65	0.54	\$0.030	\$264	1.91	1.00	5.70	2.10		
512	Energy Star Transformers	SIC33	20%	20%	\$0.070	1.24	0.99	0.11	25	0.33	0.04	\$0.025	\$219	2.11	1.01	6.01	2.10		
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons	SIC33	0%	0%	\$0.000	1.09	1.09	0.73	20	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	SIC33	12%	12%	\$0.028	0.97	0.85	0.58	20	0.71	0.48	\$0.024	\$35	4.68	1.17	5.15	3.99		
702	Window Film - Chiller	SIC33	10%	10%	\$0.052	1.15	1.03	0.69	10	0.27	0.18	\$0.070	\$103	1.59	0.49	9.36	3.99		
703	EMS - Chiller	SIC33	10%	10%	\$0.081	1.13	1.02	0.69	10	0.43	0.29	\$0.113	\$167	0.98	0.30	15.17	3.99		
704	Cool Roof - Chiller	SIC33	10%	10%	\$0.141	1.13	1.02	0.69	10	0.19	0.13	\$0.204	\$302	0.54	0.17	27.40	3.99		
705	Chiller Tune Up/Diagnostics	SIC33	3%	8%	\$0.051	1.11	1.07	0.69	10	0.03	0.05	\$0.211	\$133	0.97	0.16	28.42	7.41		
706	Cooling Circ. Pumps - VSD	SIC33	6%	6%	\$0.088	1.10	1.04	0.70	15	0.23	0.15	\$0.150	\$222	0.74	0.20	28.03	3.99		
707	Energy Star Transformers	SIC33	20%	20%	\$0.064	1.24	0.99	0.67	25	0.01	0.01	\$0.023	\$34	4.42	1.11	5.46	3.99		
710	Base DX Packaged System, EER=10.3, 10 tons	SIC33	0%	0%	\$0.000	1.09	1.09	0.73	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
711	DX Tune Up/ Advanced Diagnostics	SIC33	10%	10%	\$0.061	1.14	1.03	0.70	3	0.71	0.48	\$0.240	\$355	0.46	0.17	11.35	3.99		
712	DX Packaged System, EER=10.9, 10 tons	SIC33	6%	6%	\$0.041	0.94	0.89	0.60	15	0.85	0.57	\$0.089	\$131	1.25	0.34	16.61	3.99		
713	Window Film - DX	SIC33	10%	10%	\$0.030	1.17	1.05	0.71	10	0.46	0.31	\$0.040	\$59	2.79	0.86	5.34	3.99		
714	Evaporative Pre-Cooler	SIC33	10%	10%	\$0.231	1.09	0.98	0.66	10	0.43	0.29	\$0.332	\$492	0.33	0.10	44.69	3.99		
715	Prog. Thermostat - DX	SIC33	8%	3%	\$0.016	1.14	1.04	0.75	10	0.53	0.11	\$0.027	\$132	2.52	1.27	3.61	2.44		
716	Cool Roof - DX	SIC33	10%	10%	\$0.082	1.13	1.02	0.69	10	0.55	0.37	\$0.119	\$177	0.93	0.29	16.03	3.99		
717	Energy Star Transformers	SIC33	20%	20%	\$0.064	1.24	0.99	0.67	25	0.03	0.02	\$0.023	\$34	4.42	1.11	5.46	3.99		
800	Base Lighting	SIC33	0%	0%	\$0.000	1.09	1.09	0.16	10	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
801	RET 2L4' Premium T8, 1EB	SIC33	31%	31%	\$0.126	1.13	0.78	0.11	15	7.13	1.05	\$0.040	\$273	1.56	0.76	7.48	2.24		
802	CFL Hardwired, Modular 36W	SIC33	72%	72%	\$0.130	1.56	0.44	0.06	4	6.04	0.88	\$0.040	\$271	1.57	1.02	2.45	2.24		
803	Metal Halide, 50W	SIC33	58%	58%	\$0.745	1.92	0.81	0.12	5	0.69	0.10	\$0.188	\$1,284	0.33	0.21	14.16	2.24		
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	SIC33	17%	20%	\$0.051	1.12	0.94	0.13	9	1.04	0.18	\$0.046	\$260	1.48	0.77	5.73	2.45		
805	Energy Star Transformers	SIC33	20%	20%	\$0.064	1.24	0.99	0.14	25	0.07	0.01	\$0.023	\$156	2.48	1.11	5.46	2.24		
900	Base Other	SIC33	0%	0%	\$0.000	1.09	1.09	0.13	15	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
901	Replace V-belts	SIC33	0%	0%	\$0.000	1.09	1.09	0.13	5	0.00	0.00	\$0.043	\$374	1.35	0.91	3.25	2.10		
903	Energy Star Transformers	SIC33	20%	20%	\$0.070	1.24	0.99	0.11	25	0.02	0.00	\$0.025	\$219	2.11	1.01	6.01	2.10		
100	Base Compressed Air	SIC34	0%	0%	\$0.000	1.09	1.09	0.14	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	N/A		
101	Compressed Air-O&M	SIC34	17%	17%	\$0.010	1.13	0.94	0.12	10	3.13	0.41	\$0.008	\$64	7.24	4.11	1.12	2.18		
102	Compressed Air - Controls	SIC34	12%	12%	\$0.017	1.19	1.05	0.14	10	0.78	0.10	\$0.019	\$145	3.20	1.81	2.54	2.18		
103	Compressed Air - System Optimization	SIC34	20%	20%	\$0.016	1.21	0.97	0.13	10	2.64	0.34	\$0.010	\$80	5.79	3.28	1.40	2.18		
104	Compressed Air- Sizing	SIC34	9%	9%	\$0.004	1.15	1.05	0.14	10	0.91	0.12	\$0.007	\$53	8.81	5.00	0.92	2.18		
105	Comp Air - Replace 1-5 HP motor	SIC34	6%	6%	\$0.053	1.10	1.03	0.13	14	0.06	0.01	\$0.101	\$778	0.60	0.31	18.08	2.18		
106	Comp Air - ASD (1-5 hp)	SIC34	6%	1%	\$0.077	1.09	1.02	0.14	14	0.07	0.00	\$0.141	\$11,064	0.35	0.22	25.11	1.78		
107	Comp Air - Motor practices-1 (1-5 HP)	SIC34	5%	5%	\$0.021	1.09	1.03	0.13	14	0.05	0.01	\$0.048	\$368	1.26	0.65	8.56	2.18		
108	Comp Air - Replace 6-100 HP motor	SIC34	3%	4%	\$0.030	1.10	1.06	0.14	10	0.19	0.02	\$0.121	\$929	0.50	0.28	16.25	2.18		
109	Comp Air - ASD (6-100 hp)	SIC34	6%	1%	\$0.003	1.09	1.02	0.14	10	0.50	0.01	\$0.006	\$499	7.80	5.41	0.85	1.78		
110	Comp Air - Motor practices-1 (6-100 HP)	SIC34	2%	2%	\$0.005	1.09	1.06	0.14	10	0.20	0.03	\$0.032	\$246	1.89	1.07	4.30	2.18		
111	Comp Air - Replace 100+ HP motor	SIC34	3%	3%	\$0.009	1.11	1.07	0.14	6	0.17	0.02	\$0.062	\$475	0.98	0.62	5.48	2.18		
112	Comp Air - ASD (100+ hp)	SIC34	6%	1%	\$0.006	1.09	1.02	0.14	6	0.84	0.01	\$0.021	\$1,657	2.35	1.81	1.87	1.78		
113	Comp Air - Motor practices-1 (100+ HP)	SIC34	1%	2%	\$0.002	1.09	1.07	0.14	6	0.21	0.03	\$0.031	\$236	1.96	1.24	2.73	2.18		
116	Energy Star Transformers	SIC34	20%	20%	\$0.070	1.24	0.99	0.13	25	0.04	0.01	\$0.025	\$194	2.19	1.01	6.01	2.18		

APPENDIX F

INDUSTRIAL

NON-ADDITIVIE MEASURE LEVEL RESULTS

DSM ASSYST SUMMARY																	
Measure Number	Measure	Building Type	Energy Savings Fraction	Peak Reduction Fraction	Total Costs/ Base kWh	Base Base EUI	Peak Watts/ Base kWh	Service Life (yrs)	Technical Potential GWH	System Peak Tech. Potential MW	Levelized Cost of Conserved Energy \$/kWH	Levelized Cost of Avoided Peak Capacity \$/kW	Total Resource Cost Test (TRC)	Participant Test	Customer Payback (Years)	Revenue Test	
200	Base Fans	SIC34	0%	0%	\$0.000	1.09	1.09	0.15	14	0.00	0.00	N/A	N/A	N/A	N/A	N/A	
201	Fans - O&M	SIC34	2%	2%	\$0.001	1.10	1.08	0.15	10	0.13	0.02	\$0.007	\$53	8.47	4.78	0.96	2.19
202	Fans - Controls	SIC34	30%	30%	\$0.092	1.40	0.98	0.13	10	1.28	0.17	\$0.035	\$255	1.76	0.99	4.65	2.19
203	Fans - System Optimization	SIC34	20%	10%	\$0.060	1.31	1.05	0.16	10	0.49	0.03	\$0.036	\$532	1.52	0.96	4.79	1.96
204	Fans- Improve components	SIC34	5%	5%	\$0.005	1.13	1.08	0.15	10	0.14	0.02	\$0.014	\$103	4.37	2.46	1.87	2.19
205	Fans - Replace 1-5 HP motor	SIC34	6%	6%	\$0.053	1.10	1.03	0.14	14	0.03	0.00	\$0.101	\$747	0.60	0.31	18.08	2.19
206	Fans - ASD (1-5 hp)	SIC34	6%	1%	\$0.077	1.09	1.02	0.15	14	0.04	0.00	\$0.141	\$10,625	0.35	0.22	25.18	1.78
207	Fans - Motor practices-1 (1-5 HP)	SIC34	5%	5%	\$0.021	1.09	1.03	0.14	14	0.03	0.00	\$0.048	\$354	1.27	0.65	8.56	2.19



SUPPLY CURVE DATA

This appendix presents supply curve results for the Colorado DSM Market Potential Study. Results are shown by sector and vintage: residential existing, residential new construction, commercial existing, commercial new construction, and industrial.

APPENDIX G

RESIDENTIAL EXISTING CONSTRUCTION

SUPPLY CURVE DATA

Energy Supply Curve				
Measure Number	Measure	Measure GWH Savings	Cumulative Measure GWH Savings	Levelized Energy Cost \$/kWH
201	CFL - 15w	416.5	416.5	\$0.013
221	ROB 2L4'T8, 1EB	39.4	455.9	\$0.015
182	Ceiling R-0 to R-38 Insulation - Batts	16.6	472.5	\$0.019
507	Pipe Wrap	5.3	477.8	\$0.033
505	Low Flow Showerhead	4.9	482.7	\$0.036
311	Refrigerator Recycling	307.5	790.2	\$0.037
601	Energy Star CW (MEF=1.42)	33.7	823.9	\$0.039
110	High Refrigerant Charge Adjustment	21.1	845.0	\$0.044
211	CFL Torchiere - 55w	48.4	893.4	\$0.044
506	Faucet Aerators	3.0	896.4	\$0.044
161	Variable Speed Furnace-AC Fan	226.6	1,123.1	\$0.045
186	Infiltration Reduction (0.4)	23.1	1,146.2	\$0.050
411	Freezer Recycling	109.0	1,255.2	\$0.062
185	Wall Blow-in R-0 to R-13 Insulation	16.6	1,271.8	\$0.063
142	Evaporative Cooler	16.7	1,288.5	\$0.070
183	Ceiling R-11 to R-38 Insulation - Batts	7.5	1,296.1	\$0.078
115	Default Window With Sunscreen	235.7	1,531.7	\$0.079
401	HE Freezer	11.9	1,543.6	\$0.085
109	Typcal Refrigerant Charge Adjustment	34.8	1,578.5	\$0.088
114	Window Film	34.6	1,613.1	\$0.094
701	Energy Star DW (EF=0.58)	1.1	1,614.2	\$0.119
106	Evaporative Cooler	163.1	1,777.3	\$0.126
502	HE Water Heater (EF=0.93)	5.3	1,782.7	\$0.129
504	Tankless Water Heater	24.6	1,807.3	\$0.130
301	HE Refrigerator - Energy Star	109.2	1,916.4	\$0.133
187	Floor R-0 to R-19 Insulation-Batts	6.0	1,922.5	\$0.144
184	Ceiling R-19 to R-38 Insulation - Batts	22.8	1,945.2	\$0.146
113	Duct Sealing - from 40% AHU to 12%	45.0	1,990.2	\$0.186
146	Default Window With Sunscreen	10.9	2,001.1	\$0.187
145	Window Film	1.7	2,002.8	\$0.217
603	Ultra High Efficiency CW (MEF=1.8)	10.2	2,013.0	\$0.295
148	Ceiling R-0 to R-38 Insulation - Batts	0.4	2,013.5	\$0.360
107	Whole House Fans	35.1	2,048.5	\$0.377
503	Solar Water Heat	24.9	2,073.5	\$0.395
118	Ceiling R-0 to R-38 Insulation - Batts	2.9	2,076.4	\$0.438
101	14 SEER Split-System Air Conditioner	22.7	2,099.0	\$0.470
102	15 SEER Split-System Air Conditioner	23.9	2,122.9	\$0.501
103	16 SEER Split-System Air Conditioner	20.6	2,143.5	\$0.580
141	Energy Star Room Air Conditioner - EER 10	2.9	2,146.5	\$0.635
104	17 SEER Split-System Air Conditioner	18.2	2,164.7	\$0.657
143	Whole House Fans	2.1	2,166.7	\$0.712
111	Duct Insulation	1.1	2,167.9	\$0.982
112	Duct Sealing - from 24% AHU to 12%	3.1	2,170.9	\$1.142
108	Attic Venting	13.6	2,184.5	\$1.320
149	Ceiling R-11 to R-38 Insulation - Batts	0.1	2,184.7	\$1.474
144	Attic Venting	0.6	2,185.3	\$1.860
150	Ceiling R-19 to R-38 Insulation - Batts	0.7	2,186.0	\$2.200
121	Wall Blow-in R-0 to R-13 Insulation	4.5	2,190.5	\$3.008
119	Ceiling R-11 to R-38 Insulation - Batts	0.7	2,191.2	\$3.238
105	18 SEER Split-System Air Conditioner	15.1	2,206.3	\$3.743
151	Wall Blow-in R-0 to R-13 Insulation	0.2	2,206.5	\$5.228
120	Ceiling R-19 to R-38 Insulation - Batts	2.8	2,209.2	\$5.529

Capacity Supply Curve				
Measure Number	Measure	Measure MW Savings	Cumulative Measure MW Savings	Levelized Capacity Cost \$/kW
110	High Refrigerant Charge Adjustment	30.4	30.4	\$30
142	Evaporative Cooler	24.1	54.5	\$49
115	Default Window With Sunscreen	313.5	368.0	\$59
109	Typical Refrigerant Charge Adjustment	50.2	418.2	\$61
114	Window Film	42.0	460.1	\$78
106	Evaporative Cooler	235.1	695.2	\$87
161	Variable Speed Furnace-AC Fan	105.1	800.3	\$97
113	Duct Sealing - from 40% AHU to 12%	64.8	865.1	\$129
201	CFL - 15w	41.7	906.8	\$134
146	Default Window With Sunscreen	14.5	921.3	\$140
221	ROB 2L4'T8, 1EB	3.9	925.2	\$155
145	Window Film	2.1	927.3	\$179
601	Energy Star CW (MEF=1.42)	4.7	932.1	\$281
311	Refrigerator Recycling	38.4	970.5	\$297
148	Ceiling R-0 to R-38 Insulation - Batts	0.5	971.0	\$312
101	14 SEER Split-System Air Conditioner	32.6	1,003.6	\$326
102	15 SEER Split-System Air Conditioner	34.4	1,038.0	\$348
118	Ceiling R-0 to R-38 Insulation - Batts	3.4	1,041.4	\$380
507	Pipe Wrap	0.4	1,041.8	\$399
103	16 SEER Split-System Air Conditioner	29.7	1,071.6	\$402
505	Low Flow Showerhead	0.4	1,072.0	\$436
141	Energy Star Room Air Conditioner - EER 10.8	4.2	1,076.1	\$441
211	CFL Torchiere - 55w	4.8	1,081.0	\$441
104	17 SEER Split-System Air Conditioner	26.2	1,107.2	\$456
411	Freezer Recycling	14.7	1,121.9	\$459
107	Whole House Fans	28.7	1,150.6	\$462
506	Faucet Aerators	0.2	1,150.8	\$542
401	HE Freezer	1.6	1,152.4	\$629
111	Duct Insulation	1.6	1,154.1	\$681
112	Duct Sealing - from 24% AHU to 12%	4.4	1,158.5	\$792
143	Whole House Fans	1.7	1,160.2	\$872
301	HE Refrigerator - Energy Star	13.6	1,173.8	\$1,065
149	Ceiling R-11 to R-38 Insulation - Batts	0.2	1,174.0	\$1,279
502	HE Water Heater (EF=0.93)	0.4	1,174.4	\$1,579
504	Tankless Water Heater	2.0	1,176.4	\$1,592
108	Attic Venting	11.1	1,187.5	\$1,615
701	Energy Star DW (EF=0.58)	0.1	1,187.6	\$1,620
121	Wall Blow-in R-0 to R-13 Insulation	7.1	1,194.7	\$1,906
150	Ceiling R-19 to R-38 Insulation - Batts	0.9	1,195.5	\$1,908
603	Ultra High Efficiency CW (MEF=1.8)	1.4	1,197.0	\$2,106
144	Attic Venting	0.5	1,197.5	\$2,276
105	18 SEER Split-System Air Conditioner	21.8	1,219.2	\$2,598
119	Ceiling R-11 to R-38 Insulation - Batts	0.8	1,220.0	\$2,808
151	Wall Blow-in R-0 to R-13 Insulation	0.2	1,220.2	\$4,535
120	Ceiling R-19 to R-38 Insulation - Batts	3.2	1,223.4	\$4,795
503	Solar Water Heat	2.0	1,225.4	\$4,835
182	Ceiling R-0 to R-38 Insulation - Batts	0.0	1,225.5	\$10,608
186	Infiltration Reduction (0.4)	0.0	1,225.5	\$27,195
185	Wall Blow-in R-0 to R-13 Insulation	0.0	1,225.5	\$34,347
183	Ceiling R-11 to R-38 Insulation - Batts	0.0	1,225.6	\$42,368
187	Floor R-0 to R-19 Insulation-Batts	0.0	1,225.6	\$78,278
184	Ceiling R-19 to R-38 Insulation - Batts	0.0	1,225.6	\$79,410

APPENDIX G

RESIDENTIAL NEW CONSTRUCTION

SUPPLY CURVE DATA

Energy Supply Curve				
Measure Number	Measure	Measure GWH Savings	Cumulative Measure GWH Savings	Levelized Energy Cost \$/kWh
201	CFL - 15w	9.6	9.6	\$0.013
221	ROB 2L4T8, 1EB	0.9	10.5	\$0.015
507	Pipe Wrap	0.1	10.6	\$0.032
601	Energy Star CW (MEF=1.42)	0.6	11.2	\$0.036
211	CFL Torchiere - 55w	1.1	12.3	\$0.044
161	Variable Speed Furnace-AC Fan	5.2	17.5	\$0.045
401	HE Freezer	0.4	18.0	\$0.085
136	New Const Cooling Package w/ Downsizing	3.9	21.9	\$0.099
191	Ground-Source Heat Pump	0.7	22.5	\$0.107
701	Energy Star DW (EF=0.58)	0.0	22.6	\$0.119
502	HE Water Heater (EF=0.93)	0.1	22.7	\$0.124
504	Tankless Water Heater	0.6	23.3	\$0.125
301	HE Refrigerator - Energy Star	3.1	26.3	\$0.141
222	RET 2L4T8, 1EB	0.7	27.0	\$0.159
131	New Constr Cooling Package	3.4	30.4	\$0.166
603	Ultra High Efficiency CW (MEF=1.8)	0.4	30.7	\$0.187

Capacity Supply Curve				
Measure Number	Measure	Measure MW Savings	Cumulative Measure MW Savings	Levelized Capacity Cost \$/kW
136	New Const Cooling Package w/ Downsizing	5.6	5.6	\$68
161	Variable Speed Furnace-AC Fan	2.4	8.1	\$97
131	New Constr Cooling Package	4.8	12.9	\$115
201	CFL - 15w	1.0	13.9	\$134
221	ROB 2L4T8, 1EB	0.1	13.9	\$155
601	Energy Star CW (MEF=1.42)	0.1	14.0	\$257
507	Pipe Wrap	0.0	14.0	\$393
211	CFL Torchiere - 55w	0.1	14.1	\$441
401	HE Freezer	0.1	14.2	\$629
191	Ground-Source Heat Pump	0.1	14.3	\$993
301	HE Refrigerator - Energy Star	0.4	14.7	\$1,130
603	Ultra High Efficiency CW (MEF=1.8)	0.1	14.7	\$1,331
502	HE Water Heater (EF=0.93)	0.0	14.7	\$1,516
504	Tankless Water Heater	0.0	14.8	\$1,529
222	RET 2L4T8, 1EB	0.1	14.8	\$1,591
701	Energy Star DW (EF=0.58)	0.0	14.8	\$1,620

APPENDIX G

COMMERCIAL EXISTING CONSTRUCTION

SUPPLY CURVE DATA

Energy Supply Curve		Measure	Cumulative	Levelized
Measure Number	Measure	Measure GWH Savings	Measure GWH Savings	Energy Cost \$/kWH
621	Energy Star or Better Monitor	17.6	17.6	\$0.000
631	Energy Star or Better Monitor	0.0	17.6	\$0.000
641	Energy Star or Better Copier	3.3	20.9	\$0.000
510	Demand Defrost Electric	33.4	54.3	\$0.003
161	CFL Screw-in 18W	487.3	541.6	\$0.004
612	PC Network Power Management Enabling	185.9	727.5	\$0.005
115	RET 2L4' Premium T8, 1EB, Reflector	144.7	872.2	\$0.008
505	Efficient compressor motor	21.3	893.6	\$0.009
509	Demand Hot Gas Defrost	3.1	896.6	\$0.010
507	Floating head pressure controls	6.9	903.5	\$0.011
622	Monitor Power Management Enabling	87.7	991.2	\$0.011
139	Lighting Control Tuneup	3.5	994.6	\$0.014
186	ROB 2L4' Premium T8, 1EB	90.8	1,085.4	\$0.015
222	Outdoor Lighting Controls (Photocell/Timeclock)	16.5	1,101.9	\$0.015
183	Lighting Control Tuneup	2.2	1,104.0	\$0.016
120	Lighting Control Tuneup	3.8	1,107.8	\$0.016
181	ROB 4L4' Premium T8, 1EB	78.3	1,186.1	\$0.018
153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	19.0	1,205.0	\$0.018
911	Vending Misers (cooled machines only)	56.8	1,261.8	\$0.019
188	Lighting Control Tuneup	2.0	1,263.8	\$0.020
502	Strip curtains for walk-ins	11.6	1,275.4	\$0.021
114	RET 4L4' Premium T8, 1EB	259.8	1,535.2	\$0.021
803	High Efficiency Water Heater (electric)	2.8	1,538.0	\$0.023
511	Anti-sweat (humidistat) controls	14.4	1,552.4	\$0.023
651	Printer Power Management Enabling	72.3	1,624.7	\$0.026
611	PC Manual Power Management Enabling	70.3	1,695.0	\$0.027
133	RET 2L4' Premium T8, 1EB	229.6	1,924.6	\$0.030
503	Night covers for display cases	9.7	1,934.3	\$0.032
805	Tankless Water Heater	8.3	1,942.6	\$0.037
804	Hot Water Pipe Insulation	1.5	1,944.1	\$0.040
152	RET 2 - 2L4' Premium T8, 1EB	28.9	1,973.0	\$0.041
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	40.3	2,013.2	\$0.044
134	RET 1L4' Premium T8, 1EB, Reflector OEM	29.6	2,042.9	\$0.045
422	Variable Speed Drive Control, 40 HP	15.9	2,058.8	\$0.045
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	31.9	2,090.6	\$0.045
642	Copier Power Management Enabling	17.5	2,108.1	\$0.046
423	Air Handler Optimization, 40 HP	6.7	2,114.9	\$0.046
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	25.6	2,140.5	\$0.047
166	CFL Hardwired, Modular 18W	162.4	2,302.9	\$0.047
191	LED Exit Sign	16.7	2,319.7	\$0.050
155	Occupancy Sensor, 4L8' Fluorescent Fixtures	4.4	2,324.0	\$0.052
413	Air Handler Optimization, 15 HP	10.1	2,334.2	\$0.052
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	38.9	2,373.1	\$0.053
501	High-efficiency fan motors	42.4	2,415.5	\$0.057
312	DX Packaged System, EER=10.9, 10 tons	76.3	2,491.7	\$0.059
221	High Pressure Sodium 250W Lamp	156.8	2,648.5	\$0.063
506	Compressor VSD retrofit	7.9	2,656.5	\$0.065
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	42.2	2,698.7	\$0.070
412	Variable Speed Drive Control, 15 HP	16.1	2,714.8	\$0.074
411	Fan Motor, 15hp, 1800rpm, 92.4%	2.7	2,717.5	\$0.075
801	Demand controlled circulating systems	3.5	2,721.0	\$0.077

Capacity Supply Curve		Measure	Cumulative	Levelized
Measure Number	Measure	Measure MW Savings	Measure MW Savings	Capacity Cost \$/kW
621	Energy Star or Better Monitor	2.6	2.6	\$0
631	Energy Star or Better Monitor	0.0	2.6	\$0
641	Energy Star or Better Copier	0.5	3.1	\$0
510	Demand Defrost Electric	4.0	7.1	\$24
161	CFL Screw-in 18W	78.8	85.8	\$26
115	RET 2L4' Premium T8, 1EB, Reflector	23.5	109.4	\$52
612	PC Network Power Management Enabling	17.8	127.2	\$54
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	16.5	143.7	\$73
505	Efficient compressor motor	2.5	146.2	\$77
509	Demand Hot Gas Defrost	0.4	146.6	\$82
186	ROB 2L4' Premium T8, 1EB	15.1	161.7	\$88
312	DX Packaged System, EER=10.9, 10 tons	49.4	211.1	\$91
181	ROB 4L4' Premium T8, 1EB	13.1	224.2	\$106
153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	3.1	227.3	\$111
622	Monitor Power Management Enabling	8.4	235.7	\$115
114	RET 4L4' Premium T8, 1EB	42.3	278.0	\$132
306	VSD for Chiller Pumps and Towers	5.8	283.8	\$134
502	Strip curtains for walk-ins	1.4	285.1	\$176
911	Vending Misers (cooled machines only)	6.2	291.3	\$177
133	RET 2L4' Premium T8, 1EB	37.5	328.8	\$184
803	High Efficiency Water Heater (electric)	0.3	329.1	\$184
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	6.1	335.3	\$236
152	RET 2 - 2L4' Premium T8, 1EB	4.7	339.9	\$252
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	6.8	346.7	\$263
651	Printer Power Management Enabling	7.0	353.7	\$265
316	Cool Roof - DX	28.1	381.7	\$267
303	EMS - Chiller	0.9	382.7	\$270
155	Occupancy Sensor, 4L8' Fluorescent Fixtures	0.8	383.5	\$270
134	RET 1L4' Premium T8, 1EB, Reflector OEM	4.8	388.3	\$274
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	7.4	395.8	\$278
611	PC Manual Power Management Enabling	6.8	402.5	\$283
166	CFL Hardwired, Modular 18W	26.3	428.8	\$289
313	Window Film (Standard)	19.5	448.2	\$294
805	Tankless Water Heater	1.0	449.3	\$301
191	LED Exit Sign	2.7	452.0	\$301
139	Lighting Control Tuneup	0.2	452.2	\$316
804	Hot Water Pipe Insulation	0.2	452.3	\$329
183	Lighting Control Tuneup	0.1	452.4	\$340
311	DX Tune Up/ Advanced Diagnostics	7.5	460.0	\$347
120	Lighting Control Tuneup	0.2	460.1	\$360
511	Anti-sweat (humidistat) controls	0.9	461.0	\$367
305	Chiller Tune Up/Diagnostics	1.8	462.8	\$385
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	7.1	469.9	\$413
188	Lighting Control Tuneup	0.1	470.0	\$435
302	Window Film (Standard)	1.6	471.6	\$455
315	Prog. Thermostat - DX	5.2	476.8	\$464
642	Copier Power Management Enabling	1.7	478.5	\$474
501	High-efficiency fan motors	5.0	483.5	\$479
176	High Bay T5	17.4	500.9	\$492
411	Fan Motor, 15hp, 1800rpm, 92.4%	0.4	501.3	\$528
317	Optimize Controls	2.6	503.9	\$576

APPENDIX G

COMMERCIAL EXISTING CONSTRUCTION

SUPPLY CURVE DATA

Energy Supply Curve				
Measure Number	Measure	Measure GWH Savings	Cumulative Measure GWH Savings	Levelized Energy Cost \$/kWH
176	High Bay T5	106.3	2,827.3	\$0.081
306	VSD for Chiller Pumps and Towers	9.0	2,836.2	\$0.086
315	Prog. Thermostat - DX	26.7	2,862.9	\$0.090
421	Fan Motor, 40hp, 1800rpm, 94.1%	1.2	2,864.1	\$0.090
508	Refrigeration Commissioning	8.2	2,872.3	\$0.096
317	Optimize Controls	13.4	2,885.7	\$0.112
402	Variable Speed Drive Control, 5 HP	23.7	2,909.4	\$0.126
401	Fan Motor, 5hp, 1800rpm, 89.5%	12.5	2,921.9	\$0.127
308	Economizer	2.0	2,923.9	\$0.128
307	EMS Optimization	2.7	2,926.6	\$0.133
305	Chiller Tune Up/Diagnostics	4.9	2,931.5	\$0.139
504	Evaporator fan controller for MT walk-ins	1.3	2,932.7	\$0.160
303	EMS - Chiller	1.4	2,934.2	\$0.173
311	DX Tune Up/ Advanced Diagnostics	14.7	2,948.8	\$0.178
316	Cool Roof - DX	40.6	2,989.5	\$0.194
313	Window Film (Standard)	28.8	3,018.2	\$0.199
137	Continuous Dimming, 10L4' Fluorescent Fixtures	67.1	3,085.3	\$0.230
118	Continuous Dimming, 5L4' Fluorescent Fixtures	98.3	3,183.6	\$0.242
156	Continuous Dimming, 5L8' Fluorescent Fixtures	13.0	3,196.6	\$0.262
318	Economizer	29.1	3,225.7	\$0.278
302	Window Film (Standard)	2.4	3,228.1	\$0.300
632	Monitor Power Management Enabling	0.2	3,228.3	\$0.331
314	Evaporative Pre-Cooler	38.3	3,266.6	\$0.445
304	Cool Roof - Chiller	3.6	3,270.2	\$0.499

Capacity Supply Curve				
Measure Number	Measure	Measure MW Savings	Cumulative Measure MW Savings	Levelized Capacity Cost \$/kW
421	Fan Motor, 40hp, 1800rpm, 94.1%	0.2	504.1	\$607
801	Demand controlled circulating systems	0.4	504.5	\$624
304	Cool Roof - Chiller	2.5	507.0	\$659
314	Evaporative Pre-Cooler	24.8	531.8	\$688
307	EMS Optimization	0.5	532.3	\$692
308	Economizer	0.4	532.7	\$707
137	Continuous Dimming, 10L4' Fluorescent Fixtures	19.4	552.0	\$797
508	Refrigeration Commissioning	1.0	553.0	\$810
118	Continuous Dimming, 5L4' Fluorescent Fixtures	28.2	581.2	\$841
401	Fan Motor, 5hp, 1800rpm, 89.5%	1.8	583.0	\$896
156	Continuous Dimming, 5L8' Fluorescent Fixtures	3.7	586.7	\$918
506	Compressor VSD retrofit	0.5	587.2	\$1,052
221	High Pressure Sodium 250W Lamp	9.4	596.6	\$1,060
422	Variable Speed Drive Control, 40 HP	0.6	597.2	\$1,159
423	Air Handler Optimization, 40 HP	0.3	597.5	\$1,167
413	Air Handler Optimization, 15 HP	0.4	597.9	\$1,378
318	Economizer	5.6	603.5	\$1,446
412	Variable Speed Drive Control, 15 HP	0.6	604.1	\$1,957
402	Variable Speed Drive Control, 5 HP	0.9	605.0	\$3,247
632	Monitor Power Management Enabling	0.0	605.0	\$3,449
222	Outdoor Lighting Controls (Photocell/Timeclock)	0.0	605.0	N/A
503	Night covers for display cases	0.0	605.0	N/A
504	Evaporator fan controller for MT walk-ins	0.0	605.0	N/A
507	Floating head pressure controls	0.0	605.0	N/A

APPENDIX G

COMMERCIAL NEW CONSTRUCTION

SUPPLY CURVE DATA

Energy Supply Curve				
Measure Number	Measure	Measure GWH Savings	Cumulative Measure GWH Savings	Levelized Energy Cost \$/kWh
101	Lighting 15% More Efficient Design	123.2	123.2	\$0.020
301	Cooling & Ventilation 10% More Efficient Design	15.0	138.2	\$0.023
501	Refrigeration 10% More Efficient Design	14.0	152.1	\$0.034
102	Lighting 25% More Efficient Design	69.8	221.9	\$0.044
302	Cooling & Ventilation 30% More Efficient Design	27.0	248.9	\$0.046
502	Refrigeration 20% More Efficient Design	10.7	259.5	\$0.065

Capacity Supply Curve				
Measure Number	Measure	Measure MW Savings	Cumulative Measure MW Savings	Levelized Capacity Cost \$/kW
301	Cooling & Ventilation 10% More Efficient Design	9.6	9.6	\$36
302	Cooling & Ventilation 30% More Efficient Design	17.3	26.9	\$72
101	Lighting 15% More Efficient Design	20.2	47.2	\$120
102	Lighting 25% More Efficient Design	11.5	58.7	\$268
501	Refrigeration 10% More Efficient Design	1.7	60.3	\$283
502	Refrigeration 20% More Efficient Design	1.3	61.6	\$546

APPENDIX G

INDUSTRIAL

SUPPLY CURVE DATA

Energy Supply Curve				
Measure Number	Measure	Measure GWH Savings	Cumulative Measure GWH Savings	Levelized Energy Cost \$/kWH
417	O&M - Extruders/Injection Moulding	1.8	1.8	\$0.006
309	Pumps - ASD (6-100 hp)	14.8	16.6	\$0.007
109	Comp Air - ASD (6-100 hp)	7.3	24.0	\$0.007
301	Pumps - O&M	30.9	54.8	\$0.007
104	Compressed Air- Sizing	13.7	68.5	\$0.007
401	Bakery - Process (Mixing) - O&M	1.0	69.5	\$0.007
201	Fans - O&M	4.0	73.5	\$0.007
403	Air conveying systems	1.2	74.7	\$0.008
551	Efficient Refrigeration - Operations	3.1	77.8	\$0.008
406	Gap Forming papermachine	0.2	78.0	\$0.008
407	High Consistency forming	0.2	78.3	\$0.008
409	Efficient practices printing press	2.9	81.1	\$0.008
101	Compressed Air-O&M	44.4	125.6	\$0.009
507	Near Net Shape Casting	1.2	126.8	\$0.009
501	Bakery - Process	5.0	131.8	\$0.010
510	Heating - Optimization process (M&T)	1.6	133.3	\$0.011
427	Drives - Optimization process (M&T)	3.7	137.1	\$0.011
302	Pumps - Controls	88.7	225.8	\$0.011
103	Compressed Air - System Optimization	32.6	258.4	\$0.013
204	Fans- Improve components	4.0	262.4	\$0.014
423	Process control	2.8	265.2	\$0.014
404	Replace V-Belts	0.6	265.8	\$0.015
209	Fans - ASD (6-100 hp)	3.5	269.4	\$0.015
504	Top-heating (glass)	0.4	269.8	\$0.017
604	Efficient processes (welding, etc.)	1.2	270.9	\$0.018
603	New transformers welding	2.4	273.3	\$0.018
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	10.8	284.1	\$0.021
607	Refinery Controls	0.0	284.1	\$0.022
216	Refinery Controls	0.2	284.3	\$0.022
426	Efficient drives - rolling	5.5	289.9	\$0.023
717	Energy Star Transformers	0.3	290.1	\$0.023
805	Energy Star Transformers	0.6	290.8	\$0.023
412	Efficient drives	0.6	291.3	\$0.024
405	Drives - EE motor	3.8	295.2	\$0.025
903	Energy Star Transformers	0.3	295.4	\$0.025
429	Machinery	1.7	297.1	\$0.025
430	Efficient Machinery	0.0	297.2	\$0.025
553	Energy Star Transformers	0.2	297.3	\$0.026
512	Energy Star Transformers	0.8	298.1	\$0.026
217	Energy Star Transformers	0.7	298.8	\$0.026
431	Energy Star Transformers	1.5	300.3	\$0.026
102	Compressed Air - Controls	8.6	308.9	\$0.026
707	Energy Star Transformers	0.1	309.1	\$0.026
402	O&M/drives spinning machines	0.4	309.5	\$0.026
602	Efficient desalter	0.0	309.5	\$0.026
315	Refinery Controls	1.3	310.8	\$0.027
608	Energy Star Transformers	0.1	310.9	\$0.027
303	Pumps - System Optimization	76.0	386.8	\$0.027
505	Efficient electric melting	4.4	391.2	\$0.027
715	Prog. Thermostat - DX	4.3	395.5	\$0.028
212	Fans - ASD (100+ hp)	10.5	406.0	\$0.028

Capacity Supply Curve				
Measure Number	Measure	Measure MW Savings	Cumulative Measure MW Savings	Levelized Capacity Cost \$/kW
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	7.3	7.3	\$31
717	Energy Star Transformers	0.2	7.5	\$34
707	Energy Star Transformers	0.1	7.5	\$39
417	O&M - Extruders/Injection Moulding	0.2	7.8	\$49
104	Compressed Air- Sizing	1.8	9.5	\$53
401	Bakery - Process (Mixing) - O&M	0.1	9.7	\$56
301	Pumps - O&M	3.8	13.4	\$56
713	Window Film - DX	2.6	16.0	\$59
201	Fans - O&M	0.5	16.5	\$59
551	Efficient Refrigeration - Operations	0.4	16.9	\$62
406	Gap Forming papermachine	0.0	16.9	\$66
407	High Consistency forming	0.0	16.9	\$67
409	Efficient practices printing press	0.4	17.3	\$67
101	Compressed Air-O&M	5.8	23.1	\$68
510	Heating - Optimization process (M&T)	0.2	23.3	\$81
427	Drives - Optimization process (M&T)	0.5	23.8	\$81
507	Near Net Shape Casting	0.1	23.9	\$82
501	Bakery - Process	0.6	24.6	\$83
302	Pumps - Controls	10.8	35.4	\$92
103	Compressed Air - System Optimization	4.2	39.6	\$98
404	Replace V-Belts	0.1	39.7	\$116
204	Fans- Improve components	0.5	40.2	\$117
702	Window Film - Chiller	2.2	42.4	\$117
712	DX Packaged System, EER=10.9, 10 tons	5.3	47.6	\$120
423	Process control	0.3	48.0	\$124
604	Efficient processes (welding, etc.)	0.2	48.1	\$134
603	New transformers welding	0.3	48.4	\$134
715	Prog. Thermostat - DX	0.9	49.3	\$136
504	Top-heating (glass)	0.0	49.4	\$146
805	Energy Star Transformers	0.1	49.5	\$156
304	Pumps - Sizing	2.5	52.0	\$167
705	Chiller Tune Up/Diagnostics	0.5	52.5	\$170
607	Refinery Controls	0.0	52.5	\$182
429	Machinery	0.2	52.7	\$186
216	Refinery Controls	0.0	52.7	\$187
412	Efficient drives	0.1	52.8	\$189
426	Efficient drives - rolling	0.6	53.4	\$196
903	Energy Star Transformers	0.0	53.5	\$196
716	Cool Roof - DX	2.8	56.2	\$198
703	EMS - Chiller	3.3	59.6	\$198
102	Compressed Air - Controls	1.1	60.7	\$200
430	Efficient Machinery	0.0	60.7	\$201
553	Energy Star Transformers	0.0	60.7	\$206
402	O&M/drives spinning machines	0.0	60.8	\$208
608	Energy Star Transformers	0.0	60.8	\$211
512	Energy Star Transformers	0.1	60.9	\$212
431	Energy Star Transformers	0.2	61.1	\$213
217	Energy Star Transformers	0.1	61.1	\$214
405	Drives - EE motor	0.5	61.6	\$214
602	Efficient desalter	0.0	61.6	\$221
315	Refinery Controls	0.2	61.7	\$223

APPENDIX G

INDUSTRIAL

SUPPLY CURVE DATA

Energy Supply Curve		Measure	Cumulative	Levelized
Measure	Measure	GWH	Measure	Energy
Number		Savings	GWH	Cost
			Savings	\$/kWH

511	Heating - Scheduling	0.5	406.5	\$0.028
428	Drives - Scheduling	1.2	407.7	\$0.028
312	Pumps - ASD (100+ hp)	18.2	425.9	\$0.030
112	Comp Air - ASD (100+ hp)	8.9	434.8	\$0.030
115	Refinery Controls	0.3	435.1	\$0.031
425	Drives - Process Control	4.6	439.6	\$0.031
508	Heating - Process Control	4.5	444.1	\$0.031
418	Extruders/injection Moulding-multipump	2.6	446.7	\$0.033
902	Membranes for wastewater	0.0	446.7	\$0.033
210	Fans - Motor practices-1 (6-100 HP)	3.2	449.9	\$0.034
413	Clean Room - Controls	1.0	450.9	\$0.035
214	Optimize drying process	0.7	451.5	\$0.035
552	Optimization Refrigeration	5.4	456.9	\$0.035
509	Efficient Curing ovens	4.3	461.2	\$0.036
408	Optimization control PM	0.6	461.9	\$0.037
316	Energy Star Transformers	0.9	462.8	\$0.037
202	Fans - Controls	35.3	498.1	\$0.037
116	Energy Star Transformers	0.4	498.5	\$0.037
410	Efficient Printing press (fewer cylinders)	2.4	501.0	\$0.039
420	Injection Moulding - Impulse Cooling	0.9	501.9	\$0.039
713	Window Film - DX	3.8	505.7	\$0.040
605	Process control	0.0	505.7	\$0.040
502	Drying (UV/IR)	0.1	505.8	\$0.041
801	RET 2L4' Premium T8, 1EB	80.5	586.3	\$0.041
424	Process optimization	1.9	588.2	\$0.041
601	Other Process Controls (batch + site)	0.5	588.7	\$0.042
203	Fans - System Optimization	12.2	600.9	\$0.042
901	Replace V-belts	0.0	600.9	\$0.043
113	Comp Air - Motor practices-1 (100+ HP)	2.2	603.1	\$0.045
313	Pumps - Motor practices-1 (100+ HP)	4.4	607.4	\$0.046
802	CFL Hardwired, Modular 36W	20.6	628.0	\$0.046
416	Process Drives - ASD	0.1	628.1	\$0.047
110	Comp Air - Motor practices-1 (6-100 HP)	2.1	630.2	\$0.048
310	Pumps - Motor practices-1 (6-100 HP)	4.2	634.3	\$0.048
606	Power recovery	0.0	634.3	\$0.049
419	Direct drive Extruders	1.3	635.6	\$0.049
414	Clean Room - New Designs	0.6	636.3	\$0.051
215	Power recovery	0.0	636.3	\$0.054
207	Fans - Motor practices-1 (1-5 HP)	0.7	637.0	\$0.059
421	Injection Moulding - Direct drive	0.8	637.9	\$0.063
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	6.9	644.8	\$0.064
114	Power recovery	0.1	644.9	\$0.066
314	Power recovery	0.2	645.1	\$0.066
503	Heat Pumps - Drying	0.2	645.3	\$0.069
107	Comp Air - Motor practices-1 (1-5 HP)	0.5	645.8	\$0.072
307	Pumps - Motor practices-1 (1-5 HP)	1.1	646.9	\$0.072
304	Pumps - Sizing	5.6	652.5	\$0.076
211	Fans - Replace 100+ HP motor	2.2	654.7	\$0.077
702	Window Film - Chiller	3.2	658.0	\$0.079
712	DX Packaged System, EER=10.9, 10 tons	7.8	665.8	\$0.081
213	Fans - Motor practices-1 (100+ HP)	1.3	667.1	\$0.081

Capacity Supply Curve		Measure	Cumulative	Levelized
Measure	Measure	MW	Measure	Capacity
Number		Savings	MW	Cost
			Savings	\$/kW

303	Pumps - System Optimization	9.2	71.0	\$225
403	Air conveying systems	0.0	71.0	\$233
115	Refinery Controls	0.0	71.1	\$238
505	Efficient electric melting	0.5	71.6	\$238
902	Membranes for wastewater	0.0	71.6	\$265
509	Efficient Curing ovens	0.6	72.2	\$266
413	Clean Room - Controls	0.1	72.3	\$270
425	Drives - Process Control	0.5	72.8	\$273
418	Extruders/injection Moulding-multipump	0.3	73.1	\$273
508	Heating - Process Control	0.5	73.6	\$273
801	RET 2L4' Premium T8, 1EB	11.8	85.4	\$277
214	Optimize drying process	0.1	85.5	\$277
552	Optimization Refrigeration	0.7	86.2	\$279
210	Fans - Motor practices-1 (6-100 HP)	0.4	86.6	\$280
706	Cooling Circ. Pumps - VSD	1.6	88.2	\$283
116	Energy Star Transformers	0.1	88.3	\$286
408	Optimization control PM	0.1	88.3	\$290
316	Energy Star Transformers	0.1	88.4	\$303
202	Fans - Controls	4.3	92.7	\$305
410	Efficient Printing press (fewer cylinders)	0.3	93.0	\$310
213	Fans - Motor practices-1 (100+ HP)	0.3	93.4	\$312
802	CFL Hardwired, Modular 36W	3.0	96.4	\$313
605	Process control	0.0	96.4	\$320
420	Injection Moulding - Impulse Cooling	0.1	96.5	\$328
901	Replace V-belts	0.0	96.5	\$339
113	Comp Air - Motor practices-1 (100+ HP)	0.3	96.8	\$349
601	Other Process Controls (batch + site)	0.1	96.9	\$349
424	Process optimization	0.2	97.1	\$357
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	1.2	98.3	\$365
110	Comp Air - Motor practices-1 (6-100 HP)	0.3	98.6	\$367
313	Pumps - Motor practices-1 (100+ HP)	0.5	99.1	\$374
310	Pumps - Motor practices-1 (6-100 HP)	0.5	99.6	\$393
416	Process Drives - ASD	0.0	99.6	\$395
704	Cool Roof - Chiller	1.3	101.0	\$399
711	DX Tune Up/ Advanced Diagnostics	3.5	104.4	\$410
606	Power recovery	0.0	104.4	\$411
419	Direct drive Extruders	0.2	104.6	\$413
414	Clean Room - New Designs	0.1	104.7	\$429
215	Power recovery	0.0	104.7	\$449
207	Fans - Motor practices-1 (1-5 HP)	0.1	104.7	\$489
114	Power recovery	0.0	104.8	\$505
109	Comp Air - ASD (6-100 hp)	0.1	104.8	\$519
421	Injection Moulding - Direct drive	0.1	104.9	\$525
209	Fans - ASD (6-100 hp)	0.1	105.0	\$540
502	Drying (UV/IR)	0.0	105.1	\$543
503	Heat Pumps - Drying	0.0	105.1	\$545
314	Power recovery	0.0	105.1	\$550
107	Comp Air - Motor practices-1 (1-5 HP)	0.1	105.2	\$554
309	Pumps - ASD (6-100 hp)	0.2	105.3	\$557
714	Evaporative Pre-Cooler	2.0	107.4	\$593
307	Pumps - Motor practices-1 (1-5 HP)	0.1	107.5	\$595

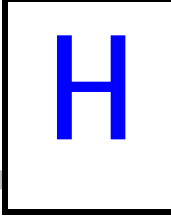
APPENDIX G

INDUSTRIAL

SUPPLY CURVE DATA

Energy Supply Curve				
Measure Number	Measure	Measure GWH Savings	Cumulative Measure GWH Savings	Levelized Energy Cost \$/kWH
111	Comp Air - Replace 100+ HP motor	1.7	668.8	\$0.093
311	Pumps - Replace 100+ HP motor	3.4	672.2	\$0.094
422	Efficient grinding	13.8	686.0	\$0.098
411	Light cylinders	1.1	687.1	\$0.105
415	Drives - Process Controls (batch + site)	8.1	695.2	\$0.105
506	Intelligent extruder (DOE)	0.1	695.2	\$0.121
205	Fans - Replace 1-5 HP motor	0.8	696.0	\$0.127
716	Cool Roof - DX	4.1	700.1	\$0.134
703	EMS - Chiller	4.9	705.0	\$0.134
105	Comp Air - Replace 1-5 HP motor	0.6	705.6	\$0.154
305	Pumps - Replace 1-5 HP motor	1.1	706.7	\$0.154
206	Fans - ASD (1-5 hp)	0.9	707.6	\$0.176
108	Comp Air - Replace 6-100 HP motor	1.8	709.5	\$0.184
308	Pumps - Replace 6-100 HP motor	3.7	713.2	\$0.185
706	Cooling Circ. Pumps - VSD	2.4	715.6	\$0.191
208	Fans - Replace 6-100 HP motor	1.9	717.5	\$0.191
306	Pumps - ASD (1-5 hp)	1.4	718.9	\$0.215
106	Comp Air - ASD (1-5 hp)	0.7	719.6	\$0.216
705	Chiller Tune Up/Diagnostics	0.3	719.9	\$0.269
704	Cool Roof - Chiller	2.0	721.8	\$0.269
711	DX Tune Up/ Advanced Diagnostics	5.1	727.0	\$0.277
803	Metal Halide, 50W	2.8	729.8	\$0.293
714	Evaporative Pre-Cooler	3.0	732.7	\$0.400

Capacity Supply Curve				
Measure Number	Measure	Measure MW Savings	Cumulative Measure MW Savings	Levelized Capacity Cost \$/kW
211	Fans - Replace 100+ HP motor	0.3	107.8	\$631
203	Fans - System Optimization	0.7	108.5	\$704
111	Comp Air - Replace 100+ HP motor	0.2	108.7	\$716
311	Pumps - Replace 100+ HP motor	0.4	109.1	\$768
411	Light cylinders	0.1	109.3	\$831
422	Efficient grinding	1.6	110.9	\$851
415	Drives - Process Controls (batch + site)	0.9	111.8	\$910
205	Fans - Replace 1-5 HP motor	0.1	111.9	\$1,042
506	Intelligent extruder (DOE)	0.0	111.9	\$1,051
511	Heating - Scheduling	0.0	111.9	\$1,055
428	Drives - Scheduling	0.0	111.9	\$1,071
105	Comp Air - Replace 1-5 HP motor	0.1	112.0	\$1,182
208	Fans - Replace 6-100 HP motor	0.3	112.3	\$1,250
305	Pumps - Replace 1-5 HP motor	0.1	112.5	\$1,267
108	Comp Air - Replace 6-100 HP motor	0.2	112.7	\$1,415
308	Pumps - Replace 6-100 HP motor	0.5	113.1	\$1,517
212	Fans - ASD (100+ hp)	0.2	113.3	\$1,833
803	Metal Halide, 50W	0.4	113.7	\$1,998
112	Comp Air - ASD (100+ hp)	0.1	113.8	\$2,360
312	Pumps - ASD (100+ hp)	0.2	114.0	\$2,502
206	Fans - ASD (1-5 hp)	0.0	114.0	\$14,949
106	Comp Air - ASD (1-5 hp)	0.0	114.1	\$16,989
306	Pumps - ASD (1-5 hp)	0.0	114.1	\$18,218



ACHIEVABLE PROGRAM POTENTIAL

This appendix presents achievable program results for the Colorado DSM Market Potential Study. First rebate percentages are shown by sector. These reflect the percent of incremental costs paid by programs for each scenario. The percentages show where individual measure rebates are capped to maintain customer payback periods that are one year or greater.

Second, achievable potential results are shown by sector and vintage: total – all sectors and vintages, residential existing, residential new construction, Saver’s Switch ,commercial existing, commercial new construction, and industrial. Base Case 1 results are presented first, followed by Base Case 2 results.

Residential
Measure Specific Rebate Levels By Scenario
 (Shows incentives caps required to limit payback period to one year or greater.)

Measure Number	Measure	Achievable Program Scenario		
		33% Incentive	50% Incentive	75% Incentive
106	Evaporative Cooler	33%	50%	75%
109	Typical Refrigerant Charge Adjustment	33%	50%	75%
110	High Refrigerant Charge Adjustment	33%	50%	64%
113	Duct Sealing - from 40% AHU to 12%	33%	50%	75%
114	Window Film	33%	50%	65%
115	Default Window With Sunscreen	33%	50%	66%
131	New Constr Cooling Package	33%	50%	75%
136	New Constr Cooling Package	33%	50%	75%
142	Evaporative Cooler	33%	50%	75%
145	Window Film	33%	50%	75%
146	Default Window With Sunscreen	33%	50%	75%
161	Variable Speed Furnace-AC Fan	33%	50%	75%
182	Ceiling R-0 to R-38 Insulation - Batts	33%	50%	53%
185	Wall Blow-in R-0 to R-13 Insulation	33%	50%	75%
186	Infiltration Reduction (0.4)	33%	50%	75%
201	CFL - 15w	9%	9%	9%
211	CFL Torchiere - 55w	33%	50%	70%
221	ROB 2L4T8, 1EB	33%	50%	60%
311	Refrigerator Recycling	33%	50%	66%
505	Low Flow Showerhead	33%	50%	64%
506	Faucet Aerators	33%	50%	63%
507	Pipe Wrap	33%	50%	68%
601	Energy Star CW (MEF=1.42)	33%	50%	74%

Commercial
Measure Specific Rebate Levels By Scenario
 (Shows incentives caps required to limit payback period to one year or greater.)

Measure Number	Measure	Achievable Program Scenario		
		33% Incentive	50% Incentive	75% Incentive
101	NC: Lighting 15% More Efficient Design	33%	50%	75%
102	NC: Lighting 25% More Efficient Design	33%	50%	75%
114	RET 4L4' Premium T8, 1EB	33%	50%	75%
115	RET 2L4' Premium T8, 1EB, Reflector	33%	50%	75%
117	Occupancy Sensor, 4L4' Fluorescent Fixtures	33%	50%	75%
120	Lighting Control Tuneup	33%	50%	50%
133	RET 2L4' Premium T8, 1EB	33%	50%	75%
134	RET 1L4' Premium T8, 1EB, Reflector OEM	33%	50%	75%
136	Occupancy Sensor, 8L4' Fluorescent Fixtures	33%	50%	75%
139	Lighting Control Tuneup	33%	50%	50%
152	RET 2 - 2L4' Premium T8, 1EB	33%	50%	75%
153	RET 2 - 1L4' Premium T8, 1EB, Reflector OEM	33%	50%	75%
155	Occupancy Sensor, 4L8' Fluorescent Fixtures	33%	50%	75%
161	CFL Screw-in 18W	0%	0%	0%
166	CFL Hardwired, Modular 18W	33%	50%	75%
176	High Bay T5	33%	50%	75%
181	ROB 4L4' Premium T8, 1EB	33%	50%	75%
182	Occupancy Sensor, 4L4' Fluorescent Fixtures	33%	50%	75%
183	Lighting Control Tuneup	33%	50%	50%
186	ROB 2L4' Premium T8, 1EB	33%	50%	75%
187	Occupancy Sensor, 8L4' Fluorescent Fixtures	33%	50%	75%
188	Lighting Control Tuneup	33%	50%	50%
191	LED Exit Sign	33%	50%	75%
221	High Pressure Sodium 250W Lamp	33%	50%	75%
222	Outdoor Lighting Controls (Photocell/Timeclock)	0%	0%	0%
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	33%	50%	75%
301	NC: Cooling & Ventilation 10% More Efficient Design	33%	50%	75%
302	Window Film (Standard)	33%	50%	75%
302	NC: Cooling & Ventilation 30% More Efficient Design	33%	50%	75%
303	EMS - Chiller	33%	50%	75%
306	VSD for Chiller Pumps and Towers	33%	50%	75%
308	Economizer	33%	50%	75%
311	DX Tune Up/ Advanced Diagnostics	33%	50%	75%
312	DX Packaged System, EER=10.9, 10 tons	33%	50%	75%
313	Window Film (Standard)	33%	50%	75%
315	Prog. Thermostat - DX	33%	50%	75%
316	Cool Roof - DX	33%	50%	75%
317	Optimize Controls	33%	50%	50%
318	Economizer	33%	50%	75%
411	Fan Motor, 15hp, 1800rpm, 92.4%	33%	50%	75%
412	Variable Speed Drive Control, 15 HP	33%	50%	75%
413	Air Handler Optimization, 15 HP	33%	50%	75%
421	Fan Motor, 40hp, 1800rpm, 94.1%	33%	50%	75%
422	Variable Speed Drive Control, 40 HP	33%	50%	75%
423	Air Handler Optimization, 40 HP	33%	50%	75%
501	High-efficiency fan motors	33%	50%	75%
501	NC: Refrigeration 10% More Efficient Design	33%	50%	75%
502	Strip curtains for walk-ins	33%	50%	75%

Commercial
Measure Specific Rebate Levels By Scenario
 (Shows incentives caps required to limit payback period to one year or greater.)

Measure Number	Measure	Achievable Program Scenario		
		33% Incentive	50% Incentive	75% Incentive
502	NC: Refrigeration 20% More Efficient Design	33%	50%	75%
503	Night covers for display cases	33%	50%	75%
505	Efficient compressor motor	33%	50%	75%
506	Compressor VSD retrofit	33%	50%	75%
507	Floating head pressure controls	33%	50%	75%
509	Demand Hot Gas Defrost	33%	50%	75%
510	Demand Defrost Electric	33%	50%	75%
511	Anti-sweat (humidistat) controls	33%	50%	75%
611	PC Manual Power Management Enabling	0%	0%	0%
612	PC Network Power Management Enabling	0%	0%	0%
622	Monitor Power Management Enabling	0%	0%	0%
642	Copier Power Management Enabling	0%	0%	0%
651	Printer Power Management Enabling	0%	0%	0%
801	Demand controlled circulating systems	33%	50%	50%
803	High Efficiency Water Heater (electric)	33%	50%	50%
804	Hot Water Pipe Insulation	33%	50%	75%
805	Tankless Water Heater	33%	50%	75%
911	Vending Misers (cooled machines only)	0%	0%	0%

Industrial
Measure Specific Rebate Levels By Scenario
 (Shows incentives caps required to limit payback period to one year or greater.)

Measure Number	Measure	Achievable Program Scenario		
		33% Incentive	50% Incentive	75% Incentive
101	Compressed Air-O&M	0%	0%	0%
102	Compressed Air - Controls	33%	50%	61%
103	Compressed Air - System Optimization	29%	29%	29%
104	Compressed Air- Sizing	0%	0%	0%
109	Comp Air - ASD (6-100 hp)	0%	0%	0%
110	Comp Air - Motor practices-1 (6-100 HP)	33%	50%	75%
112	Comp Air - ASD (100+ hp)	33%	46%	46%
113	Comp Air - Motor practices-1 (100+ HP)	33%	50%	63%
115	Refinery Controls	33%	50%	66%
116	Energy Star Transformers	33%	50%	75%
201	Fans - O&M	0%	0%	0%
202	Fans - Controls	33%	50%	75%
203	Fans - System Optimization	33%	50%	75%
204	Fans- Improve components	33%	47%	47%
207	Fans - Motor practices-1 (1-5 HP)	33%	50%	75%
209	Fans - ASD (6-100 hp)	33%	49%	49%
210	Fans - Motor practices-1 (6-100 HP)	33%	50%	75%
212	Fans - ASD (100+ hp)	33%	50%	58%
213	Fans - Motor practices-1 (100+ HP)	33%	50%	75%
214	Optimize drying process	33%	50%	75%
215	Power recovery	33%	50%	75%
216	Refinery Controls	33%	50%	66%
217	Energy Star Transformers	33%	50%	75%
301	Pumps - O&M	0%	0%	0%
302	Pumps - Controls	29%	29%	29%
303	Pumps - System Optimization	33%	50%	67%
304	Pumps - Sizing	33%	50%	75%
309	Pumps - ASD (6-100 hp)	0%	0%	0%
310	Pumps - Motor practices-1 (6-100 HP)	33%	50%	75%
312	Pumps - ASD (100+ hp)	33%	46%	46%
313	Pumps - Motor practices-1 (100+ HP)	33%	50%	63%
315	Refinery Controls	33%	50%	66%
316	Energy Star Transformers	33%	50%	75%
401	Bakery - Process (Mixing) - O&M	0%	0%	0%
402	O&M/drives spinning machines	0%	0%	0%
403	Air conveying systems	26%	26%	26%
404	Replace V-Belts	33%	47%	47%
405	Drives - EE motor	33%	50%	71%
406	Gap Forming papermachine	33%	45%	45%
407	High Consistency forming	33%	45%	45%
408	Optimization control PM	33%	50%	75%
409	Efficient practices printing press	33%	46%	46%
410	Efficient Printing press (fewer cylinders)	33%	50%	75%
412	Efficient drives	33%	50%	67%
413	Clean Room - Controls	33%	50%	75%
414	Clean Room - New Designs	33%	50%	75%
415	Drives - Process Controls (batch + site)	33%	50%	75%
416	Process Drives - ASD	33%	50%	75%

Industrial
Measure Specific Rebate Levels By Scenario
 (Shows incentives caps required to limit payback period to one year or greater.)

Measure Number	Measure	Achievable Program Scenario		
		33% Incentive	50% Incentive	75% Incentive
417	O&M - Extruders/Injection Moulding	0%	0%	0%
418	Extruders/injection Moulding-multipump	33%	50%	75%
419	Direct drive Extruders	33%	50%	75%
420	Injection Moulding - Impulse Cooling	33%	50%	75%
423	Process control	33%	48%	48%
424	Process optimization	33%	50%	75%
425	Drives - Process Control	33%	50%	75%
426	Efficient drives - rolling	33%	50%	67%
427	Drives - Optimization process (M&T)	32%	32%	32%
428	Drives - Scheduling	0%	0%	0%
429	Machinery	33%	50%	70%
430	Efficient Machinery	33%	50%	71%
431	Energy Star Transformers	33%	50%	75%
501	Bakery - Process	33%	49%	49%
502	Drying (UV/IR)	33%	50%	75%
504	Top-heating (glass)	33%	48%	48%
505	Efficient electric melting	33%	50%	75%
507	Near Net Shape Casting	33%	44%	44%
508	Heating - Process Control	33%	50%	75%
509	Efficient Curing ovens	33%	50%	75%
510	Heating - Optimization process (M&T)	32%	32%	32%
511	Heating - Scheduling	33%	50%	73%
512	Energy Star Transformers	33%	50%	75%
551	Efficient Refrigeration - Operations	6%	6%	6%
552	Optimization Refrigeration	33%	50%	75%
553	Energy Star Transformers	33%	50%	75%
601	Other Process Controls (batch + site)	33%	50%	75%
602	Efficient desalter	33%	50%	71%
603	New transformers welding	33%	50%	71%
604	Efficient processes (welding, etc.)	33%	50%	71%
605	Process control	33%	50%	75%
606	Power recovery	33%	50%	75%
607	Refinery Controls	33%	50%	66%
608	Energy Star Transformers	33%	50%	75%
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	33%	50%	75%
702	Window Film - Chiller	33%	50%	75%
707	Energy Star Transformers	33%	50%	75%
712	DX Packaged System, EER=10.9, 10 tons	33%	50%	75%
713	Window Film - DX	33%	50%	75%
715	Prog. Thermostat - DX	33%	50%	72%
717	Energy Star Transformers	33%	50%	75%
801	RET 2L4' Premium T8, 1EB	33%	50%	75%
802	CFL Hardwired, Modular 36W	33%	50%	59%
804	Occupancy Sensor, 4L4' Fluorescent Fixtures	33%	50%	75%
805	Energy Star Transformers	33%	50%	75%
901	Replace V-belts	33%	50%	69%
902	Membranes for wastewater	33%	50%	75%
903	Energy Star Transformers	33%	50%	75%

Total - All Sectors and Programs - Base Case 1

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	32,616,698	75,702,176	125,128,461	177,627,589	230,986,275	283,791,731	335,126,959	384,359,826	431,037,658	474,850,244
Net Peak Demand Savings - kW	23,020	46,043	68,727	90,781	112,012	132,305	151,590	169,828	186,997	203,094
New Net Energy Savings - kWh	32,616,698	43,085,478	49,426,284	52,499,128	53,358,686	52,805,457	51,335,227	49,232,867	46,677,832	43,812,586
New Net Peak Demand Savings - kW	23,020	23,023	22,684	22,054	21,231	20,292	19,285	18,238	17,169	16,098
Program Costs - Real										
Administration	\$1,496,989	\$1,516,847	\$1,610,056	\$1,715,284	\$1,820,031	\$1,919,937	\$2,013,069	\$2,098,555	\$2,176,136	\$2,246,172
Marketing	\$3,660,440	\$3,673,033	\$3,685,704	\$3,698,453	\$3,711,282	\$3,724,191	\$3,737,180	\$3,750,249	\$3,763,400	\$3,776,632
Incentives	\$7,970,950	\$8,725,722	\$9,516,513	\$10,267,219	\$10,958,912	\$11,583,637	\$12,137,645	\$12,619,884	\$13,031,585	\$13,376,456
Total	\$13,128,379	\$13,915,602	\$14,812,272	\$15,680,956	\$16,490,226	\$17,227,765	\$17,887,894	\$18,468,688	\$18,971,121	\$19,399,260
PV Avoided Costs										
PV Annual Program Costs	\$77,253,448	\$79,320,341	\$78,080,034	\$74,001,001	\$69,298,455	\$64,320,119	\$58,771,021	\$52,994,572	\$48,060,880	\$43,624,087
PV Participant Costs	\$11,010,200	\$11,028,834	\$11,137,669	\$11,202,500	\$11,200,598	\$11,129,096	\$10,991,511	\$10,794,310	\$10,545,630	\$10,254,928
PV Participant Costs	\$13,920,740	\$15,317,996	\$16,130,874	\$16,362,966	\$16,140,280	\$15,587,546	\$14,809,758	\$13,890,603	\$12,894,992	\$11,873,286
TRC	3.1	3.0	2.9	2.7	2.5	2.4	2.3	2.1	2.1	2.0

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	54,579,458	125,021,660	205,821,169	292,431,472	381,620,569	471,115,170	559,178,325	644,356,553	725,407,350	801,335,772
Net Peak Demand Savings - kW	26,780	54,425	82,465	110,449	138,034	164,962	191,022	216,035	239,847	262,347
New Net Energy Savings - kWh	54,579,458	70,442,201	80,799,509	86,610,303	89,189,097	89,494,600	88,063,156	85,178,228	81,050,797	75,928,422
New Net Peak Demand Savings - kW	26,780	27,645	28,040	27,984	27,585	26,928	26,060	25,012	23,813	22,499
Program Costs - Real										
Administration	\$2,621,989	\$2,764,169	\$3,015,660	\$3,280,731	\$3,537,681	\$3,777,050	\$3,993,436	\$4,183,731	\$4,346,614	\$4,482,688
Marketing	\$4,410,440	\$4,455,555	\$4,501,707	\$4,548,922	\$4,597,227	\$4,646,649	\$4,697,215	\$4,748,956	\$4,801,899	\$4,856,076
Incentives	\$11,393,930	\$13,015,919	\$14,745,459	\$16,416,771	\$17,970,112	\$19,367,470	\$20,582,216	\$21,597,863	\$22,408,050	\$23,017,644
Total	\$18,426,358	\$20,235,643	\$22,262,826	\$24,246,424	\$26,105,020	\$27,791,169	\$29,272,868	\$30,530,550	\$31,556,563	\$32,356,407
PV Avoided Costs										
PV Annual Program Costs	\$95,901,349	\$99,589,268	\$98,854,839	\$94,386,133	\$89,046,816	\$83,264,728	\$76,586,278	\$69,396,470	\$63,096,121	\$57,245,860
PV Participant Costs	\$16,308,179	\$17,053,414	\$17,907,882	\$18,621,950	\$19,139,629	\$19,443,638	\$19,533,781	\$19,421,363	\$19,126,345	\$18,676,076
PV Participant Costs	\$16,812,969	\$18,775,008	\$19,918,080	\$20,276,776	\$20,009,944	\$19,275,670	\$18,211,698	\$16,933,914	\$15,538,635	\$14,106,585
TRC	2.9	2.8	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	111,103,730	255,107,911	423,415,571	606,619,319	795,601,939	981,725,761	1,156,885,186	1,313,453,182	1,444,596,334	1,545,826,333
Net Peak Demand Savings - kW	38,419	80,889	126,551	174,232	222,680	270,638	316,885	360,247	399,646	434,360
New Net Energy Savings - kWh	111,103,730	144,004,181	168,307,660	183,203,748	188,982,620	186,123,822	175,159,425	156,567,996	131,143,153	101,229,999
New Net Peak Demand Savings - kW	38,419	42,470	45,662	47,681	48,449	47,958	46,246	43,362	39,400	34,714
Program Costs - Real										
Administration	\$4,306,989	\$4,845,400	\$5,514,494	\$6,176,327	\$6,774,606	\$7,263,991	\$7,599,235	\$7,725,041	\$7,577,150	\$7,167,644
Marketing	\$5,305,440	\$5,390,453	\$5,479,308	\$5,572,194	\$5,669,312	\$5,770,870	\$5,877,090	\$5,988,202	\$6,104,451	\$6,226,091
Incentives	\$23,737,880	\$29,313,316	\$35,234,369	\$40,898,678	\$45,888,668	\$49,803,060	\$52,231,088	\$52,709,430	\$50,757,447	\$46,383,498
Total	\$33,350,309	\$39,549,168	\$46,228,171	\$52,647,200	\$58,332,586	\$62,837,921	\$65,707,413	\$66,422,673	\$64,439,048	\$59,777,232
PV Avoided Costs										
PV Annual Program Costs	\$135,411,837	\$147,317,184	\$152,189,479	\$149,831,090	\$143,831,552	\$134,578,737	\$121,395,590	\$105,245,763	\$88,733,942	\$72,082,489
PV Participant Costs	\$31,232,130	\$35,464,035	\$39,684,852	\$43,222,841	\$45,750,251	\$47,029,220	\$46,871,018	\$45,092,630	\$41,545,521	\$36,497,501
PV Participant Costs	\$22,175,359	\$25,612,436	\$27,574,423	\$28,077,896	\$27,325,234	\$25,579,331	\$23,099,847	\$20,083,454	\$16,672,574	\$13,149,403
TRC	2.5	2.4	2.3	2.1	2.0	1.9	1.7	1.6	1.5	1.5

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	77,040,980	155,961,725	234,600,779	310,944,825	383,653,713	451,998,471	515,702,107	574,781,545	629,423,025	679,897,880
Naturally Occurring kW	9,763	19,729	29,731	39,556	49,050	58,122	66,728	74,857	82,514	89,717

Residential - Existing Construction - Base Case 1

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	2,249,399	4,700,962	7,302,419	10,010,278	12,789,406	15,612,219	18,457,670	21,310,172	24,158,542	26,994,441
Net Peak Demand Savings - kW	472	987	1,539	2,124	2,738	3,375	4,033	4,709	5,400	6,104
New Net Energy Savings - kWh	2,249,399	2,451,564	2,601,456	2,707,859	2,779,128	2,822,813	2,845,452	2,852,502	2,848,369	2,835,900
New Net Peak Demand Savings - kW	472	515	552	585	613	637	658	676	691	703
Program Costs - Real										
Administration	\$125,000	\$128,872	\$131,752	\$133,796	\$135,154	\$135,963	\$136,340	\$136,386	\$136,185	\$135,787
Marketing	\$150,000	\$150,059	\$150,117	\$150,176	\$150,235	\$150,293	\$150,352	\$150,411	\$150,470	\$150,528
Incentives	\$336,577	\$350,435	\$360,729	\$368,025	\$372,858	\$375,715	\$377,025	\$377,148	\$376,383	\$374,908
Total	\$611,577	\$629,365	\$642,598	\$651,997	\$658,247	\$661,971	\$663,717	\$663,945	\$663,038	\$661,224
PV Avoided Costs	\$4,478,007	\$4,337,388	\$4,196,135	\$4,021,564	\$3,880,838	\$3,752,333	\$3,594,552	\$3,411,284	\$3,268,481	\$3,143,444
PV Annual Program Costs	\$611,577	\$599,942	\$583,920	\$564,763	\$543,521	\$521,043	\$497,994	\$474,876	\$452,057	\$429,744
PV Participant Costs	\$1,084,788	\$1,080,649	\$1,065,645	\$1,042,437	\$1,013,260	\$979,944	\$943,949	\$906,415	\$868,212	\$829,864
TRC	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	4,529,249	9,566,113	14,961,703	20,596,323	26,378,562	32,241,971	38,140,548	44,043,976	49,933,244	55,794,027
Net Peak Demand Savings - kW	1,137	2,414	3,811	5,313	6,905	8,575	10,310	12,101	13,937	15,811
New Net Energy Savings - kWh	4,529,249	5,036,864	5,395,590	5,634,620	5,782,238	5,863,409	5,898,578	5,903,427	5,889,269	5,860,782
New Net Peak Demand Savings - kW	1,137	1,276	1,397	1,502	1,592	1,670	1,735	1,790	1,836	1,874
Program Costs - Real										
Administration	\$250,000	\$264,444	\$275,276	\$283,127	\$288,613	\$292,285	\$294,606	\$295,942	\$296,571	\$296,607
Marketing	\$300,000	\$300,117	\$300,235	\$300,352	\$300,469	\$300,587	\$300,704	\$300,822	\$300,939	\$301,057
Incentives	\$842,214	\$906,984	\$955,528	\$990,684	\$1,015,216	\$1,031,602	\$1,041,915	\$1,047,806	\$1,050,522	\$1,050,573
Total	\$1,392,214	\$1,471,546	\$1,531,038	\$1,574,162	\$1,604,298	\$1,624,474	\$1,637,225	\$1,644,569	\$1,648,032	\$1,648,236
PV Avoided Costs	\$6,225,695	\$6,191,705	\$6,095,841	\$5,912,983	\$5,749,966	\$5,587,171	\$5,372,146	\$5,115,297	\$4,911,620	\$4,729,686
PV Annual Program Costs	\$1,392,214	\$1,402,751	\$1,391,233	\$1,363,547	\$1,324,685	\$1,278,636	\$1,228,428	\$1,176,252	\$1,123,623	\$1,071,226
PV Participant Costs	\$1,366,085	\$1,400,961	\$1,410,243	\$1,400,069	\$1,375,645	\$1,341,188	\$1,299,982	\$1,254,495	\$1,206,537	\$1,156,942
TRC	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	11,282,830	24,393,583	38,834,304	54,190,972	70,137,291	86,428,322	102,888,241	119,395,886	135,870,722	152,225,338
Net Peak Demand Savings - kW	4,290	9,317	14,972	21,158	27,785	34,776	42,058	49,571	57,258	65,069
New Net Energy Savings - kWh	11,282,830	13,110,753	14,440,721	15,356,668	15,946,319	16,291,031	16,459,919	16,507,645	16,474,835	16,354,616
New Net Peak Demand Savings - kW	4,290	5,027	5,655	6,186	6,628	6,990	7,283	7,512	7,687	7,811
Program Costs - Real										
Administration	\$500,000	\$553,296	\$594,408	\$625,122	\$647,350	\$662,921	\$673,443	\$680,244	\$684,363	\$685,795
Marketing	\$600,000	\$600,234	\$600,469	\$600,704	\$600,938	\$601,173	\$601,408	\$601,643	\$601,878	\$602,114
Incentives	\$3,114,073	\$3,556,251	\$3,897,245	\$4,151,892	\$4,336,074	\$4,464,967	\$4,551,937	\$4,608,012	\$4,641,813	\$4,653,292
Total	\$4,214,073	\$4,709,782	\$5,092,122	\$5,377,717	\$5,584,362	\$5,729,061	\$5,826,788	\$5,889,899	\$5,928,055	\$5,941,200
PV Avoided Costs	\$12,398,695	\$13,093,070	\$13,422,960	\$13,407,982	\$13,291,091	\$13,080,703	\$12,692,863	\$12,171,751	\$11,721,202	\$11,276,960
PV Annual Program Costs	\$4,214,073	\$4,489,600	\$4,627,139	\$4,658,205	\$4,611,063	\$4,509,391	\$4,371,902	\$4,212,656	\$4,041,730	\$3,861,322
PV Participant Costs	\$2,206,343	\$2,385,346	\$2,483,260	\$2,518,372	\$2,506,948	\$2,462,546	\$2,395,861	\$2,314,950	\$2,225,641	\$2,127,940
TRC	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	4,411,603	8,903,712	13,457,737	18,057,364	22,688,349	27,338,322	31,996,586	36,653,936	41,302,488	45,935,416
Naturally Occurring kW	610	1,225	1,842	2,460	3,080	3,700	4,319	4,937	5,554	6,168

Residential - New Construction - Base Case 1

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	457,837	830,879	1,190,589	1,552,390	1,921,540	2,300,214	2,689,380	3,089,462	3,500,606	3,928,059
Net Peak Demand Savings - kW	127	237	350	470	599	737	885	1,042	1,209	1,386
New Net Energy Savings - kWh	457,837	373,042	359,710	361,801	369,150	378,674	389,166	400,082	411,145	427,453
New Net Peak Demand Savings - kW	127	110	113	120	129	138	148	157	167	177
Program Costs - Real										
Administration	\$65,000	\$66,803	\$76,040	\$87,283	\$99,430	\$112,106	\$125,146	\$138,464	\$152,012	\$165,964
Marketing	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000
Incentives	\$67,769	\$48,911	\$46,057	\$47,065	\$49,551	\$52,734	\$56,288	\$60,054	\$63,947	\$68,481
Total	\$197,769	\$180,713	\$187,097	\$199,348	\$213,981	\$229,840	\$246,434	\$263,519	\$280,959	\$299,445
PV Avoided Costs										
PV Annual Program Costs	\$942,706	\$589,467	\$496,164	\$459,314	\$446,946	\$444,809	\$443,266	\$440,078	\$441,418	\$446,882
PV Participant Costs	\$222,363	\$146,694	\$128,175	\$122,585	\$121,368	\$121,804	\$122,812	\$123,906	\$124,856	\$126,722
TRC	2.2	1.8	1.7	1.6	1.5	1.5	1.4	1.4	1.4	1.4

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	726,423	1,339,760	1,947,286	2,572,276	3,222,709	3,901,895	4,611,307	5,351,574	6,122,890	6,940,392
Net Peak Demand Savings - kW	244	473	720	994	1,298	1,632	1,998	2,395	2,824	3,287
New Net Energy Savings - kWh	726,423	613,337	607,526	624,990	650,433	679,186	709,413	740,267	771,316	817,502
New Net Peak Demand Savings - kW	244	229	248	274	304	334	366	397	429	463
Program Costs - Real										
Administration	\$90,000	\$98,078	\$115,117	\$134,577	\$155,115	\$176,271	\$197,837	\$219,706	\$241,814	\$264,615
Marketing	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
Incentives	\$152,476	\$124,255	\$126,801	\$136,770	\$149,583	\$163,743	\$178,620	\$193,905	\$209,430	\$227,247
Total	\$332,476	\$312,332	\$331,918	\$361,346	\$394,698	\$430,014	\$466,457	\$503,611	\$541,244	\$581,862
PV Avoided Costs										
PV Annual Program Costs	\$1,175,688	\$797,082	\$708,299	\$680,574	\$679,464	\$689,015	\$697,130	\$701,417	\$710,815	\$727,836
PV Participant Costs	\$332,476	\$297,731	\$301,609	\$313,000	\$325,906	\$338,468	\$349,988	\$360,200	\$369,018	\$378,165
PV Participant Costs	\$249,478	\$179,840	\$167,010	\$166,525	\$169,849	\$174,303	\$178,843	\$183,018	\$186,635	\$192,068
TRC	2.0	1.7	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.3

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	1,597,287	3,137,698	4,810,687	6,655,717	8,684,430	10,899,719	13,300,893	15,885,523	18,650,248	21,654,362
Net Peak Demand Savings - kW	824	1,786	2,962	4,368	6,008	7,883	9,989	12,325	14,886	17,675
New Net Energy Savings - kWh	1,597,287	1,540,411	1,672,989	1,845,030	2,028,712	2,215,290	2,401,174	2,584,630	2,764,726	3,004,113
New Net Peak Demand Savings - kW	824	962	1,176	1,406	1,640	1,874	2,107	2,336	2,561	2,789
Program Costs - Real										
Administration	\$125,000	\$149,756	\$183,578	\$219,506	\$256,037	\$292,617	\$328,980	\$364,975	\$400,506	\$436,773
Marketing	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000
Incentives	\$575,600	\$631,708	\$760,936	\$906,939	\$1,058,238	\$1,210,872	\$1,363,064	\$1,513,870	\$1,662,736	\$1,821,077
Total	\$835,600	\$916,465	\$1,079,514	\$1,261,445	\$1,449,274	\$1,638,489	\$1,827,044	\$2,013,845	\$2,198,242	\$2,392,850
PV Avoided Costs										
PV Annual Program Costs	\$2,103,926	\$1,827,997	\$1,900,029	\$2,026,578	\$2,170,131	\$2,312,786	\$2,431,172	\$2,523,636	\$2,615,027	\$2,722,486
PV Participant Costs	\$835,600	\$873,620	\$980,939	\$1,092,670	\$1,196,680	\$1,289,668	\$1,370,851	\$1,440,371	\$1,498,755	\$1,555,168
PV Participant Costs	\$319,851	\$289,921	\$310,444	\$339,008	\$367,639	\$393,992	\$417,296	\$437,352	\$454,199	\$475,370
TRC	1.8	1.6	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.3

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	890,911	1,405,416	1,827,502	2,225,887	2,626,426	3,040,824	3,474,831	3,931,306	4,411,571	4,917,416
Naturally Occurring kW	145	229	298	364	430	498	570	647	729	817

Residential - Saver's Switch - Base Case 1

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
Net Peak Demand Savings - kW	18,150	34,848	50,211	64,344	77,347	89,309	100,315	110,440	119,755	128,325
New Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
New Net Peak Demand Savings - kW	18,150	16,698	15,362	14,133	13,003	11,962	11,005	10,125	9,315	8,570
Program Costs - Real 2005										
Administration	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989
Marketing	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440
Incentives+Install	\$5,216,083	\$5,443,788	\$5,653,278	\$5,846,008	\$6,023,320	\$6,186,446	\$6,336,523	\$6,474,594	\$6,601,618	\$6,718,481
Total	\$6,968,512	\$7,196,217	\$7,405,707	\$7,598,437	\$7,775,749	\$7,938,875	\$8,088,952	\$8,227,022	\$8,354,047	\$8,470,910
PV Avoided Costs										
PV Annual Program Costs	\$4,850,332	\$4,623,580	\$4,407,428	\$4,201,382	\$4,004,968	\$3,817,736	\$3,639,257	\$3,469,123	\$3,306,942	\$3,152,343
PV Participant Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TRC	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
Net Peak Demand Savings - kW	18,150	34,848	50,211	64,344	77,347	89,309	100,315	110,440	119,755	128,325
New Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
New Net Peak Demand Savings - kW	18,150	16,698	15,362	14,133	13,003	11,962	11,005	10,125	9,315	8,570
Program Costs - Real 2005										
Administration	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989
Marketing	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440
Incentives+Install	\$5,216,083	\$5,443,788	\$5,653,278	\$5,846,008	\$6,023,320	\$6,186,446	\$6,336,523	\$6,474,594	\$6,601,618	\$6,718,481
Total	\$6,968,512	\$7,196,217	\$7,405,707	\$7,598,437	\$7,775,749	\$7,938,875	\$8,088,952	\$8,227,022	\$8,354,047	\$8,470,910
PV Avoided Costs										
PV Annual Program Costs	\$4,850,332	\$4,623,580	\$4,407,428	\$4,201,382	\$4,004,968	\$3,817,736	\$3,639,257	\$3,469,123	\$3,306,942	\$3,152,343
PV Participant Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TRC	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
Net Peak Demand Savings - kW	18,150	34,848	50,211	64,344	77,347	89,309	100,315	110,440	119,755	128,325
New Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
New Net Peak Demand Savings - kW	18,150	16,698	15,362	14,133	13,003	11,962	11,005	10,125	9,315	8,570
Program Costs - Real 2005										
Administration	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989
Marketing	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440
Incentives+Install	\$5,216,083	\$5,443,788	\$5,653,278	\$5,846,008	\$6,023,320	\$6,186,446	\$6,336,523	\$6,474,594	\$6,601,618	\$6,718,481
Total	\$6,968,512	\$7,196,217	\$7,405,707	\$7,598,437	\$7,775,749	\$7,938,875	\$8,088,952	\$8,227,022	\$8,354,047	\$8,470,910
PV Avoided Costs										
PV Annual Program Costs	\$4,850,332	\$4,623,580	\$4,407,428	\$4,201,382	\$4,004,968	\$3,817,736	\$3,639,257	\$3,469,123	\$3,306,942	\$3,152,343
PV Participant Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TRC	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	0	0	0	0	0	0	0	0	0	0
Naturally Occurring kW	0	0	0	0	0	0	0	0	0	0

Commercial - Existing Construction - Base Case 1

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	25,611,979	61,592,547	103,614,536	148,429,352	193,868,050	238,560,075	281,623,150	322,451,893	360,613,406	395,806,674
Net Peak Demand Savings - kW	3,528	8,511	14,426	20,870	27,555	34,278	40,891	47,284	53,367	59,076
New Net Energy Savings - kWh	25,611,979	35,980,567	42,021,989	44,814,816	45,438,698	44,692,025	43,063,075	40,828,743	38,161,513	35,193,268
New Net Peak Demand Savings - kW	3,528	4,982	5,916	6,444	6,684	6,723	6,614	6,392	6,083	5,709
Program Costs - Real										
Administration	\$350,000	\$437,286	\$520,488	\$597,897	\$668,344	\$731,019	\$785,394	\$831,228	\$868,572	\$897,755
Marketing	\$1,500,000	\$1,509,379	\$1,518,816	\$1,528,312	\$1,537,868	\$1,547,483	\$1,557,159	\$1,566,895	\$1,576,692	\$1,586,550
Incentives	\$1,831,358	\$2,436,500	\$3,013,131	\$3,549,316	\$4,036,906	\$4,470,251	\$4,845,670	\$5,161,468	\$5,418,016	\$5,617,603
Total	\$3,681,358	\$4,383,164	\$5,052,436	\$5,675,525	\$6,243,118	\$6,748,753	\$7,188,223	\$7,559,591	\$7,863,280	\$8,101,908
PV Avoided Costs	\$57,078,197	\$61,036,830	\$60,726,325	\$57,418,709	\$53,314,325	\$48,852,013	\$43,859,652	\$38,683,020	\$34,233,417	\$30,220,672
PV Annual Program Costs	\$3,681,358	\$4,178,252	\$4,591,077	\$4,916,167	\$5,155,005	\$5,311,998	\$5,393,402	\$5,406,876	\$5,361,160	\$5,265,616
PV Participant Costs	\$11,274,338	\$12,957,545	\$13,861,885	\$14,150,036	\$13,975,753	\$13,470,871	\$12,742,177	\$11,873,506	\$10,929,426	\$9,958,784
TRC	3.8	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.1	2.0

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	40,806,083	96,942,104	162,683,206	233,594,784	306,573,624	379,452,975	450,576,130	518,547,070	582,163,330	640,444,451
Net Peak Demand Savings - kW	5,735	13,679	23,153	33,601	44,597	55,806	66,951	77,787	88,104	97,732
New Net Energy Savings - kWh	40,806,083	56,136,021	65,741,102	70,911,578	72,978,840	72,879,350	71,123,156	67,970,940	63,616,260	58,281,121
New Net Peak Demand Savings - kW	5,735	7,944	9,474	10,448	10,996	11,210	11,145	10,836	10,317	9,628
Program Costs - Real										
Administration	\$750,000	\$965,061	\$1,178,321	\$1,382,922	\$1,572,910	\$1,743,269	\$1,890,087	\$2,010,774	\$2,104,176	\$2,170,516
Marketing	\$1,500,000	\$1,538,687	\$1,578,372	\$1,619,080	\$1,660,838	\$1,703,674	\$1,747,613	\$1,792,687	\$1,838,923	\$1,886,351
Incentives	\$3,922,959	\$5,389,104	\$6,841,813	\$8,233,240	\$9,521,843	\$10,672,610	\$11,658,239	\$12,460,633	\$13,071,725	\$13,493,046
Total	\$6,172,959	\$7,892,853	\$9,598,506	\$11,235,242	\$12,755,591	\$14,119,553	\$15,295,940	\$16,264,094	\$17,014,823	\$17,549,913
PV Avoided Costs	\$70,884,883	\$76,497,215	\$76,677,740	\$73,032,517	\$68,340,006	\$63,129,278	\$57,112,681	\$50,668,784	\$44,959,639	\$39,622,755
PV Annual Program Costs	\$6,172,959	\$7,523,863	\$8,722,026	\$9,732,022	\$10,532,418	\$11,113,615	\$11,476,711	\$11,632,633	\$11,600,654	\$11,406,092
PV Participant Costs	\$13,459,989	\$15,630,658	\$16,824,969	\$17,221,690	\$17,000,280	\$16,321,325	\$15,321,134	\$14,113,450	\$12,792,628	\$11,435,758
TRC	3.6	3.3	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	78,948,820	188,373,642	319,554,371	463,562,125	611,749,219	755,863,933	888,140,124	1,001,409,380	1,089,338,162	1,147,624,338
Net Peak Demand Savings - kW	11,561	27,702	47,347	69,297	92,305	115,120	136,532	155,417	170,767	181,886
New Net Energy Savings - kWh	78,948,820	109,424,822	131,180,729	144,007,754	148,187,095	144,114,714	132,276,191	113,269,256	87,928,782	58,286,177
New Net Peak Demand Savings - kW	11,561	16,141	19,645	21,950	23,008	22,815	21,413	18,884	15,350	11,119
Program Costs - Real										
Administration	\$1,500,000	\$2,034,316	\$2,585,339	\$3,116,535	\$3,587,342	\$3,955,473	\$4,177,328	\$4,205,394	\$3,992,749	\$3,535,474
Marketing	\$1,500,000	\$1,575,322	\$1,654,427	\$1,737,504	\$1,824,753	\$1,916,382	\$2,012,613	\$2,113,677	\$2,219,815	\$2,331,283
Incentives	\$10,792,916	\$15,738,332	\$20,834,950	\$25,731,836	\$30,039,360	\$33,351,328	\$35,248,936	\$35,275,804	\$32,981,188	\$28,326,882
Total	\$13,792,916	\$19,347,970	\$25,074,716	\$30,585,875	\$35,451,454	\$39,223,183	\$41,438,877	\$41,594,875	\$39,193,752	\$34,193,639
PV Avoided Costs	\$95,913,269	\$109,115,515	\$114,354,524	\$112,605,037	\$107,149,983	\$98,476,421	\$86,210,155	\$71,350,331	\$56,049,620	\$40,548,508
PV Annual Program Costs	\$13,792,916	\$18,443,455	\$22,785,039	\$26,493,634	\$29,272,618	\$30,872,886	\$31,092,042	\$29,750,068	\$26,722,178	\$22,223,232
PV Participant Costs	\$17,343,871	\$20,721,764	\$22,585,397	\$23,050,685	\$22,319,536	\$20,642,425	\$18,267,189	\$15,384,247	\$12,137,800	\$8,790,578
TRC	3.1	2.8	2.5	2.3	2.1	1.9	1.7	1.6	1.4	1.3

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	65,997,445	134,973,705	203,832,348	270,354,533	333,133,493	391,415,127	444,911,856	493,635,179	537,767,473	577,575,122
Naturally Occurring kW	8,227	16,883	25,607	34,140	42,308	50,013	57,207	63,873	70,019	75,657

Commercial - New Construction - Base Case 1

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	2,204,542	4,249,559	6,355,831	8,565,958	10,892,835	13,341,110	15,912,498	18,607,510	21,426,121	24,368,054
Net Peak Demand Savings - kW	499	958	1,429	1,924	2,444	2,991	3,566	4,169	4,799	5,458
New Net Energy Savings - kWh	2,204,542	2,045,017	2,106,273	2,210,126	2,326,878	2,448,275	2,571,387	2,695,012	2,818,611	2,941,932
New Net Peak Demand Savings - kW	499	459	472	494	520	547	575	603	631	658
Program Costs - Real										
Administration	\$500,000	\$426,587	\$424,393	\$439,033	\$460,089	\$484,218	\$510,032	\$536,859	\$564,334	\$592,246
Marketing	\$500,000	\$503,126	\$506,272	\$509,437	\$512,623	\$515,828	\$519,053	\$522,298	\$525,564	\$528,850
Incentives	\$373,313	\$299,453	\$296,486	\$310,272	\$330,441	\$353,663	\$378,559	\$404,457	\$430,996	\$457,964
Total	\$1,373,313	\$1,229,166	\$1,227,151	\$1,258,742	\$1,303,153	\$1,353,709	\$1,407,643	\$1,463,614	\$1,520,894	\$1,579,060
PV Avoided Costs										
PV Annual Program Costs	\$3,479,025	\$2,618,772	\$2,447,579	\$2,414,207	\$2,450,019	\$2,515,146	\$2,568,150	\$2,600,902	\$2,657,447	\$2,721,896
PV Participant Costs	\$1,373,313	\$1,171,702	\$1,115,094	\$1,090,329	\$1,076,026	\$1,065,515	\$1,056,170	\$1,046,826	\$1,036,941	\$1,026,267
PV Participant Costs	\$785,343	\$600,373	\$566,505	\$565,020	\$573,523	\$585,052	\$596,890	\$607,852	\$617,404	\$625,322
TRC	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	4,659,956	9,134,101	13,768,811	18,619,823	23,699,292	29,008,885	34,547,250	40,312,180	46,301,303	52,512,326
Net Peak Demand Savings - kW	1,065	2,082	3,132	4,231	5,381	6,583	7,837	9,143	10,500	11,908
New Net Energy Savings - kWh	4,659,956	4,474,145	4,634,709	4,851,012	5,079,470	5,309,592	5,538,366	5,764,929	5,989,123	6,211,023
New Net Peak Demand Savings - kW	1,065	1,016	1,050	1,099	1,150	1,202	1,254	1,306	1,357	1,408
Program Costs - Real										
Administration	\$1,000,000	\$900,935	\$908,454	\$939,483	\$978,891	\$1,022,046	\$1,067,115	\$1,113,246	\$1,159,998	\$1,207,126
Marketing	\$1,000,000	\$1,006,252	\$1,012,544	\$1,018,875	\$1,025,245	\$1,031,656	\$1,038,106	\$1,044,597	\$1,051,128	\$1,057,700
Incentives	\$896,010	\$775,791	\$782,895	\$818,074	\$863,251	\$912,894	\$964,810	\$1,017,982	\$1,071,886	\$1,126,226
Total	\$2,896,010	\$2,682,979	\$2,703,892	\$2,776,431	\$2,867,388	\$2,966,596	\$3,070,030	\$3,175,825	\$3,283,012	\$3,391,052
PV Avoided Costs										
PV Annual Program Costs	\$5,271,581	\$4,272,484	\$4,064,042	\$3,999,123	\$4,018,814	\$4,074,911	\$4,107,502	\$4,108,038	\$4,147,384	\$4,200,450
PV Participant Costs	\$2,896,010	\$2,557,550	\$2,456,989	\$2,404,959	\$2,367,630	\$2,335,031	\$2,303,477	\$2,271,458	\$2,238,348	\$2,203,923
PV Participant Costs	\$941,886	\$777,283	\$747,583	\$744,516	\$748,777	\$754,706	\$760,237	\$764,546	\$767,314	\$768,451
TRC	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	9,888,288	19,543,415	29,633,750	40,260,763	51,443,488	63,182,069	75,430,520	87,947,002	100,388,735	112,653,204
Net Peak Demand Savings - kW	2,310	4,555	6,896	9,359	11,951	14,671	17,512	20,429	23,348	26,235
New Net Energy Savings - kWh	9,888,288	9,655,127	10,090,335	10,627,013	11,182,725	11,738,580	12,248,451	12,516,482	12,441,733	12,264,470
New Net Peak Demand Savings - kW	2,310	2,244	2,341	2,464	2,592	2,720	2,841	2,917	2,919	2,887
Program Costs - Real										
Administration	\$1,500,000	\$1,410,227	\$1,441,635	\$1,497,541	\$1,561,350	\$1,628,292	\$1,694,957	\$1,751,995	\$1,780,780	\$1,795,802
Marketing	\$1,500,000	\$1,509,379	\$1,518,816	\$1,528,312	\$1,537,868	\$1,547,483	\$1,557,159	\$1,566,895	\$1,576,692	\$1,586,550
Incentives	\$2,495,089	\$2,290,785	\$2,355,212	\$2,473,937	\$2,610,158	\$2,753,295	\$2,895,783	\$3,016,887	\$3,075,297	\$3,103,146
Total	\$5,495,089	\$5,210,390	\$5,315,663	\$5,499,790	\$5,709,376	\$5,929,070	\$6,147,899	\$6,335,778	\$6,432,769	\$6,485,498
PV Avoided Costs										
PV Annual Program Costs	\$9,124,867	\$7,835,255	\$7,587,662	\$7,501,362	\$7,532,779	\$7,614,607	\$7,625,227	\$7,467,494	\$7,234,360	\$6,995,259
PV Participant Costs	\$5,495,089	\$4,966,805	\$4,830,268	\$4,763,945	\$4,714,288	\$4,666,819	\$4,612,836	\$4,531,563	\$4,385,842	\$4,215,074
PV Participant Costs	\$923,534	\$808,175	\$791,863	\$792,699	\$797,067	\$801,307	\$803,330	\$798,348	\$776,259	\$747,054
TRC	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	2,637,607	4,498,455	6,281,064	8,160,066	10,205,311	12,451,727	14,919,270	17,620,415	20,563,477	23,754,277
Naturally Occurring kW	559	951	1,325	1,719	2,146	2,615	3,130	3,693	4,306	4,971

Industrial - Base Case 1

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	2,092,942	4,328,230	6,665,086	9,069,612	11,514,443	13,978,114	16,444,261	18,900,789	21,338,983	23,753,015
Net Peak Demand Savings - kW	243	502	771	1,048	1,330	1,614	1,899	2,184	2,466	2,746
New Net Energy Savings - kWh	2,092,942	2,235,288	2,336,857	2,404,525	2,444,832	2,463,671	2,466,147	2,456,528	2,438,194	2,414,033
New Net Peak Demand Savings - kW	243	258	269	277	282	284	285	284	283	280
Program Costs - Real										
Administration	\$75,000	\$75,311	\$75,393	\$75,286	\$75,024	\$74,642	\$74,169	\$73,629	\$73,044	\$72,431
Marketing	\$75,000	\$75,029	\$75,059	\$75,088	\$75,117	\$75,147	\$75,176	\$75,205	\$75,235	\$75,264
Incentives	\$145,850	\$146,636	\$146,831	\$146,534	\$145,837	\$144,827	\$143,581	\$142,163	\$140,625	\$139,018
Total	\$295,850	\$296,976	\$297,283	\$296,907	\$295,979	\$294,616	\$292,925	\$290,997	\$288,903	\$286,713
PV Avoided Costs										
PV Annual Program Costs	\$295,850	\$283,092	\$270,137	\$257,183	\$244,392	\$231,895	\$219,785	\$208,131	\$196,973	\$186,341
PV Participant Costs	\$553,908	\$532,735	\$508,664	\$482,889	\$456,377	\$429,874	\$403,929	\$378,923	\$355,094	\$332,594
TRC	3.5	3.5	3.5	3.4	3.4	3.4	3.4	3.3	3.3	3.3

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	3,857,748	8,039,581	12,460,163	17,048,266	21,746,382	26,509,445	31,303,089	36,101,754	40,886,582	45,644,576
Net Peak Demand Savings - kW	448	930	1,438	1,966	2,506	3,056	3,611	4,169	4,727	5,284
New Net Energy Savings - kWh	3,857,748	4,181,834	4,420,582	4,588,103	4,698,116	4,763,062	4,793,644	4,798,665	4,784,828	4,757,994
New Net Peak Demand Savings - kW	448	482	508	527	541	550	555	558	558	557
Program Costs - Real										
Administration	\$150,000	\$153,662	\$156,503	\$158,634	\$160,163	\$161,190	\$161,802	\$162,075	\$162,066	\$161,834
Marketing	\$150,000	\$150,059	\$150,117	\$150,176	\$150,235	\$150,293	\$150,352	\$150,411	\$150,470	\$150,528
Incentives	\$364,188	\$375,995	\$385,145	\$391,996	\$396,898	\$400,175	\$402,109	\$402,943	\$402,868	\$402,071
Total	\$664,188	\$679,716	\$691,765	\$700,806	\$707,296	\$711,658	\$714,263	\$715,429	\$715,403	\$714,433
PV Avoided Costs										
PV Annual Program Costs	\$4,067,663	\$3,941,837	\$3,788,779	\$3,592,365	\$3,425,124	\$3,270,374	\$3,087,367	\$2,883,773	\$2,724,291	\$2,586,741
PV Participant Costs	\$795,532	\$786,267	\$768,275	\$743,977	\$715,393	\$684,148	\$651,503	\$618,405	\$585,521	\$553,365
TRC	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.5	2.5

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	9,386,505	19,659,573	30,582,459	41,949,742	53,587,511	65,351,718	77,125,408	88,815,391	100,348,468	111,669,091
Net Peak Demand Savings - kW	1,283	2,681	4,164	5,705	7,284	8,880	10,478	12,065	13,632	15,171
New Net Energy Savings - kWh	9,386,505	10,273,068	10,922,887	11,367,282	11,637,770	11,764,206	11,773,690	11,689,983	11,533,077	11,320,623
New Net Peak Demand Savings - kW	1,283	1,398	1,483	1,542	1,578	1,596	1,598	1,588	1,567	1,539
Program Costs - Real										
Administration	\$300,000	\$315,815	\$327,545	\$335,634	\$340,538	\$342,700	\$342,539	\$340,443	\$336,762	\$331,811
Marketing	\$200,000	\$200,078	\$200,156	\$200,235	\$200,313	\$200,391	\$200,469	\$200,548	\$200,626	\$200,705
Incentives	\$1,544,120	\$1,652,451	\$1,732,749	\$1,788,066	\$1,821,519	\$1,836,151	\$1,834,845	\$1,820,263	\$1,794,794	\$1,760,619
Total	\$2,044,120	\$2,168,344	\$2,260,449	\$2,323,935	\$2,362,371	\$2,379,242	\$2,377,854	\$2,361,254	\$2,332,182	\$2,293,134
PV Avoided Costs										
PV Annual Program Costs	\$7,595,242	\$7,556,403	\$7,404,166	\$7,121,559	\$6,854,125	\$6,580,241	\$6,226,720	\$5,813,389	\$5,471,360	\$5,160,885
PV Participant Costs	\$2,044,120	\$2,066,975	\$2,054,038	\$2,013,004	\$1,950,633	\$1,872,721	\$1,784,129	\$1,688,849	\$1,590,075	\$1,490,361
PV Participant Costs	\$1,381,760	\$1,407,231	\$1,403,459	\$1,377,133	\$1,334,044	\$1,279,061	\$1,216,171	\$1,148,556	\$1,078,675	\$1,008,462
TRC	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	3,103,414	6,180,438	9,202,129	12,146,976	15,000,134	17,752,472	20,399,564	22,940,710	25,378,016	27,715,650
Naturally Occurring kW	222	441	659	874	1,086	1,296	1,502	1,705	1,906	2,103

Total - All Sectors and Programs - Base Case 2

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	36,451,874	83,502,554	137,052,943	193,788,385	251,458,210	308,629,950	364,381,532	418,085,125	469,296,872	517,716,270
Net Peak Demand Savings - kW	23,661	47,395	70,878	93,815	116,012	137,347	157,750	177,175	195,598	213,014
New Net Energy Savings - kWh	36,451,874	47,050,680	53,550,389	56,735,442	57,669,826	57,171,739	55,751,583	53,703,592	51,211,748	48,419,397
New Net Peak Demand Savings - kW	23,661	23,734	23,482	22,938	22,197	21,336	20,402	19,425	18,423	17,416
Program Costs - Real										
Administration	\$1,496,989	\$1,519,544	\$1,615,305	\$1,723,082	\$1,830,479	\$1,933,212	\$2,029,398	\$2,118,182	\$2,199,305	\$2,273,040
Marketing	\$3,660,440	\$3,673,033	\$3,685,704	\$3,698,453	\$3,711,282	\$3,724,191	\$3,737,180	\$3,750,249	\$3,763,400	\$3,776,632
Incentives	\$8,211,935	\$8,973,086	\$9,777,296	\$10,541,625	\$11,246,291	\$11,883,374	\$12,449,321	\$12,943,262	\$13,366,553	\$13,722,974
Total	\$13,369,364	\$14,165,662	\$15,078,304	\$15,963,161	\$16,788,052	\$17,540,777	\$18,215,899	\$18,811,693	\$19,329,258	\$19,772,647
PV Avoided Costs										
PV Annual Program Costs	\$80,041,985	\$82,042,176	\$80,791,094	\$76,677,478	\$71,951,100	\$66,954,717	\$61,369,147	\$55,541,597	\$50,582,570	\$46,131,676
PV Participant Costs	\$14,164,028	\$15,570,960	\$16,396,873	\$16,639,447	\$16,424,703	\$15,878,016	\$15,104,935	\$14,189,501	\$13,196,817	\$12,177,316
TRC	3.1	3.1	2.9	2.7	2.6	2.5	2.3	2.2	2.1	2.0

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	63,533,339	143,514,267	234,375,052	331,399,824	431,242,235	531,574,602	630,646,823	727,013,418	819,446,021	906,961,254
Net Peak Demand Savings - kW	28,410	57,936	88,120	118,493	148,696	178,451	207,533	235,750	262,939	288,979
New Net Energy Savings - kWh	63,533,339	79,980,928	90,860,785	97,024,772	99,842,411	100,332,367	99,072,220	96,366,596	92,432,602	87,515,234
New Net Peak Demand Savings - kW	28,410	29,526	30,184	30,374	30,203	29,755	29,082	28,217	27,190	26,040
Program Costs - Real										
Administration	\$2,621,989	\$2,769,069	\$3,024,470	\$3,292,762	\$3,552,547	\$3,794,590	\$4,013,612	\$4,206,543	\$4,372,041	\$4,510,492
Marketing	\$4,410,440	\$4,455,555	\$4,501,707	\$4,548,922	\$4,597,227	\$4,646,649	\$4,697,215	\$4,748,956	\$4,801,899	\$4,856,076
Incentives	\$12,051,842	\$13,721,793	\$15,508,354	\$17,231,994	\$18,832,482	\$20,273,010	\$21,528,133	\$22,582,201	\$23,429,342	\$24,074,675
Total	\$19,084,271	\$20,946,417	\$23,034,531	\$25,073,678	\$26,982,257	\$28,714,249	\$30,238,960	\$31,537,700	\$32,603,282	\$33,441,243
PV Avoided Costs										
PV Annual Program Costs	\$102,235,396	\$105,983,689	\$105,326,339	\$100,825,610	\$95,453,381	\$89,638,121	\$82,873,199	\$75,554,496	\$69,181,690	\$63,280,200
PV Participant Costs	\$17,266,177	\$19,265,528	\$20,441,351	\$20,822,491	\$20,570,109	\$19,844,829	\$18,786,177	\$17,511,085	\$16,116,408	\$14,683,131
TRC	3.0	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.9	1.9

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	145,559,095	327,931,404	536,589,316	760,560,305	989,829,042	1,215,390,888	1,429,097,080	1,623,431,383	1,791,721,397	1,929,643,510
Net Peak Demand Savings - kW	47,390	100,644	158,485	219,323	281,562	343,676	404,242	461,934	515,565	564,327
New Net Energy Savings - kWh	145,559,095	182,372,309	208,657,913	223,970,989	229,268,737	225,561,846	213,706,191	194,334,303	168,290,014	137,922,112
New Net Peak Demand Savings - kW	47,390	53,254	57,841	60,838	62,240	62,114	60,565	57,693	53,630	48,762
Program Costs - Real										
Administration	\$4,306,989	\$4,849,051	\$5,509,733	\$6,154,151	\$6,729,434	\$7,193,049	\$7,501,676	\$7,601,234	\$7,428,307	\$6,995,501
Marketing	\$5,305,440	\$5,390,453	\$5,479,308	\$5,572,194	\$5,669,312	\$5,770,870	\$5,877,090	\$5,988,202	\$6,104,451	\$6,226,091
Incentives	\$28,043,367	\$34,213,288	\$40,527,959	\$46,400,384	\$51,464,191	\$55,364,793	\$57,725,693	\$58,106,217	\$56,040,872	\$51,549,749
Total	\$37,655,796	\$44,452,792	\$51,517,000	\$58,126,729	\$63,862,936	\$68,328,711	\$71,104,459	\$71,695,653	\$69,573,630	\$64,771,340
PV Avoided Costs										
PV Annual Program Costs	\$161,218,721	\$174,795,334	\$180,067,289	\$177,020,688	\$169,998,344	\$159,594,136	\$145,050,995	\$127,451,603	\$109,756,167	\$92,070,038
PV Participant Costs	\$35,537,617	\$40,138,416	\$44,490,736	\$47,969,236	\$50,316,716	\$51,351,066	\$50,920,480	\$48,864,044	\$45,046,263	\$39,743,286
TRC	2.7	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.7

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	77,174,449	156,226,243	235,000,650	311,487,441	384,348,805	452,857,830	516,739,446	576,012,398	630,864,668	681,569,263
Naturally Occurring kW	9,922	20,052	30,227	40,236	49,929	59,218	68,061	76,448	84,390	91,905

Residential - Existing Construction - Base Case 2

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	4,471,365	9,367,267	14,606,642	20,120,271	25,850,058	31,747,958	37,774,708	43,898,524	50,093,832	56,339,521
Net Peak Demand Savings - kW	891	1,862	2,902	3,999	5,146	6,333	7,552	8,799	10,067	11,352
New Net Energy Savings - kWh	4,471,365	4,895,902	5,239,375	5,513,629	5,729,787	5,897,899	6,026,751	6,123,816	6,195,308	6,245,689
New Net Peak Demand Savings - kW	891	971	1,040	1,098	1,146	1,187	1,220	1,247	1,268	1,285
Program Costs - Real										
Administration	\$125,000	\$129,775	\$133,596	\$136,600	\$138,916	\$140,664	\$141,945	\$142,850	\$143,452	\$143,803
Marketing	\$150,000	\$150,059	\$150,117	\$150,176	\$150,235	\$150,293	\$150,352	\$150,411	\$150,470	\$150,528
Incentives	\$488,254	\$513,058	\$532,893	\$548,474	\$560,476	\$569,513	\$576,123	\$580,772	\$583,846	\$585,605
Total	\$763,254	\$792,892	\$816,606	\$835,249	\$849,627	\$860,470	\$868,421	\$874,032	\$877,768	\$879,936
PV Avoided Costs	\$6,197,225	\$6,083,738	\$5,953,028	\$5,764,145	\$5,610,560	\$5,466,940	\$5,274,175	\$5,037,900	\$4,854,294	\$4,691,947
PV Annual Program Costs	\$763,254	\$755,824	\$742,038	\$723,497	\$701,546	\$677,283	\$651,586	\$625,138	\$598,459	\$571,891
PV Participant Costs	\$1,244,845	\$1,250,590	\$1,242,085	\$1,222,601	\$1,194,894	\$1,161,229	\$1,123,434	\$1,082,959	\$1,040,929	\$998,081
TRC	3.1	3.0	3.0	3.0	3.0	3.0	3.0	2.9	3.0	3.0

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	9,157,998	19,400,826	30,502,616	42,275,222	54,566,615	67,256,830	80,252,731	93,482,551	106,890,863	120,431,351
Net Peak Demand Savings - kW	2,112	4,476	7,050	9,800	12,696	15,710	18,821	22,008	25,256	28,548
New Net Energy Savings - kWh	9,157,998	10,242,829	11,101,789	11,772,606	12,291,393	12,690,215	12,995,901	13,229,820	13,408,312	13,540,488
New Net Peak Demand Savings - kW	2,112	2,363	2,574	2,750	2,896	3,015	3,111	3,187	3,247	3,292
Program Costs - Real										
Administration	\$250,000	\$265,803	\$278,300	\$288,019	\$295,475	\$301,130	\$305,373	\$308,525	\$310,833	\$312,424
Marketing	\$300,000	\$300,117	\$300,235	\$300,352	\$300,469	\$300,587	\$300,704	\$300,822	\$300,939	\$301,057
Incentives	\$1,216,477	\$1,318,849	\$1,399,765	\$1,462,666	\$1,510,882	\$1,547,407	\$1,574,782	\$1,595,070	\$1,609,886	\$1,620,051
Total	\$1,766,477	\$1,884,770	\$1,978,299	\$2,051,037	\$2,106,827	\$2,149,123	\$2,180,859	\$2,204,417	\$2,221,658	\$2,233,533
PV Avoided Costs	\$9,730,018	\$9,841,931	\$9,833,002	\$9,666,303	\$9,509,447	\$9,338,634	\$9,065,424	\$8,705,636	\$8,422,270	\$8,165,926
PV Annual Program Costs	\$1,766,477	\$1,796,657	\$1,797,652	\$1,776,618	\$1,739,628	\$1,691,592	\$1,636,323	\$1,576,674	\$1,514,719	\$1,451,624
PV Participant Costs	\$1,627,687	\$1,688,216	\$1,715,332	\$1,716,600	\$1,698,446	\$1,666,118	\$1,623,758	\$1,574,549	\$1,520,886	\$1,464,080
TRC	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	27,743,956	59,977,735	95,439,198	133,128,721	172,305,718	212,444,428	253,176,211	294,237,303	335,430,334	376,532,034
Net Peak Demand Savings - kW	10,397	22,559	36,073	50,576	65,760	81,367	97,188	113,055	128,833	144,410
New Net Energy Savings - kWh	27,743,956	32,233,779	35,461,462	37,689,524	39,176,996	40,138,710	40,731,784	41,061,092	41,193,031	41,101,699
New Net Peak Demand Savings - kW	10,397	12,162	13,514	14,503	15,184	15,607	15,821	15,867	15,778	15,577
Program Costs - Real										
Administration	\$500,000	\$555,023	\$594,816	\$622,225	\$640,161	\$651,150	\$657,154	\$659,585	\$659,414	\$656,425
Marketing	\$600,000	\$600,234	\$600,469	\$600,704	\$600,938	\$601,173	\$601,408	\$601,643	\$601,878	\$602,114
Incentives	\$5,656,693	\$6,485,944	\$7,085,467	\$7,498,185	\$7,768,002	\$7,933,033	\$8,022,866	\$8,058,790	\$8,055,471	\$8,009,646
Total	\$6,756,693	\$7,641,201	\$8,280,752	\$8,721,113	\$9,009,102	\$9,185,356	\$9,281,429	\$9,320,019	\$9,316,763	\$9,268,185
PV Avoided Costs	\$26,517,614	\$28,467,623	\$29,352,046	\$29,324,213	\$28,964,276	\$28,361,398	\$27,357,739	\$26,060,366	\$24,916,035	\$23,793,482
PV Annual Program Costs	\$6,756,693	\$7,283,976	\$7,524,602	\$7,554,271	\$7,438,905	\$7,229,868	\$6,963,957	\$6,665,994	\$6,352,140	\$6,023,606
PV Participant Costs	\$3,134,238	\$3,451,044	\$3,625,464	\$3,691,179	\$3,677,907	\$3,609,617	\$3,504,428	\$3,375,457	\$3,231,983	\$3,073,304
TRC	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	4,507,489	9,095,751	13,745,912	18,441,410	23,167,785	27,912,478	32,664,631	37,414,901	42,155,287	46,878,861
Naturally Occurring kW	733	1,469	2,209	2,950	3,691	4,432	5,171	5,908	6,641	7,372

Residential - New Construction - Base Case 2

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	1,072,585	1,928,496	2,781,246	3,679,211	4,639,190	5,667,917	6,768,017	7,940,174	9,184,064	10,504,059
Net Peak Demand Savings - kW	308	627	1,001	1,441	1,950	2,530	3,181	3,904	4,696	5,560
New Net Energy Savings - kWh	1,072,585	855,911	852,751	897,965	959,979	1,028,727	1,100,100	1,172,156	1,243,890	1,319,995
New Net Peak Demand Savings - kW	308	319	374	440	509	580	651	722	793	863
Program Costs - Real										
Administration	\$65,000	\$68,273	\$79,292	\$92,627	\$107,152	\$122,467	\$138,386	\$154,801	\$171,642	\$188,988
Marketing	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000
Incentives	\$115,548	\$90,821	\$92,358	\$100,462	\$111,236	\$123,389	\$136,371	\$149,902	\$163,827	\$178,614
Total	\$245,548	\$224,094	\$236,651	\$258,089	\$283,387	\$310,857	\$339,757	\$369,704	\$400,469	\$432,603
PV Avoided Costs	\$1,484,632	\$1,054,527	\$989,404	\$1,000,020	\$1,042,092	\$1,096,146	\$1,145,531	\$1,186,976	\$1,233,427	\$1,282,049
PV Annual Program Costs	\$245,548	\$213,617	\$215,041	\$223,558	\$233,996	\$244,678	\$254,923	\$264,425	\$273,039	\$281,158
PV Participant Costs	\$283,721	\$207,134	\$197,336	\$202,198	\$211,572	\$222,219	\$232,840	\$242,856	\$251,997	\$261,313
TRC	2.8	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	2,038,561	3,753,751	5,529,225	7,451,764	9,551,011	11,838,180	14,316,808	16,986,695	19,845,612	22,905,317
Net Peak Demand Savings - kW	672	1,440	2,385	3,526	4,870	6,419	8,173	10,131	12,290	14,649
New Net Energy Savings - kWh	2,038,561	1,715,190	1,775,474	1,922,539	2,099,247	2,287,169	2,478,629	2,669,887	2,858,916	3,059,706
New Net Peak Demand Savings - kW	672	768	945	1,141	1,344	1,549	1,754	1,958	2,159	2,359
Program Costs - Real										
Administration	\$90,000	\$100,364	\$119,976	\$142,168	\$165,517	\$189,492	\$213,832	\$238,375	\$263,012	\$287,965
Marketing	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
Incentives	\$277,381	\$248,543	\$273,271	\$311,253	\$354,433	\$400,088	\$447,014	\$494,576	\$542,394	\$592,364
Total	\$457,381	\$438,908	\$483,247	\$543,421	\$609,950	\$679,580	\$750,846	\$822,952	\$895,406	\$970,329
PV Avoided Costs	\$2,309,862	\$1,843,929	\$1,858,882	\$1,963,008	\$2,100,387	\$2,245,847	\$2,372,189	\$2,475,544	\$2,581,252	\$2,686,623
PV Annual Program Costs	\$457,381	\$418,389	\$439,120	\$470,714	\$503,641	\$534,903	\$563,368	\$588,603	\$610,485	\$630,639
PV Participant Costs	\$348,408	\$284,989	\$291,200	\$311,185	\$334,150	\$356,715	\$377,592	\$396,264	\$412,548	\$428,876
TRC	2.9	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	4,816,841	9,520,701	14,778,805	20,694,254	27,261,935	34,443,790	42,190,468	50,449,571	59,169,346	68,390,027
Net Peak Demand Savings - kW	2,319	5,412	9,384	14,198	19,788	26,079	32,995	40,465	48,419	56,803
New Net Energy Savings - kWh	4,816,841	4,703,860	5,258,104	5,915,449	6,567,681	7,181,855	7,746,678	8,259,103	8,719,775	9,220,681
New Net Peak Demand Savings - kW	2,319	3,093	3,972	4,814	5,590	6,291	6,917	7,470	7,954	8,384
Program Costs - Real										
Administration	\$125,000	\$150,185	\$182,364	\$214,161	\$244,023	\$271,482	\$296,422	\$318,884	\$338,981	\$358,028
Marketing	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000
Incentives	\$1,025,966	\$1,165,793	\$1,415,456	\$1,674,083	\$1,921,232	\$2,150,595	\$2,360,222	\$2,549,947	\$2,720,451	\$2,890,579
Total	\$1,285,966	\$1,450,978	\$1,732,820	\$2,023,243	\$2,300,255	\$2,557,076	\$2,791,644	\$3,003,831	\$3,194,433	\$3,383,606
PV Avoided Costs	\$5,185,450	\$5,208,758	\$5,819,660	\$6,415,646	\$6,940,099	\$7,375,101	\$7,669,995	\$7,837,002	\$7,961,547	\$8,066,239
PV Annual Program Costs	\$1,285,966	\$1,383,145	\$1,574,589	\$1,752,543	\$1,899,343	\$2,012,696	\$2,094,601	\$2,148,442	\$2,177,954	\$2,199,084
PV Participant Costs	\$469,115	\$467,702	\$521,967	\$577,446	\$624,738	\$661,956	\$689,293	\$707,640	\$718,104	\$731,471
TRC	3.0	2.8	2.8	2.8	2.7	2.8	2.8	2.7	2.7	2.8

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	928,494	1,477,895	1,939,197	2,384,457	2,842,082	3,326,027	3,844,124	4,401,193	5,000,416	5,645,352
Naturally Occurring kW	182	307	427	554	698	862	1,051	1,269	1,518	1,801

Residential - Saver's Switch - Base Case 2

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
Net Peak Demand Savings - kW	18,150	34,848	50,211	64,344	77,347	89,309	100,315	110,440	119,755	128,325
New Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
New Net Peak Demand Savings - kW	18,150	16,698	15,362	14,133	13,003	11,962	11,005	10,125	9,315	8,570
Program Costs - Real 2005										
Administration	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989
Marketing	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440
Incentives+Install	\$5,216,083	\$5,443,788	\$5,653,278	\$5,846,008	\$6,023,320	\$6,186,446	\$6,336,523	\$6,474,594	\$6,601,618	\$6,718,481
Total	\$6,968,512	\$7,196,217	\$7,405,707	\$7,598,437	\$7,775,749	\$7,938,875	\$8,088,952	\$8,227,022	\$8,354,047	\$8,470,910
PV Avoided Costs										
PV Annual Program Costs	\$4,850,332	\$4,623,580	\$4,407,428	\$4,201,382	\$4,004,968	\$3,817,736	\$3,639,257	\$3,469,123	\$3,306,942	\$3,152,343
PV Participant Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TRC	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
Net Peak Demand Savings - kW	18,150	34,848	50,211	64,344	77,347	89,309	100,315	110,440	119,755	128,325
New Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
New Net Peak Demand Savings - kW	18,150	16,698	15,362	14,133	13,003	11,962	11,005	10,125	9,315	8,570
Program Costs - Real 2005										
Administration	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989
Marketing	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440
Incentives+Install	\$5,216,083	\$5,443,788	\$5,653,278	\$5,846,008	\$6,023,320	\$6,186,446	\$6,336,523	\$6,474,594	\$6,601,618	\$6,718,481
Total	\$6,968,512	\$7,196,217	\$7,405,707	\$7,598,437	\$7,775,749	\$7,938,875	\$8,088,952	\$8,227,022	\$8,354,047	\$8,470,910
PV Avoided Costs										
PV Annual Program Costs	\$4,850,332	\$4,623,580	\$4,407,428	\$4,201,382	\$4,004,968	\$3,817,736	\$3,639,257	\$3,469,123	\$3,306,942	\$3,152,343
PV Participant Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TRC	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
Net Peak Demand Savings - kW	18,150	34,848	50,211	64,344	77,347	89,309	100,315	110,440	119,755	128,325
New Net Energy Savings - kWh	0	0	0	0	0	0	0	0	0	0
New Net Peak Demand Savings - kW	18,150	16,698	15,362	14,133	13,003	11,962	11,005	10,125	9,315	8,570
Program Costs - Real 2005										
Administration	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989	\$381,989
Marketing	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440	\$1,370,440
Incentives+Install	\$5,216,083	\$5,443,788	\$5,653,278	\$5,846,008	\$6,023,320	\$6,186,446	\$6,336,523	\$6,474,594	\$6,601,618	\$6,718,481
Total	\$6,968,512	\$7,196,217	\$7,405,707	\$7,598,437	\$7,775,749	\$7,938,875	\$8,088,952	\$8,227,022	\$8,354,047	\$8,470,910
PV Avoided Costs										
PV Annual Program Costs	\$4,850,332	\$4,623,580	\$4,407,428	\$4,201,382	\$4,004,968	\$3,817,736	\$3,639,257	\$3,469,123	\$3,306,942	\$3,152,343
PV Participant Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TRC	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	0	0	0	0	0	0	0	0	0	0
Naturally Occurring kW	0	0	0	0	0	0	0	0	0	0

Commercial - Existing Construction - Base Case 2

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	25,611,979	61,592,547	103,614,536	148,429,352	193,868,050	238,560,075	281,623,150	322,451,893	360,613,406	395,806,674
Net Peak Demand Savings - kW	3,528	8,511	14,426	20,870	27,555	34,278	40,891	47,284	53,367	59,076
New Net Energy Savings - kWh	25,611,979	35,980,567	42,021,989	44,814,816	45,438,698	44,692,025	43,063,075	40,828,743	38,161,513	35,193,268
New Net Peak Demand Savings - kW	3,528	4,982	5,916	6,444	6,684	6,723	6,614	6,392	6,083	5,709
Program Costs - Real										
Administration	\$350,000	\$437,286	\$520,488	\$597,897	\$668,344	\$731,019	\$785,394	\$831,228	\$868,572	\$897,755
Marketing	\$1,500,000	\$1,509,379	\$1,518,816	\$1,528,312	\$1,537,868	\$1,547,483	\$1,557,159	\$1,566,895	\$1,576,692	\$1,586,550
Incentives	\$1,831,358	\$2,436,500	\$3,013,131	\$3,549,316	\$4,036,906	\$4,470,251	\$4,845,670	\$5,161,468	\$5,418,016	\$5,617,603
Total	\$3,681,358	\$4,383,164	\$5,052,436	\$5,675,525	\$6,243,118	\$6,748,753	\$7,188,223	\$7,559,591	\$7,863,280	\$8,101,908
PV Avoided Costs										
PV Annual Program Costs	\$57,078,197	\$61,036,830	\$60,726,325	\$57,418,709	\$53,314,325	\$48,852,013	\$43,859,652	\$38,683,020	\$34,233,417	\$30,220,672
PV Participant Costs	\$3,681,358	\$4,178,252	\$4,591,077	\$4,916,167	\$5,155,005	\$5,311,998	\$5,393,402	\$5,406,876	\$5,361,160	\$5,265,616
PV Participant Costs	\$11,274,338	\$12,957,545	\$13,861,885	\$14,150,036	\$13,975,753	\$13,470,871	\$12,742,177	\$11,873,506	\$10,929,426	\$9,958,784
TRC	3.8	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.1	2.0

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	40,806,083	96,942,104	162,683,206	233,594,784	306,573,624	379,452,975	450,576,130	518,547,070	582,163,330	640,444,451
Net Peak Demand Savings - kW	5,735	13,679	23,153	33,601	44,597	55,806	66,951	77,787	88,104	97,732
New Net Energy Savings - kWh	40,806,083	56,136,021	65,741,102	70,911,578	72,978,840	72,879,350	71,123,156	67,970,940	63,616,260	58,281,121
New Net Peak Demand Savings - kW	5,735	7,944	9,474	10,448	10,996	11,210	11,145	10,836	10,317	9,628
Program Costs - Real										
Administration	\$750,000	\$965,061	\$1,178,321	\$1,382,922	\$1,572,910	\$1,743,269	\$1,890,087	\$2,010,774	\$2,104,176	\$2,170,516
Marketing	\$1,500,000	\$1,538,687	\$1,578,372	\$1,619,080	\$1,660,838	\$1,703,674	\$1,747,613	\$1,792,687	\$1,838,923	\$1,886,351
Incentives	\$3,922,959	\$5,389,104	\$6,841,813	\$8,233,240	\$9,521,843	\$10,672,610	\$11,658,239	\$12,460,633	\$13,071,725	\$13,493,046
Total	\$6,172,959	\$7,892,853	\$9,598,506	\$11,235,242	\$12,755,591	\$14,119,553	\$15,295,940	\$16,264,094	\$17,014,823	\$17,549,913
PV Avoided Costs										
PV Annual Program Costs	\$70,884,883	\$76,497,215	\$76,677,740	\$73,032,517	\$68,340,006	\$63,129,278	\$57,112,681	\$50,668,784	\$44,959,639	\$39,622,755
PV Annual Program Costs	\$6,172,959	\$7,523,863	\$8,722,026	\$9,732,022	\$10,532,418	\$11,113,615	\$11,476,711	\$11,632,633	\$11,600,654	\$11,406,092
PV Participant Costs	\$13,459,989	\$15,630,658	\$16,824,969	\$17,221,690	\$17,000,280	\$16,321,325	\$15,321,134	\$14,113,450	\$12,792,628	\$11,435,758
TRC	3.6	3.3	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7
	1,076	994	1,013	1,075	1,160	1,260	1,372	1,501	1,649	1,823

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	79,491,871	189,588,281	321,464,949	466,096,137	614,765,148	759,187,050	891,597,029	1,004,857,810	1,092,693,859	1,150,887,024
Net Peak Demand Savings - kW	11,591	27,768	47,449	69,432	92,465	115,297	136,723	155,619	170,989	182,148
New Net Energy Savings - kWh	79,491,871	110,096,410	131,876,668	144,631,188	148,669,011	144,421,902	132,409,979	113,260,781	87,836,050	58,193,165
New Net Peak Demand Savings - kW	11,591	16,177	19,681	21,982	23,033	22,832	21,426	18,897	15,370	11,158
Program Costs - Real										
Administration	\$1,500,000	\$2,034,018	\$2,584,381	\$3,114,593	\$3,584,230	\$3,951,231	\$4,172,288	\$4,200,276	\$3,988,818	\$3,534,668
Marketing	\$1,500,000	\$1,575,322	\$1,654,427	\$1,737,504	\$1,824,753	\$1,916,382	\$2,012,613	\$2,113,677	\$2,219,815	\$2,331,283
Incentives	\$10,823,673	\$15,780,311	\$20,885,111	\$25,786,479	\$30,095,029	\$33,405,561	\$35,300,904	\$35,327,089	\$33,037,351	\$28,399,847
Total	\$13,823,673	\$19,389,651	\$25,123,919	\$30,638,576	\$35,504,012	\$39,273,175	\$41,485,805	\$41,641,042	\$39,245,984	\$34,265,798
PV Avoided Costs										
PV Annual Program Costs	\$96,217,010	\$109,463,137	\$114,690,618	\$112,885,786	\$107,356,182	\$98,603,775	\$86,266,442	\$71,355,256	\$56,030,680	\$40,539,000
PV Annual Program Costs	\$13,823,673	\$18,483,187	\$22,829,749	\$26,539,284	\$29,316,015	\$30,912,234	\$31,127,253	\$29,783,088	\$26,757,790	\$22,270,129
PV Participant Costs	\$17,369,426	\$20,753,690	\$22,619,357	\$23,082,876	\$22,347,332	\$20,664,732	\$18,284,668	\$15,399,617	\$12,156,522	\$8,821,514
TRC	3.1	2.8	2.5	2.3	2.1	1.9	1.7	1.6	1.4	1.3

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	65,997,445	134,973,705	203,832,348	270,354,533	333,133,493	391,415,127	444,911,856	493,635,179	537,767,473	577,575,122
Naturally Occurring kW	8,227	16,883	25,607	34,140	42,308	50,013	57,207	63,873	70,019	75,657

Commercial - New Construction - Base Case 2

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	2,204,542	4,249,559	6,355,831	8,565,958	10,892,835	13,341,110	15,912,498	18,607,510	21,426,121	24,368,054
Net Peak Demand Savings - kW	499	958	1,429	1,924	2,444	2,991	3,566	4,169	4,799	5,458
New Net Energy Savings - kWh	2,204,542	2,045,017	2,106,273	2,210,126	2,326,878	2,448,275	2,571,387	2,695,012	2,818,611	2,941,932
New Net Peak Demand Savings - kW	499	459	472	494	520	547	575	603	631	658
Program Costs - Real										
Administration	\$500,000	\$426,587	\$424,393	\$439,033	\$460,089	\$484,218	\$510,032	\$536,859	\$564,334	\$592,246
Marketing	\$500,000	\$503,126	\$506,272	\$509,437	\$512,623	\$515,828	\$519,053	\$522,298	\$525,564	\$528,850
Incentives	\$373,313	\$299,453	\$296,486	\$310,272	\$330,441	\$353,663	\$378,559	\$404,457	\$430,996	\$457,964
Total	\$1,373,313	\$1,229,166	\$1,227,151	\$1,258,742	\$1,303,153	\$1,353,709	\$1,407,643	\$1,463,614	\$1,520,894	\$1,579,060
PV Avoided Costs										
PV Annual Program Costs	\$3,479,025	\$2,618,772	\$2,447,579	\$2,414,207	\$2,450,019	\$2,515,146	\$2,568,150	\$2,600,902	\$2,657,447	\$2,721,896
PV Participant Costs	\$1,373,313	\$1,171,702	\$1,115,094	\$1,090,329	\$1,076,026	\$1,065,515	\$1,056,170	\$1,046,826	\$1,036,941	\$1,026,267
PV Participant Costs	\$785,343	\$600,373	\$566,505	\$565,020	\$573,523	\$585,052	\$596,890	\$607,852	\$617,404	\$625,322
TRC	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	4,659,956	9,134,101	13,768,811	18,619,823	23,699,292	29,008,885	34,547,250	40,312,180	46,301,303	52,512,326
Net Peak Demand Savings - kW	1,065	2,082	3,132	4,231	5,381	6,583	7,837	9,143	10,500	11,908
New Net Energy Savings - kWh	4,659,956	4,474,145	4,634,709	4,851,012	5,079,470	5,309,592	5,538,366	5,764,929	5,989,123	6,211,023
New Net Peak Demand Savings - kW	1,065	1,016	1,050	1,099	1,150	1,202	1,254	1,306	1,357	1,408
Program Costs - Real										
Administration	\$1,000,000	\$900,935	\$908,454	\$939,483	\$978,891	\$1,022,046	\$1,067,115	\$1,113,246	\$1,159,998	\$1,207,126
Marketing	\$1,000,000	\$1,006,252	\$1,012,544	\$1,018,875	\$1,025,245	\$1,031,656	\$1,038,106	\$1,044,597	\$1,051,128	\$1,057,700
Incentives	\$896,010	\$775,791	\$782,895	\$818,074	\$863,251	\$912,894	\$964,810	\$1,017,982	\$1,071,886	\$1,126,226
Total	\$2,896,010	\$2,682,979	\$2,703,892	\$2,776,431	\$2,867,388	\$2,966,596	\$3,070,030	\$3,175,825	\$3,283,012	\$3,391,052
PV Avoided Costs										
PV Annual Program Costs	\$5,271,581	\$4,272,484	\$4,064,042	\$3,999,123	\$4,018,814	\$4,074,911	\$4,107,502	\$4,108,038	\$4,147,384	\$4,200,450
PV Participant Costs	\$2,896,010	\$2,557,550	\$2,456,989	\$2,404,959	\$2,367,630	\$2,335,031	\$2,303,477	\$2,271,458	\$2,238,348	\$2,203,923
PV Participant Costs	\$941,886	\$777,283	\$747,583	\$744,516	\$748,777	\$754,706	\$760,237	\$764,546	\$767,314	\$768,451
TRC	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	9,888,288	19,543,415	29,633,750	40,260,763	51,443,488	63,182,069	75,430,520	87,947,002	100,388,735	112,653,204
Net Peak Demand Savings - kW	2,310	4,555	6,896	9,359	11,951	14,671	17,512	20,429	23,348	26,235
New Net Energy Savings - kWh	9,888,288	9,655,127	10,090,335	10,627,013	11,182,725	11,738,580	12,248,451	12,516,482	12,441,733	12,264,470
New Net Peak Demand Savings - kW	2,310	2,244	2,341	2,464	2,592	2,720	2,841	2,917	2,919	2,887
Program Costs - Real										
Administration	\$1,500,000	\$1,410,227	\$1,441,635	\$1,497,541	\$1,561,350	\$1,628,292	\$1,694,957	\$1,751,995	\$1,780,780	\$1,795,802
Marketing	\$1,500,000	\$1,509,379	\$1,518,816	\$1,528,312	\$1,537,868	\$1,547,483	\$1,557,159	\$1,566,895	\$1,576,692	\$1,586,550
Incentives	\$2,495,089	\$2,290,785	\$2,355,212	\$2,473,937	\$2,610,158	\$2,753,295	\$2,895,783	\$3,016,887	\$3,075,297	\$3,103,146
Total	\$5,495,089	\$5,210,390	\$5,315,663	\$5,499,790	\$5,709,376	\$5,929,070	\$6,147,899	\$6,335,778	\$6,432,769	\$6,485,498
PV Avoided Costs										
PV Annual Program Costs	\$9,124,867	\$7,835,255	\$7,587,662	\$7,501,362	\$7,532,779	\$7,614,607	\$7,625,227	\$7,467,494	\$7,234,360	\$6,995,259
PV Participant Costs	\$5,495,089	\$4,966,805	\$4,830,268	\$4,763,945	\$4,714,288	\$4,666,819	\$4,612,836	\$4,531,563	\$4,385,842	\$4,215,074
PV Participant Costs	\$923,534	\$808,175	\$791,863	\$792,699	\$797,067	\$801,307	\$803,330	\$798,348	\$776,259	\$747,054
TRC	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	2,637,607	4,498,455	6,281,064	8,160,066	10,205,311	12,451,727	14,919,270	17,620,415	20,563,477	23,754,277
Naturally Occurring kW	559	951	1,325	1,719	2,146	2,615	3,130	3,693	4,306	4,971

Industrial - Base Case 2

33% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	3,091,403	6,364,686	9,694,687	12,993,593	16,208,077	19,312,890	22,303,159	25,187,024	27,979,449	30,697,962
Net Peak Demand Savings - kW	285	590	909	1,237	1,570	1,907	2,243	2,579	2,913	3,244
New Net Energy Savings - kWh	3,091,403	3,273,282	3,330,002	3,298,906	3,214,484	3,104,813	2,990,270	2,883,864	2,792,425	2,718,514
New Net Peak Demand Savings - kW	285	305	319	328	334	336	337	336	334	331
Program Costs - Real										
Administration	\$75,000	\$75,634	\$75,546	\$74,936	\$73,989	\$72,855	\$71,651	\$70,455	\$69,316	\$68,260
Marketing	\$75,000	\$75,029	\$75,059	\$75,088	\$75,117	\$75,147	\$75,176	\$75,205	\$75,235	\$75,264
Incentives	\$187,379	\$189,466	\$189,150	\$187,094	\$183,912	\$180,111	\$176,076	\$172,069	\$168,249	\$164,706
Total	\$337,379	\$340,129	\$339,755	\$337,118	\$333,017	\$328,113	\$322,903	\$317,730	\$312,800	\$308,230
PV Avoided Costs										
PV Annual Program Costs	\$337,379	\$324,228	\$308,730	\$292,014	\$274,976	\$258,260	\$242,277	\$227,251	\$213,266	\$200,326
PV Participant Costs	\$575,780	\$555,318	\$529,063	\$499,593	\$468,961	\$438,645	\$409,593	\$382,328	\$357,061	\$333,817
TRC	3.9	3.8	3.8	3.7	3.6	3.6	3.5	3.5	3.4	3.4

50% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	6,870,741	14,283,484	21,891,195	29,458,231	36,851,693	44,017,733	50,953,902	57,684,922	64,244,913	70,667,809
Net Peak Demand Savings - kW	675	1,411	2,189	2,992	3,806	4,623	5,436	6,241	7,035	7,818
New Net Energy Savings - kWh	6,870,741	7,412,743	7,607,711	7,567,037	7,393,461	7,166,041	6,936,169	6,731,020	6,559,991	6,422,896
New Net Peak Demand Savings - kW	675	737	778	802	814	817	813	805	795	783
Program Costs - Real										
Administration	\$150,000	\$154,916	\$157,430	\$158,181	\$157,765	\$156,664	\$155,215	\$153,634	\$152,032	\$150,471
Marketing	\$150,000	\$150,059	\$150,117	\$150,176	\$150,235	\$150,293	\$150,352	\$150,411	\$150,470	\$150,528
Incentives	\$522,932	\$545,716	\$557,333	\$560,753	\$558,753	\$553,565	\$546,766	\$539,345	\$531,833	\$524,506
Total	\$822,932	\$850,691	\$864,880	\$869,109	\$866,753	\$860,522	\$852,333	\$843,390	\$834,335	\$825,505
PV Avoided Costs										
PV Annual Program Costs	\$5,763,212	\$5,639,184	\$5,372,534	\$4,996,087	\$4,651,285	\$4,335,471	\$4,005,951	\$3,677,333	\$3,428,771	\$3,226,054
PV Participant Costs	\$888,208	\$884,383	\$862,268	\$828,501	\$788,456	\$745,965	\$703,456	\$662,277	\$623,032	\$585,967
TRC	3.4	3.3	3.3	3.2	3.1	3.0	3.0	2.9	2.9	2.9

75% Incentives Scenario										
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net Energy Savings - kWh	23,618,139	49,301,271	75,272,615	100,380,429	124,052,753	146,133,552	166,702,852	185,939,697	204,039,123	221,181,221
Net Peak Demand Savings - kW	2,623	5,502	8,472	11,413	14,252	16,953	19,509	21,927	24,220	26,407
New Net Energy Savings - kWh	23,618,139	25,683,132	25,971,344	25,107,814	23,672,324	22,080,799	20,569,300	19,236,845	18,099,426	17,142,098
New Net Peak Demand Savings - kW	2,623	2,879	2,970	2,941	2,839	2,701	2,556	2,418	2,294	2,186
Program Costs - Real										
Administration	\$300,000	\$317,610	\$324,548	\$323,642	\$317,681	\$308,905	\$298,865	\$288,505	\$278,324	\$268,590
Marketing	\$200,000	\$200,078	\$200,156	\$200,235	\$200,313	\$200,391	\$200,469	\$200,548	\$200,626	\$200,705
Incentives	\$2,825,863	\$3,046,667	\$3,133,436	\$3,121,693	\$3,046,450	\$2,935,863	\$2,809,395	\$2,678,909	\$2,550,683	\$2,428,049
Total	\$3,325,863	\$3,564,356	\$3,658,141	\$3,645,570	\$3,564,444	\$3,445,159	\$3,308,730	\$3,167,961	\$3,029,633	\$2,897,343
PV Avoided Costs										
PV Annual Program Costs	\$15,897,941	\$15,931,616	\$15,097,164	\$13,725,109	\$12,371,565	\$11,125,275	\$9,922,138	\$8,812,324	\$7,971,171	\$7,297,667
PV Participant Costs	\$3,325,863	\$3,397,722	\$3,324,101	\$3,157,810	\$2,943,197	\$2,711,712	\$2,482,576	\$2,265,833	\$2,065,595	\$1,883,050
TRC	2.8	2.8	2.7	2.6	2.5	2.5	2.4	2.4	2.4	2.4

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Naturally Occurring kWh	3,103,414	6,180,438	9,202,129	12,146,976	15,000,134	17,752,472	20,399,564	22,940,710	25,378,016	27,715,650
Naturally Occurring kW	222	441	659	874	1,086	1,296	1,502	1,705	1,906	2,103