

2014 Demand-Side Management Plan **Electric and Natural Gas**

Public Service Company of Colorado
Docket No. 13A-0773EG

July 1, 2013

Executive Summary

Public Service Company of Colorado (“Public Service” or the “Company”) submits this combined electric and natural gas 2014 Demand-Side Management Plan (“Plan”) to the Colorado Public Utilities Commission (“Commission”). In this filing, Public Service proposes an annual DSM Plan designed to achieve energy savings of approximately 384 GWh in electric and 623,543 Dth in natural gas in 2014, at proposed costs of \$87.8 million and \$12.3 million, respectively. This electric energy savings goal was established by the Commission in Docket No. 10A-554EG (Decision No. C11-0442, ¶23). The Plan is also designed to achieve incremental demand reduction totaling 86.4 MW in 2014, including the impact on demand from energy efficiency programs and the incremental demand response expected from its Saver’s Switch program. The Interruptible Service Option Credit program and the Third-Party Demand Response program are expected to provide 285 MW of controllable load.

Table 1 provides a summary of the budgets, energy savings targets and demand savings associated with the overall portfolio of energy efficiency products as well as incremental demand savings from Saver’s Switch we are proposing for 2014

Table 1: Public Service’s 2014 DSM Plan Budgets and Targeted Energy and Demand Savings

2014	Budget	Energy Savings Goal (Gen kWh or Dth)	Incremental Demand Savings Goal (Gen kW)
Electric Efficiency	\$69,057,995	349,750,612	64,931
Saver's Switch	\$12,420,170	227,759	13,261
Electric Indirect and Pilots	\$6,285,330	34,479,365	8,189
Total 2014 Electric DSM	\$87,763,495	384,457,736	86,381
Gas Conservation	\$10,281,108	458,802	---
Gas Indirect and Pilots	\$2,024,849	164,741	---
Total 2014 Gas DSM	\$12,305,957	623,543	---
2014 TOTAL	\$100,069,452	384,457,736 kWh 623,543 Dth	86,381

For informational purposes, Table 1b summarizes the total controllable load expected from the Interruptible Service Option Credit (“ISOC”) and third-party demand response program in 2014. Table 1b also presents, for the Commission’s information, the total costs of these programs, including the credits paid to ISOC participants and the expected payments under the third-party demand response contract.

Table 1b: Total Controllable Load (2014)

2014	Net Generator kW Goal	Utility Spend		
		Credits Budget	Marketing and Admin. Budget	Total Budget
ISOC	238	\$28,685,643	\$490,856	\$29,176,499
Third-Party Demand Response	47		\$3,008,400	\$3,008,400
2014 TOTAL	285	\$28,685,643	\$3,499,256	\$32,184,899

The Company is filing this combined electric and natural gas 2014 Demand-Side Management Plan in accordance with the Commission’s Decision Nos. C11-0442 and C11-0645 issued in Docket No. 10A-554EG, and Rules 4750 to 4760 of the Commission’s Rules Regulating Gas Utilities and Pipeline Operators (the Gas DSM Rules). This Plan reflects a continuation and evolution of the gas and electric DSM products that the Company first initiated during 2009 and 2010, as well as any changes or additions to the DSM portfolio made during 2011, 2012, and 2013.

Due to the timing of the recent Company’s Strategic Issues filing made on June 17, 2013, which we describe below, and our request that any decisions in that docket apply from 2015 – 2020, we are requesting that the Commission approve this single-year plan to guide the Company’s Colorado electric and natural gas energy efficiency and load management activities for 2014.

Strategic Policy Issues Filing (Docket No. 10A-554EG)

On August 10, 2010, Public Service filed a Verified Application for Approval of a Number of Strategic Issues relating to Its DSM Plan, Including Long-Term Electric Energy Savings Goals and Incentives. The Application proposed new electric savings goals along with a new electric incentive mechanism. In addition, the application requested various other changes related to its gas and electric energy efficiency DSM programs, including: an increase in the non-energy benefits adder that is applicable to low-income programs; guidance regarding various DSM program concepts; and the ability to claim savings for “influenced savings” associated with custom projects which the Company facilitates, but which ultimately do not qualify for rebates due to the payback period involved. With respect to program administration, Public Service requested to continue under the general framework established by the Settlement Agreement approved in Docket No. 08A-366EG concerning the Company’s 2009-2010 DSM Plan. Hearings for the Application were held early in 2011 on February 28th and March 1st and 2nd. Following the hearing the Commission issued on April 26, 2011, Decision No. C11-0442, approving Public Service’s Application with modifications. The Commission then issued Decision No. C11-0645 on June 14, 2011, addressing Public Service’s Application for Rehearing, Reargument, or Reconsideration and granting the Company’s Motion for a one-month extension to file its 2012/2013 Biennial Plan to August 1, 2011. On April 30, 2012, Decision No. C12-0442 was issued, which approved allowing the Company to combine

proposals for demand response goals with energy efficiency in the next Strategic Issues Filing. The 2014 Plan has been developed to capture the Commission's various decisions that have been issued in Docket No. 10A-554EG.

On June 17, 2013 the Company filed its latest Strategic Issues filing (Docket No. 13A-0686EG). Because the filing is pending and has not been acted upon we have not used it to develop the 2014 Plan filing.

Modifications in 2012 and 2013

While the majority of the DSM products included in this Plan are the same as those that have been implemented since 2009, products have naturally evolved since that time to remain cost-effective and adapt to the marketplace. The evolution of products has been documented through the 60-Day Notice process, first established in the 2009/2010 Plan Stipulation approved in Docket No. 08A-366EG, to afford the Company discretion to make changes to Plans in order to achieve the greatest level of energy savings.¹ The Plan also reflects additional noteworthy changes as described below:

- Updated avoided costs and technical assumptions to reflect more current data.
- Added new measures to 2014 products, including:
 - Building Tune Up Measure – Recommissioning
 - Bathroom and Kitchen Aerators – Energy Efficient Showerheads
 - Anti-Sweat Heater Controls – Cooling Efficiency
 - Electronically Commutated Motors For Furnace Fans – Heating System Rebates
 - Online Energy Feedback – Energy Feedback Pilot
 - Bathroom and Kitchen Aerators and Energy Efficient Showerheads – School Education Kits
 - LED Parking Garage Retrofit and New Construction – Lighting Efficiency and Small Business Lighting
- Relative to the 2012/13 filed budgets and goals and due to expected performance in 2013, we have decreased budgets and goals for the following products: Compressed Air, Computer Efficiency, Data Center Efficiency, Energy Management Systems, Motor and Drive Efficiency, Self-Directed Custom Efficiency, Evaporative Cooling Rebates, Heating Efficiency, Heating System Rebates, Home Performance With Energy Star[®] Insulation, Refrigerator Recycling, Saver's Switch, Water Heater Rebate, Energy Saving Kits and Multi Family Weatherization.
- With the increase in overall energy savings goals ordered by the Commission in Docket No. 10A-554EG for 2014, we have increased goals and budgets for Cooling Efficiency, Lighting

¹ Decision No. R08-1243. Per the Settlement Agreement, 60/90-Day Notices are required for any proposal to add a new DSM product, reduce rebate levels, adopt new or discontinue existing measures, or change technical assumptions or eligibility requirements. Details of 60-Day Notices are posted at:
http://www.xcelenergy.com/About_Us/Rates_&_Regulations/Regulatory_Filings/CO_DSM.

Efficiency, New Construction, Process Efficiency, Small Business Lighting, Segment Efficiency and Energy Star[®] New Homes.²

- Due to concerns regarding the reduced cost-effectiveness of many gas DSM products given low gas commodity prices, the lack of significant system benefits from gas DSM, and the rate impact on non-participating customers, we have made the following changes to allow for continuation of these products in the near term:
 - Discontinued Plan B rebates for new boiler systems – Heating Efficiency
 - Discontinued rebates for Standard Water Heaters 0.62 Energy Factor and 0.65 Energy Factor
 - Discontinued furnace rebates for 92% to 96% Annual Fuel Utilization Efficiency furnaces.
- Adopted internal guidelines that will minimize non-cost effective measures and products, but recognizes the necessity for exceptions (such as bundled/whole-house type products).
 - Assessed cost-effectiveness based on the roll-up of existing products to a higher level consistent with the way cost-effectiveness was assessed for 2011. This will affect both electric and gas and thus there will be six direct programs which should meet the requirements of the modified total resource cost (MTRC) test ≥ 1.0 :
 - * Business Electric
 - * Business Gas
 - * Residential Electric
 - * Residential Gas
 - * Low Income Electric
 - * Low Income Gas
 - Decreased our natural gas expenditures to approximately \$12.3 million (from \$13.3 million in 2013) while increasing savings targets to approximately 624,000 Dth for 2014 due to increases in new construction project completions and the inclusion of natural gas savings in the Energy Feedback Pilot.

History of DSM Activity in Colorado

Over the last sixteen years, Public Service has entered into several regulatory settlements involving demand-side management in conjunction with its integrated resource/least-cost planning process. The following paragraphs describe those settlements, as well as legislation and decisions significant to demand-side management:

- In the 1996 Integrated Resource Plan Settlement Agreement (Decision C98-1042, Docket No. 97A-297E), the Company committed up to \$10M for DSM over four years through two bid processes. The first focused on residential air conditioning load control and lighting for commercial customers (“Bid 2000”) and the second followed the completion of the Bid 2000 program.
- In the 1999 integrated Resource Plan DSM Stipulation and Settlement Agreement (Decision C00-1057, Docket No. 00A-008E), the Company committed to use its best efforts to acquire

² Decision No. C11-0442.

124 MW of cost-effective DSM resource through the 1999 IRP Resource Acquisition Period ending December 31, 2005. The Company was authorized to spend no more than \$75 million (Year 2000 Dollars) to obtain the 124 MW of DSM. This amount included total capital costs and operating expenses incurred by the Company, but excluded expenses for the natural gas Energy Savings Partners (“ES³P”) low-income weatherization program. The 1999 Agreement identified target savings by customer class and program type.

- As part of the 2003 Least-Cost Resource Plan Settlement Agreement (Decision C05-0049, Docket Nos. 04A-214E, 04A-215E, 04A-216E), the Company committed to obtain 320 MW and 800 GWh of cost effective conservation for \$196 million (Year 2005 Dollars) between 2006 and 2013.
- House Bill 07-1037, Concerning Measures to Promote Energy Efficiency, and Making as Appropriation Therefore, was passed by the Colorado General Assembly and signed into law by Governor Ritter in 2007. It codified in relevant part at §§ 40-1-102(5), (6) and (7), C.R.S. as well as §§ 40-3.2-101 and 104, C.R.S. That bill establishes that:

cost-effective natural gas and electricity demand-side management programs will save money for consumers and utilities and protect Colorado’s environment. The general assembly further finds, determines, and declares that providing funding mechanisms to encourage Colorado’s public utilities to reduce emissions or air pollutants and to increase energy efficiency are matters of statewide concern and that public interest is served by quality of life and health of Colorado citizens and an increase in the attractiveness of Colorado as a place to live and conduct business.³

Section 40-3.2-104, C.R.S. further directs the Commission to:

establish energy savings and peak demand reduction goals to be achieved by an investor-owned electric utility, taking into account the utility’s cost-effective DSM potential, the need for electricity resources, the benefits of DSM investments, and other factors as determined by the commission. The energy savings and peak demand reduction goals shall be at least five percent of the utility’s retail system peak demand measured in megawatts in the base year and at least five percent of the utility’s retail energy sales measured in megawatt-hours in the base year. The base year shall be 2006. The goals shall be met in 2018, counting savings in 2018 from DSM measures installed starting in 2006. The commission may establish interim goals and may revise the goals as it deems appropriate.⁴

- On June 27, 2007, the Commission issued Decision No. C07-0562, opening Docket No 07I-251G to investigate issues associated with the natural gas DSM requirements contained in §40-3.2-103, C.R.S. which directs the Commission to implement rules to establish specific natural gas DSM requirement for jurisdictional natural gas utilities. Through an informal workshop and two rounds of comments on proposed rules, the Commission issued Decision No. C08-0248 adopting the Rules regarding Natural Gas Demand Side Management, pursuant to House Bill 07-1037, enacted as § 40-3.2-103, C.R.S..

³ § 40-3.2-101, C.R.S.

⁴ § 40-3.2-104(2)

- On October 31, 2007, Public Service filed its Application for Authorization to Implement an Enhanced Demand Side Management Program and to Revise its Demand Side Management Cost Adjustment Mechanism to Include Current Cost Recovery and Incentives. Public Service requested approval to implement an enhanced electric DSM program and to revise its demand-side management cost adjustment mechanism (“DSMCA”) to include current cost recovery and incentives designed to reward Public Service for successfully implementing cost-effective electric DSM programs and measures. On June 5, 2008, the Commission issued its Decision No. C08-0560 approving, in part, the enhanced DSM Plan proposed by the Company and establishing annual electric energy savings goals for Public Service from 2009 through 2020. As part of Decision No. C08-0560, the Commission also endorsed the Company’s proposal to file biennial DSM plans and to combine gas and electric DSM plans in one filing, thereby waiving the gas DSM rules’ requirement for the Company to file triennial natural gas DSM Plans.
- In compliance with Decision No. C08-0560, Public Service filed its first combined gas and electric 2009/2010, DSM Plan on August 11, 2008. In this Plan, the Company proposed a comprehensive portfolio of electric and natural gas demand-side management programs for 2009 and 2010 as well as annual budgets and annual goals for the natural gas DSM programs. The Commission initiated Docket No. 08A-366EG to consider the 2009/2010 DSM Plan filing and numerous parties intervened. However, prior to hearings, the majority of the Interveners, the Commission Staff, and the Company entered into a Stipulation and Settlement Agreement. The Settling Parties recommended approval of the Plan subject to certain amendments and changes to specific DSM programs agreed to and described in the Appendix to the Agreement. The Settling Parties further agreed to recommend to the Commission that the Company be afforded the discretion to modify the plan during the course of the plan period and agreed to a process for providing notice of plan changes to interested stakeholders.
- The Commission accepted the 2009/2010 Plan Stipulation in Decision R08-1243 issued on November 28, 2008. As agreed to in the Stipulation, in compliance with Decision No. R08-1243, on February 20, 2009, the Company filed its 2009/2010 DSM Plan Update, including all changes that had been agreed to in the Stipulation as well as corrections to certain errors made in the original plan filing. On May 1, 2009, the Company filed a further amendment to the Plan.
- On July 1, 2010, Public Service filed its Verified Application for approval of its proposed 2011 DSM Plan and continuation of the terms of the Stipulation and Settlement Agreement entered into and approved by the Commission in Docket No. 08A-366EG, except to the extent that those terms are specific to the company’s 2009/2010 Biennial DSM Plan in Docket 10A-471EG. On December 16, 2010, the Stipulation and Settlement Agreement was approved by the Commission in Decision R10-1336.
- On August 10, 2010 Public Service filed a Verified Application for Approval of a Number of Strategic Issues relating to its DSM Plan, including long term electric energy savings goals and incentives in Docket No. 10A-554EG. The Application proposed new electric savings goals along with a new electric incentive mechanism. In addition, the application requested various other changes to the plan. Following the hearing in that proceeding, the Commission issued on April 26, 2011, Decision Nos. C11-0442, approving Public Service’s Application with modifications. The Commission then issued Decision No. C11-0645 on June 14, 2011, addressing Public Service’s Application for Rehearing, Reargument, or Reconsideration and

granting the Company's motion for a one-month extension to file its 2012-2013 Biennial Plan to August 1, 2011.

- On August 1, 2011 the Company filed a combined electric and natural gas 2012/2013 Biennial Demand-Side Management Plan in Docket No. 11A-631EG. On November 10, 2011 a Stipulation and Settlement Agreement along with a Joint Motion to Approve Stipulation Agreement were filed by Public Service. The Stipulation and Settlement Agreement was approved by the Administrative Law Judge by Decision No. R-11-1326 issued on December 9, 2011 without significant modification. No exceptions were filed, and, therefore, Decision No. R-11-1326 became the final decision of the commission on December 29, 2011. It was ordered by the ALJ that within 60 days of the effective date of the Recommended Decision, Public Service shall file an update of its DSM Plan reflecting changes approved with approval of the Stipulation and Settlement Agreement, together with an erratum correcting errors. On February 28, 2012, Public Service filed the updated 2012/2013 DSM Plan.

The following figures 1 and 2 below show Public Service's electric and natural gas savings and expenditures over the past twelve years.

Figure 1: Historical Electric Program Savings and Expenditures

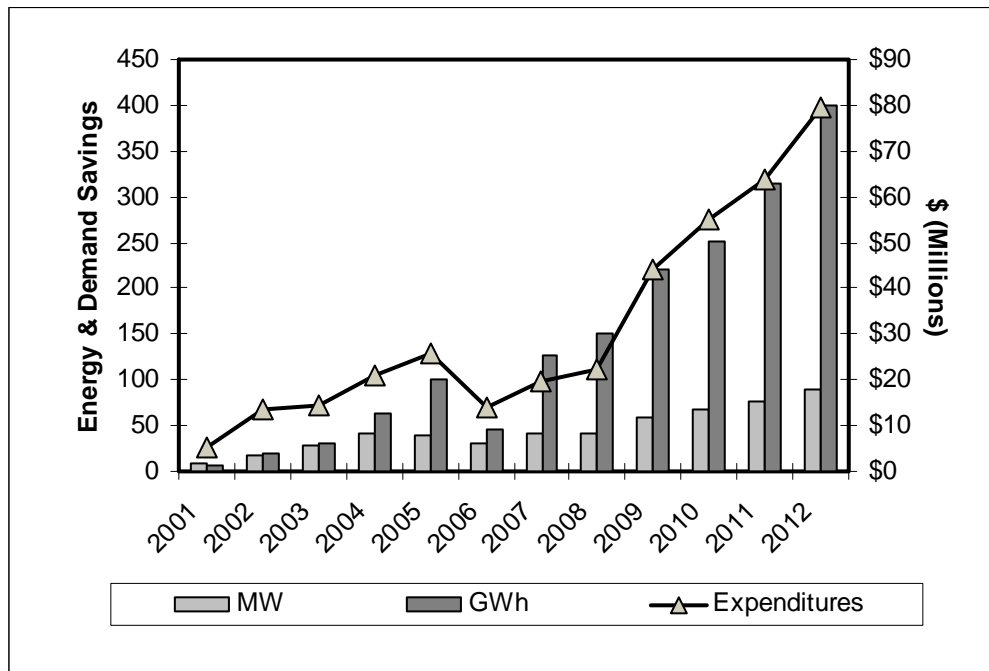
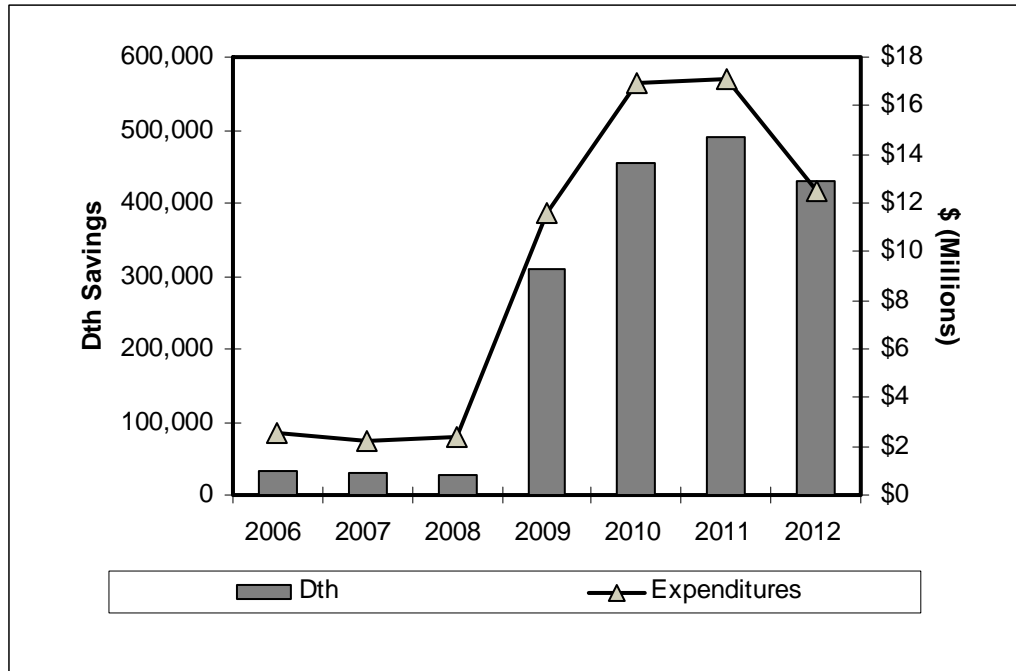


Figure 2: Historical Natural Gas Program Savings and Expenditures



Goals By Program

For the 2014 Plan, Public Service continues from 2013 a full portfolio of electric and natural gas DSM products to serve all customer segments. Public Service will market its energy efficiency products to each customer segment based on the number of customers, relative size of each customer, and amount of conservation potential at a customer site.

The goals for these programs are summarized below.

Business Electric and Gas Programs

Energy efficiency sales to the Business Programs are achieved through Public Service’s account managers, end-use equipment vendors, and energy service companies (“ESCOs”), as well as our Business Solutions Center. The Company’s total proposed goals and budgets for the Business Program in the 2014 Plan include:

Business Electric Program

- Electric budget \$47,347,362; Electric savings 40,852 Gen kW, and 242,350,496 Gen kWh

- Electric participants 8,969
- Business Gas Program*
- Gas budget \$1,645,000; gas savings 128,224 Dth
 - Gas participants 1,522

Although economies of scale enable this business customer segment to provide the lowest cost DSM per unit of energy saved, business DSM is some of the most difficult to achieve over time. This is the case because business customers tend to require very short paybacks on investments and do not readily respond to traditional mass-market appeals. Further, on the gas side, the majority of large customers, who present some of the largest energy efficiency potential, are transport customers who will neither pay into the Demand-Side Management Cost Adjustment, nor be eligible to participate in the program offerings.

Residential Electric and Gas Programs

Public Service has approximately 1.18 million electric and 1.06 million natural gas customers in its Residential market in Colorado.⁵ The Residential Program includes single-family homes, town homes, apartments, and condominiums. The Residential Program also includes the load management Saver's Switch product. Public Service developed its Plan to recognize that the residential market requires choices of conservation opportunities that accommodate various lifestyles, convenient participation, and information to make wise energy choices presented in useable and understandable forms and formats. The Company's total proposed goals and budgets for the Residential Programs during the 2014 Plan include the following:

Residential Electric

- Electric budget \$31,189,213; electric savings 36,312 Gen kW; 99,458,284 Gen kWh
- Electric participants 915,317⁶

Residential Gas Program

- Gas budget \$5,328,687; gas savings 244,306 Dth
- Gas participants 69,939

Low-Income Electric and Gas Programs

The primary objective of the Low-Income Program is to reduce energy consumption in low-income customers' homes and thereby reduce low-income customer bills. The Company's total proposed goals and budgets for the Low-Income Program during 2014 Plan include the following:

Low-Income Electric Program

- Electric budget \$2,941,590; Electric savings 1,029 Gen kW; 8,169,590 Gen kWh
- Electric participants 17,517

Low-Income Gas Program

- Gas budget \$3,307,421; gas savings 86,272 Dth

⁵ Electric and natural gas customers as of December 2012.

⁶ Participants for Home Lighting and Recycling are presented in bulbs – 838,750.

- Gas participants 17,515

Indirect Products and Services and Pilots

The Indirect Products and Services for the most part (other than a couple of pilots with direct savings) support the direct products in our portfolio. The Education/Market Transformation area includes six indirect products: Business Energy Analysis, Community Energy Efficiency Planning Pilot, Consumer Education – Business, Consumer Education – Residential, Energy Efficiency Financing, and Residential Home Energy Audits. The Planning and Research area includes five services: DSM Planning and Administration, Program Evaluations, Measurement and Verification, DSM Market Research, and DSM Product Development. While the majority of the Indirect Products and Services are indirect and do not have savings goals, the DSM Product Development offering contains two pilot products, one of which proposes electric and gas savings. Public Service proposes the following Indirect electric and gas budget and savings:

Indirect Electric Products & Services

- Electric budget \$6,285,330; electric savings 8,189 Gen kW; 34,479,365 Gen kWh
- Electric participants 166,349

Indirect Gas Products & Services

- Gas budget \$2,024,849; gas savings 164,741 Dth
- Gas participants 165,439

Competitive Acquisition of DSM Resources – Third-Party Providers

As a result of the Commission’s order in Docket No. 10A-554EG, in the Company’s Strategic Issues filing, Public Service is required to identify the specific products that are open to competitive bidding for implementation.⁷ Additionally, Public Service is to set forth the specific criteria by which these bids will be evaluated.⁸ Public Service evaluates all bids in two phases, the Pre-qualification phase and the Bid Evaluation phase. The Pre-qualification phase ensures that request for proposal (“RFP”) respondents meet minimum requirements to conduct business on the Company’s behalf. Respondents are evaluated on Safety, Financial Health, Terms & Conditions Adoption and Prior Experience. These are also factors in the Bid Evaluation phase but have lower weightings due to the initial evaluation. This helps to ensure business risk to the company is as low as possible.

The Bid Evaluation phase is based upon up to eight factors and is the phase where the risk of the supplier performing is weighed against the cost to perform. These factors and their weighting are detailed below. Weighting may be adjusted based on specific business need.

⁷ Decision No. C11-0442.

⁸ In the matter of the application of Public Service Company of Colorado for approval of a number of strategic issues relating to its DSM plan, including long-term electric energy savings goals, and incentives. Docket No. 10A-554EG, Decision No. C11-0442, paragraph 81.

Table 2a: Bid Evaluation Factors and Weighting

▪ Evaluation Factors	▪ Explanation	▪ Weighting
▪ Cost	▪ Cost transparency, total cost of ownership, bid amount	▪ 45% - 65%
▪ Ability To Perform	▪ Prior experience, feasible plan, quality of project team, ability to meet schedule	▪ 30% - 50%
▪ Safety	▪ Historical safety record	▪ 5% - 15%
▪ Terms & Conditions	▪ Adherence to Xcel Energy standards	▪ 5% - 10%
▪ Financial Health	▪ Pre-qualifier in RFP	▪ Pre-qual only
▪ Diversity	▪ Firm's commitment to diversity and inclusion	▪ 0% - 15%
▪ Green Business Practices	▪ Firm's commitment to environmental sustainability	▪ 0% - 15%
▪ Project Specific Needs	▪ Dependent on project. Examples: field presence in jurisdiction, expertise with specific market segment, unique or proprietary software, etc.	▪ 0% - 15%

The table below identifies all products that have a third-party implementer and further identifies which of these products will have new contracts being bid in 2014. It also identifies the type of contract each product has - either sole source or a competitive bid contract. Contracts are sole sourced for a variety of reasons. Typically the contracted party has unique access to market players or proprietary tools that another firm would not have as is the case with Computer Efficiency, Single Family Weatherization and Multi Family Weatherization. Going forward, Public Service will be tracking, as required in Decision No. C11-0645 (Docket No. 10A-554EG), the administrative costs that are incurred when conducting RFPs and when managing the winning third-party providers of DSM services.⁹

⁹ Decision C11-0645, Docket 10A-554EG, page5, paragraph 14.

Table 2b: 2014 Products with Third-Party Implementers

Third-Party Products Not being bid in 2014	Expected RFPs for 2014 (Product)	Type of Contract – Competitive Bid or Sole Sourced
	ENERGY STAR New Homes	Competitive Bid (2014)
	Refrigerator Recycling	Competitive Bid (2011)
Commercial Refrigeration		Competitive Bid (2012)
Computer Efficiency		Sole Sourced
DEPCACC		Competitive RFP (2013)
Energy Analysis (Onsite Audits)		Competitive Bid (2012)
Energy Efficient Showerheads		Sole Sourced
Energy Feedback Pilot - Residential		Sole Sourced
Energy Savings Kits		Competitive Bid (2011)
Home Lighting		Competitive Bid (2013)
Home Performance with ENERGY STAR		Competitive Bid (2012)
Multi Family Weatherization		Sole Sourced
New Construction		Competitive Bid (2011)
Non-Profit Energy Efficiency		Sole Sourced
Peak Savings		Competitive Bid (2009)
Pool Pumps		Competitive Bid (2013)
Residential Home Energy Audit		Competitive Bid (2012)

School Education Kits	Competitive Bid (2013)
Segment Efficiency	Competitive RFP (2013)
Single Family Weatherization	Sole Sourced
Small Business Lighting	Competitive Bid (2013)

Major Initiatives: Market Transformation and Customer Education

In this Plan, Public Service is continuing to place increasing emphasis on programs and services that help to redefine the energy efficiency marketplace through market transformation and customer education. The Company believes that market transformation and customer education are some of the least-cost ways to influence customer decisions and behaviors for the long term.

Public Service defines market transformation as a strategy for influencing the adoption of new techniques or technologies by consumers. The objective is to overcome barriers within a market through coordinating tactics such as education, training, product demonstration, and marketing, often conducted in concert with rebates or other financial incentives.

The Company will continue to offer additional Market Transformation pilot products in this 2014 Plan, and will continue to offer the Market Transformation products that were first introduced in the 2009/2010 Plan. The Market Transformation pilots which have continued from the 2012/2013 Plan include Energy Feedback Pilot and the In-Home Smart Devices Pilot. New to the portfolio are the Energy Feedback Pilot-Business, Community Energy Efficiency Planning Pilot, and Energy Efficiency Financing. The continuing Market Transformation products from 2009/10 include the Business Energy Analysis, Residential Home Energy Audits, Residential and Business Consumer Education. The Community Energy Efficiency Planning Pilot and the Energy Efficiency Financing products were added to the portfolio as part of the settlement to the 2012/2013 Plan. All of the market transformation products, except Energy Feedback and Energy Feedback-Business, are indirect, meaning that they produce no direct energy savings.

In addition to these programs, Public Service has interwoven market transformation into many of its direct-impact programs by offering rebates on a variety of efficiency measures in order to make the efficient products more popular and more available in the marketplace, even if not cost effective on their own. By offering rebates for efficient measures, Public Service hopes to create a demand for the high efficiency products, thereby driving down their overall cost.

Based on the Commission's decision in Docket No. 10A-554EG, if Public Service seeks to implement a market transformation program for which it will claim savings to count against its energy savings or demand reduction goals, the Company must detail in its DSM plan filings how the measurement and verification of such savings will be accomplished.¹⁰ Furthermore, Public Service was directed to justify in its DSM plans how its market transformation efforts are linked to such credits for savings. For market transformation activities for which the Company will not

¹⁰ Decision No. C11-0442.

attempt to measure savings, such programs will have an assumed Total Resource Cost (“TRC”) value of one consistent with current practices.¹¹

With this Plan, Public Service continues its commitment to transforming the energy efficiency market through new construction. The Company is continuing to offer construction rebates and design assistance programs for all of its customer segments. Customers will receive rebates for construction that exceeds local codes and standards.

Public Service also continues to offer products dedicated to customer education, such as Business Energy Analysis and Residential Home Energy Audits. These are both indirect products that provide customers with specific feedback and potential actions regarding their own homes and buildings. In addition, many of the other product offerings contained in this Plan have an educational component.

Stakeholders

Public Service believes that successful implementation of its Plan will be the result of active participation of its many stakeholders. These stakeholders include the Commission, the Colorado Energy Office, other state agencies, local governments, environmental groups, external consulting groups, efficient equipment manufacturers, distributors and vendors, installation contractors, and customer advocates. Each of the Company’s products offers its own opportunities for stakeholder involvement and feedback. In addition, Public Service will continue to host its quarterly DSM Roundtable meetings as a forum for open dialogue and discussion.¹²

Pilot Products

In Docket No. 07A-420E, the Commission distinguished pilot products from existing or continuing products. These would be products that are testing unproven delivery methods, markets, or technologies. For any of these reasons, pilot products may not necessarily achieve a Modified Total Resource Cost Test (“MTRC”) ratio greater than one. In Decision No. C08-0560, the Commission allowed for such products under these special circumstances to achieve an MTRC test ratio of less than one. For this Plan, Public Service offers five pilots that are fully described in the Indirect Product Development section of this Plan, including the Company’s overall pilot requirements. These pilots include:

- Community Energy Efficiency Planning Pilot (market transformation, no direct savings)
- Energy Feedback Pilot (market transformation, direct savings)
- Energy Feedback Pilot-Business (market transformation, direct savings)
- In-Home Smart Devices Pilot (market transformation, no direct savings)

¹¹ The Total Resource Cost 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.

¹² The quarterly DSM Roundtable meetings have been held since the 2009/2010 Plan and are a chance for members of the Company and interested stakeholders to review past achievements and discuss any new changes that are anticipated for the plan, programs, and/or products.

- Electric Vehicle Charging Station Pilot (not market transformation, no direct savings)

For any pilot that does not pass the MTRC test at the end of the year, Public Service will explain the causes and provide recommendations on the pilot's continuation in the annual status report. For pilots that are also considered Market Transformation and are not claiming savings in 2014, the Commission Decision allows a presumptive TRC of 1.0 for purposes of calculating the financial incentive. For 2014, the Company proposes that this practice be continued and that a presumptive TRC of 1.0 be applied to the Community Energy Efficiency Planning Pilot, the In-Home Smart Device Pilot, and the Electric Vehicle Charging Station Pilot.

Document Layout

This document has eight major sections, organized primarily by customer segment: Executive Summary, Business Products, Residential Products, Low-Income Products, Indirect Products and Services, Benefit-Cost Analyses, Planning Assumptions, and Appendices. Each of these sections is summarized below:

- Executive Summary – provides a high-level overview of the strategic direction of the overall 2014 DSM Plan; provides program and product level goals and budgets, and provides budgets by cost category¹³.
- Business, Residential, Low-Income, and Indirect Gas and Electric Programs – detail the specific products and goals associated with each program.
- Planning Assumptions – displays the planning assumptions used to calculate the energy and demand savings of every measure included in the Plan.
- Benefit-Cost Analyses – provides each Program's benefit-cost analysis results.
- Appendices – presents a list of acronyms, the portfolio of products ranking, the avoided costs used, description of the budget categories, natural gas DSM \$/Therm and Acknowledgement of Lost Revenue methodology, technical assumption and net-to-gross review, and the technical reference manual summary (deemed savings electronic file).

¹³ Budget categories are described in Appendix D.

Table 3a: Public Service's 2014 Electric DSM Program/Product Budgets and Goals

2014	Electric Participants	Electric Budget	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
Business Program					
Commercial Refrigeration Efficiency	1,890	\$2,149,734	994	9,257,997	1.49
Compressed Air Efficiency	124	\$770,990	479	2,465,669	1.36
Computer Efficiency	2,919	\$536,001	569	5,342,267	1.77
Cooling Efficiency	745	\$3,180,282	3,426	8,686,056	1.85
Custom Efficiency	34	\$1,791,404	1,266	8,894,756	1.80
Data Center Efficiency	16	\$1,115,347	716	7,385,370	2.28
Energy Management Systems	39	\$1,089,255	173	7,344,207	1.51
Heating Efficiency					
Lighting Efficiency	1,561	\$10,679,783	12,290	74,390,507	1.94
Motor & Drive Efficiency	843	\$4,494,467	2,836	16,967,161	1.70
New Construction	88	\$9,571,681	9,690	32,720,004	1.36
Process Efficiency	12	\$2,623,240	1,464	22,239,875	2.15
Recommissioning	112	\$1,130,264	802	6,692,473	1.33
Segment Efficiency	54	\$830,569	533	4,190,451	1.38
Self-Directed Custom Efficiency	12	\$1,382,803	1,190	8,890,332	1.77
Small Business Lighting	520	\$5,994,148	4,420	26,883,370	1.63
Standard Offer	0	\$7,395	0	0	
Business Program Total	8,969	\$47,347,362	40,852	242,350,496	1.71
Residential Program					
ENERGY STAR New Homes	1,924	\$631,958	429	1,689,054	1.38
Evaporative Cooling Rebate	4,525	\$2,436,861	6,335	3,927,304	7.93
Heating System Rebate	2,500	\$306,833	186	2,371,209	1.33
High Efficiency Air Conditioning	3,651	\$2,780,206	2,220	2,000,075	0.93
Home Lighting & Recycling	838,750	\$8,379,231	11,367	76,523,940	2.68
Home Performance with ENERGY STAR	497	\$230,400	132	295,245	1.14
Insulation Rebate	1,400	\$378,696	710	821,218	1.08
Pool Pump	1,265	\$704,843	793	2,196,769	1.33
Refrigerator Recycling	8,000	\$1,307,459	481	4,214,464	1.63
Saver's Switch	12,000	\$12,420,170	13,261	227,759	2.00
School Education Kits	38,500	\$1,539,289	390	4,418,484	1.88
Energy Efficiency Showerhead	2,255	\$33,980	0	696,290	16.91
Water Heater Rebate	50	\$39,288	9	76,474	0.63
Residential Program Energy Efficiency Total	903,317	\$18,769,044	23,051	99,230,525	2.93
Load Management Program - Residential Saver's Switch	12,000	\$12,420,170	13,261	227,759	2.00
Residential Program Total	915,317	\$31,189,213	36,312	99,458,284	2.65
Low-Income Program					
Energy Savings Kit	15,000	\$332,475	174	1,932,191	3.33
Multi-Family Weatherization	14	\$387,505	111	1,266,863	1.48
Non-Profit Energy Efficiency	25	\$934,524	500	1,777,129	1.63
Single-Family Weatherization	2,478	\$1,287,086	244	3,193,407	1.32
Low-Income Program Total	17,517	\$2,941,590	1,029	8,169,590	1.65
Indirect Products & Services					
Education/Market Transformation					
Business Energy Analysis	400	\$980,880	0	0	
Community Energy Efficiency Planning Pilot	0	\$25,800	0	0	
Consumer Education - Business	1,385	\$153,765	0	0	
Consumer Education - Residential	34,000	\$1,232,674	0	0	
Energy Efficiency Financing	1,500	\$60,000	0	0	
Residential Home Energy Audit	0	\$610,664	0	0	
Education/Market Transformation Total	37,285	\$3,063,783			
Planning and Research					
DSM Planning & Administration	0	\$401,877	0	0	
Program Evaluations	0	\$247,080	0	0	
Measurement & Verification	0	\$13,175	0	0	
DSM Market Research	0	\$290,688	0	0	
DSM Product Development	0	\$1,197,238	0	0	
Energy Feedback Pilot	117,642	\$760,817	7,610	28,994,680	3.00
Energy Feedback Pilot - Business	11,422	\$255,754	579	5,484,685	1.18
In-Home Smart Device Pilot	0	\$50,698	0	0	
Electric Vehicle Charging Station Pilot	0	\$4,220	0	0	
DSM Product Development Total	129,064	\$2,268,727	8,189	34,479,365	1.14
Planning and Research Total	129,064	\$3,221,547	8,189	34,479,365	0.80
Indirect Products & Services Total	166,349	\$6,285,330	8,189	34,479,365	0.45
PORTFOLIO TOTAL	1,108,152	\$87,763,495	86,381	384,457,736	1.88

Table 3b: Public Service's 2014 Gas DSM Program/Product Budgets and Goals

2014	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Business Program						
Commercial Refrigeration Efficiency	1,220	\$50,234	6,892	137,209	812,806	11.67
Compressed Air Efficiency						
Computer Efficiency						
Cooling Efficiency						
Custom Efficiency	5	\$144,633	5,519	38,161	128,225	1.47
Data Center Efficiency						
Energy Management Systems	10	\$32,232	2,960	91,835	126,190	2.60
Heating Efficiency	202	\$612,121	25,354	41,420	203,299	1.11
Lighting Efficiency						
Motor & Drive Efficiency						
New Construction	56	\$761,654	82,049	107,724	1,915,270	1.43
Process Efficiency						
Recommissioning	16	\$16,361	2,509	153,348	53,267	2.63
Segment Efficiency	13	\$26,766	2,940	109,858	81,793	1.75
Self-Directed Custom Efficiency						
Small Business Lighting						
Standard Offer	0	\$1,000	0	0		
Interruptible Credit Option						
EnerNOC						
Business Program Energy Efficiency Total	1,522	\$1,645,000	128,224	77,948	3,320,850	1.48
Business Program Total	1,522	\$1,645,000	128,224	77,948	3,320,850	1.48
Residential Program						
ENERGY STAR New Homes	2,544	\$2,546,788	95,294	37,417	2,361,788	1.38
Evaporative Cooling Rebate						
Heating System Rebate	4,950	\$711,142	38,645	54,342	-906,566	0.78
High Efficiency Air Conditioning						
Home Lighting & Recycling						
Home Performance with ENERGY STAR	500	\$181,506	8,439	46,494	32,827	1.06
Insulation Rebate	4,000	\$860,363	47,640	55,372	88,871	1.03
Pool Pump						
Refrigerator Recycling						
Saver's Switch						
School Education Kits	38,500	\$617,815	30,131	48,770	4,017,797	6.10
Energy Efficiency Showerhead	18,245	\$252,620	20,341	80,520	2,994,380	9.85
Water Heater Rebate	1,200	\$158,453	3,816	24,084	-432,809	0.42
Residential Program Energy Efficiency Total	69,939	\$5,328,687	244,306	45,847	8,156,288	1.50
Load Management Program - Residential Saver's Switch	0	\$0	0			
Residential Program Total	69,939	\$5,328,687	244,306	45,847	8,156,288	1.50
Low-Income Program						
Energy Savings Kit	15,000	\$221,692	12,472	56,258	1,692,004	6.93
Multi-Family Weatherization	12	\$376,747	6,788	18,017	448	1.00
Non-Profit Energy Efficiency	25	\$541,404	6,970	12,875	354	1.00
Single-Family Weatherization	2,478	\$2,167,578	60,042	27,700	2,925,771	1.74
Low-Income Program Total	17,515	\$3,307,421	86,272	26,084	4,618,578	1.79
Indirect Products & Services						
Education/Market Transformation						
Business Energy Analysis	100	\$138,316				
Community Energy Efficiency Planning Pilot	0	\$4,200	0	0		
Consumer Education - Business	593	\$50,002	0	0		
Consumer Education - Residential	34,000	\$250,557	0	0		
Energy Efficiency Financing	750	\$60,000	0	0		
Residential Home Energy Audit	0	\$520,099	0	0		
Education/Market Transformation Total	35,443	\$1,023,174				
Planning and Research						
DSM Planning & Administration	0	\$110,004	0	0		
Program Evaluations	0	\$204,580	0	0		
Measurement & Verification	0	\$3,188	0	0		
DSM Market Research	0	\$164,143	0	0		
DSM Product Development	0	\$203,979	0	0		
Energy Feedback Pilot	118,574	\$235,016	141,333	601,374	462,845	2.97
Energy Feedback Pilot - Business	11,422	\$80,765	23,408	289,828	34,658	1.43
In-Home Smart Device Pilot	0	\$0	0			
Electric Vehicle Charging Station Pilot	0	\$0	0			
DSM Product Development Total	129,996	\$519,760	164,741	316,955	293,524	1.56
Planning and Research Total	129,996	\$1,001,675	164,741	164,465	-188,391	0.81
Indirect Products & Services Total	165,439	\$2,024,849	164,741	81,359	-898,965	0.54
PORTFOLIO TOTAL	254,415	\$12,305,957	623,543	50,670	15,196,752	1.49

Table 4a: Public Service's 2014 Electric DSM Program/Product Costs by Category

2014	Program Planning & Design	Administration & Program Delivery	Advertising / Promotion / Customer Ed	Participant Rebates and Incentives	Equipment & Installation	Measurement and Verification	Total
Business Program							
Commercial Refrigeration Efficiency	\$0	\$1,213,400	\$51,500	\$854,207	\$0	\$30,626	\$2,149,734
Compressed Air Efficiency	\$12,000	\$209,134	\$88,495	\$437,878	\$0	\$23,483	\$770,990
Computer Efficiency	\$1,592	\$405,167	\$22,682	\$83,140	\$0	\$23,420	\$536,001
Cooling Efficiency	\$5,425	\$852,859	\$81,606	\$2,211,592	\$0	\$28,800	\$3,180,282
Custom Efficiency	\$5,425	\$741,380	\$269,048	\$733,551	\$0	\$42,000	\$1,791,404
Data Center Efficiency	\$0	\$271,014	\$161,804	\$658,303	\$0	\$24,225	\$1,115,347
Energy Management Systems	\$0	\$219,781	\$221,489	\$633,336	\$0	\$14,649	\$1,089,255
Heating Efficiency							
Lighting Efficiency	\$15,925	\$2,293,400	\$731,215	\$7,583,221	\$0	\$56,022	\$10,679,783
Motor & Drive Efficiency	\$5,425	\$635,291	\$425,788	\$3,377,665	\$0	\$50,299	\$4,494,467
New Construction	\$25,425	\$3,128,267	\$391,621	\$5,366,368	\$0	\$660,000	\$9,571,681
Process Efficiency	\$0	\$610,142	\$26,000	\$1,979,098	\$0	\$8,000	\$2,623,240
Recommissioning	\$20,000	\$244,477	\$160,992	\$694,795	\$0	\$10,000	\$1,130,264
Segment Efficiency	\$0	\$159,148	\$71,154	\$500,267	\$0	\$100,000	\$830,569
Self-Directed Custom Efficiency	\$0	\$154,746	\$63,604	\$1,164,453	\$0	\$0	\$1,382,803
Small Business Lighting	\$0	\$3,947,269	\$144,206	\$1,852,674	\$0	\$50,000	\$5,994,148
Standard Offer	\$0	\$7,395	\$0	\$0	\$0	\$0	\$7,395
Business Program Total	\$91,217	\$15,092,869	\$2,911,204	\$28,130,548	\$0	\$1,121,523	\$47,347,362
Residential Program							
ENERGY STAR New Homes	\$0	\$148,988	\$3,000	\$378,210	\$0	\$101,760	\$631,958
Evaporative Cooling Rebate	\$0	\$473,749	\$305,612	\$1,617,500	\$0	\$40,000	\$2,436,861
Heating System Rebate	\$0	\$22,630	\$26,703	\$250,000	\$0	\$7,500	\$306,833
High Efficiency Air Conditioning	\$0	\$386,488	\$174,000	\$2,184,718	\$0	\$35,000	\$2,780,206
Home Lighting & Recycling	\$5,425	\$1,026,051	\$2,044,315	\$5,288,440	\$0	\$15,000	\$8,379,231
Home Performance with ENERGY STAR	\$0	\$148,002	\$19,356	\$63,042	\$0	\$0	\$230,400
Insulation Rebate	\$0	\$36,233	\$0	\$322,463	\$0	\$20,000	\$378,696
Pool Pump	\$0	\$472,392	\$73,451	\$126,500	\$0	\$32,500	\$704,843
Refrigerator Recycling	\$0	\$585,997	\$315,462	\$400,000	\$0	\$6,000	\$1,307,459
Saver's Switch	\$0	\$3,890,325	\$1,616,215	\$6,803,880	\$0	\$109,750	\$12,420,170
School Education Kits	\$0	\$1,127,893	\$0	\$411,396	\$0	\$0	\$1,539,289
Energy Efficiency Showerhead	\$0	\$19,950	\$3,119	\$10,711	\$0	\$200	\$33,980
Water Heater Rebate	\$0	\$10,688	\$1,100	\$22,500	\$0	\$5,000	\$39,288
Residential Program Energy Efficiency Total	\$5,425	\$4,459,061	\$2,966,118	\$11,075,480	\$0	\$262,960	\$18,769,044
Load Management Program - Residential Saver's Switch	\$0	\$3,890,325	\$1,616,215	\$6,803,880	\$0	\$109,750	\$12,420,170
Residential Program Total	\$5,425	\$8,349,386	\$4,582,333	\$17,879,360	\$0	\$372,710	\$31,189,213
Low-Income Program							
Energy Savings Kit	\$0	\$99,237	\$32,400	\$198,338	\$0	\$2,500	\$332,475
Multi-Family Weatherization	\$0	\$71,207	\$40,000	\$264,946	\$0	\$11,352	\$387,505
Non-Profit Energy Efficiency	\$0	\$90,750	\$15,000	\$806,299	\$0	\$22,475	\$934,524
Single-Family Weatherization	\$0	\$113,650	\$150,000	\$985,294	\$0	\$38,142	\$1,287,086
Low-Income Program Total	\$0	\$374,844	\$237,400	\$2,254,876	\$0	\$74,469	\$2,941,590
Indirect Products & Services							
Education/Market Transformation							
Business Energy Analysis	\$33,744	\$726,942	\$220,194	\$0	\$0	\$0	\$980,880
Community Energy Efficiency Planning Pilot	\$0	\$0	\$0	\$0	\$0	\$25,800	\$25,800
Consumer Education - Business	\$0	\$39,862	\$113,903	\$0	\$0	\$0	\$153,765
Consumer Education - Residential	\$0	\$340,108	\$892,566	\$0	\$0	\$0	\$1,232,674
Energy Efficiency Financing	\$15,000	\$0	\$35,000	\$0	\$0	\$10,000	\$60,000
Residential Home Energy Audit	\$0	\$285,055	\$58,009	\$211,600	\$0	\$56,000	\$610,664
Education/Market Transformation Total	\$48,744	\$1,391,967	\$1,319,672	\$211,600	\$0	\$91,800	\$3,063,783
Planning and Research							
DSM Planning & Administration	\$0	\$401,877	\$0	\$0	\$0	\$0	\$401,877
Program Evaluations	\$0	\$0	\$0	\$0	\$0	\$247,080	\$247,080
Measurement & Verification	\$0	\$0	\$0	\$0	\$0	\$13,175	\$13,175
DSM Market Research	\$0	\$290,688	\$0	\$0	\$0	\$0	\$290,688
DSM Product Development	\$467,238	\$716,597	\$11,601	\$0	\$0	\$1,802	\$1,197,238
Energy Feedback Pilot	\$0	\$648,152	\$82,105	\$0	\$0	\$30,560	\$760,817
Energy Feedback Pilot - Business	\$22,199	\$228,460	\$0	\$0	\$0	\$5,095	\$255,754
In-Home Smart Device Pilot	\$0	\$9,645	\$0	\$0	\$0	\$41,053	\$50,698
Electric Vehicle Charging Station Pilot	\$0	\$0	\$0	\$2,100	\$0	\$2,120	\$4,220
DSM Product Development Total	\$489,437	\$1,602,854	\$93,706	\$2,100	\$0	\$80,630	\$2,268,727
Planning and Research Total	\$489,437	\$2,295,419	\$93,706	\$2,100	\$0	\$340,885	\$3,221,547
Indirect Products & Services Total	\$538,181	\$3,687,386	\$1,413,378	\$213,700	\$0	\$432,685	\$6,285,330
PORTFOLIO TOTAL	\$634,823	\$27,504,485	\$9,144,315	\$48,478,484	\$0	\$2,001,387	\$87,763,495

Table 4b: Public Service's 2014 Gas DSM Program/Product Costs by Category

2014	Program Planning & Design	Administration & Program Delivery	Advertising/Promotion/ Customer Ed	Participant Rebates and Incentives	Equipment & Installation	Measurement and Verification	Total
Business Program							
Commercial Refrigeration Efficiency	\$0	\$22,986	\$0	\$25,948	\$0	\$1,300	\$50,234
Compressed Air Efficiency							
Computer Efficiency							
Cooling Efficiency							
Custom Efficiency	\$0	\$114,270	\$1,802	\$23,761	\$0	\$4,800	\$144,633
Data Center Efficiency							
Blank							
Energy Management Systems	\$0	\$14,536	\$0	\$16,471	\$0	\$1,225	\$32,232
Heating Efficiency	\$0	\$122,827	\$1,802	\$460,282	\$0	\$27,210	\$612,121
Lighting Efficiency							
Motor & Drive Efficiency							
New Construction	\$0	\$221,863	\$7,802	\$468,989	\$0	\$63,000	\$761,654
Process Efficiency							
Recommissioning	\$0	\$8,850	\$0	\$7,511	\$0	\$0	\$16,361
Segment Efficiency	\$0	\$2,529	\$0	\$24,237	\$0	\$0	\$26,766
Self-Directed Custom Efficiency							
Small Business Lighting							
Standard Offer	\$0	\$1,000	\$0	\$0	\$0	\$0	\$1,000
Interruptible Credit Option							
EnerNOC							
Business Program Energy Efficiency Total	\$0	\$508,861	\$11,406	\$1,027,198	\$0	\$97,535	\$1,645,000
Business Program Total	\$0	\$508,861	\$11,406	\$1,027,198	\$0	\$97,535	\$1,645,000
Residential Program							
ENERGY STAR New Homes	\$0	\$552,767	\$12,000	\$1,574,981	\$0	\$407,040	\$2,546,788
Evaporative Cooling Rebate							
Heating System Rebate	\$0	\$51,936	\$52,706	\$589,000	\$0	\$17,500	\$711,142
High Efficiency Air Conditioning							
Home Lighting & Recycling							
Home Performance with ENERGY STAR	\$0	\$66,375	\$13,660	\$101,471	\$0	\$0	\$181,506
Insulation Rebate	\$0	\$46,233	\$0	\$744,130	\$0	\$70,000	\$860,363
Pool Pump							
Refrigerator Recycling							
Saver's Switch							
School Education Kits	\$0	\$447,861	\$0	\$169,954	\$0	\$0	\$617,815
Energy Efficiency Showerhead	\$0	\$139,517	\$25,239	\$86,664	\$0	\$1,200	\$252,620
Water Heater Rebate	\$0	\$29,503	\$8,000	\$85,950	\$0	\$25,000	\$158,453
Residential Program Energy Efficiency Total	\$0	\$1,344,192	\$111,605	\$3,352,150	\$0	\$520,740	\$5,328,687
Load Management Program - Residential Saver's Switch	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Residential Program Total	\$0	\$1,344,192	\$111,605	\$3,352,150	\$0	\$520,740	\$5,328,687
Low-Income Program							
Energy Savings Kit	\$0	\$134,179	\$21,600	\$63,413	\$0	\$2,500	\$221,692
Multi-Family Weatherization	\$0	\$71,714	\$20,000	\$267,984	\$0	\$17,049	\$376,747
Non-Profit Energy Efficiency	\$0	\$58,777	\$20,000	\$440,215	\$0	\$22,412	\$541,404
Single-Family Weatherization	\$0	\$214,286	\$150,000	\$1,769,544	\$0	\$33,748	\$2,167,578
Low-Income Program Total	\$0	\$478,956	\$211,600	\$2,541,156	\$0	\$75,709	\$3,307,421
Indirect Products & Services							
Education/Market Transformation							
Business Energy Analysis	\$10,800	\$124,066	\$3,450	\$0	\$0	\$0	\$138,316
Community Energy Efficiency Planning Pilot	\$0	\$0	\$0	\$0	\$0	\$4,200	\$4,200
Consumer Education - Business	\$0	\$19,931	\$30,071	\$0	\$0	\$0	\$50,002
Consumer Education - Residential	\$0	\$166,545	\$84,012	\$0	\$0	\$0	\$250,557
Energy Efficiency Financing	\$15,000	\$0	\$35,000	\$0	\$0	\$10,000	\$60,000
Residential Home Energy Audit	\$0	\$191,293	\$50,406	\$248,400	\$0	\$30,000	\$520,099
Education/Market Transformation Total	\$25,800	\$501,835	\$202,939	\$248,400	\$0	\$44,200	\$1,023,174
Planning and Research							
DSM Planning & Administration	\$0	\$110,004	\$0	\$0	\$0	\$0	\$110,004
Program Evaluations	\$0	\$0	\$0	\$0	\$0	\$204,580	\$204,580
Measurement & Verification	\$0	\$0	\$0	\$0	\$0	\$3,188	\$3,188
DSM Market Research	\$0	\$164,143	\$0	\$0	\$0	\$0	\$164,143
DSM Product Development	\$95,715	\$91,000	\$17,264	\$0	\$0	\$0	\$203,979
Energy Feedback Pilot	\$0	\$200,214	\$25,362	\$0	\$0	\$9,440	\$235,016
Energy Feedback Pilot - Business	\$7,010	\$72,146	\$0	\$0	\$0	\$1,609	\$80,765
In-Home Smart Device Pilot							
Electric Vehicle Charging Station Pilot							
DSM Product Development Total	\$102,725	\$363,360	\$42,626	\$0	\$0	\$11,049	\$519,760
Planning and Research Total	\$102,725	\$637,507	\$42,626	\$0	\$0	\$218,817	\$1,001,675
Indirect Products & Services Total	\$128,525	\$1,139,342	\$245,565	\$248,400	\$0	\$263,017	\$2,024,849
PORTFOLIO TOTAL	\$128,525	\$3,471,351	\$580,176	\$7,168,904	\$0	\$957,001	\$12,305,957

Business Program

A. Description

In the 2014 Plan, Public Service’s Business Program consists of commercial and industrial customers in the Colorado service area. As of June 2013, Public Service had a total of 211,980 gas and electric commercial and industrial customers in Colorado. The majority of high natural gas consumption customers in Public Service’s area are transportation-only customers that do not purchase gas directly from the Company. Such customers are exempt from paying the Demand-Side Management Cost Adjustment (DSMCA) and, therefore, are ineligible to participate in the Company’s energy efficiency products. A further breakdown of Business customers is shown in the table below, excluding the natural gas transportation customers.

Table 5: Business Program Customer Counts¹⁴

Type	Natural Gas Only	Electric Only	Both Gas & Electric	Subtotal
Commercial	34,732	102,886	70,735	208,353
Industrial	3,160	366	101	3,627
Total	37,892	103,252	70,836	211,980

Public Service divides business customers into two sub-segments for marketing purposes: large customers and small business customers. Large customers are typically single or aggregated electric customers with demand usage of over 500 kW, natural gas customers with annual loads of 5,000 Dth or more or national customers, such as fast-food chains. Large customers have a Company account manager assigned to them to serve as a liaison with Public Service. Small business customers work with our Business Solutions Center (BSC) to answer any questions they may have on their accounts and to investigate potential energy efficiency projects. In addition to large versus small customers, Public Service often studies individual customer sectors, as described in the table below.

¹⁴ Customer counts as of June 4, 2013.

Table 6: Business Program Market Sectors

Market Sector	# of Electric Customers	# of Gas Customers	# of Combo Customers	% of Total Customer Base
Agricultural Production Crops	1,729	120	120	1.18%
Agricultural production livestock and animal specialties	870	73	103	0.63%
Agricultural services	612	307	676	0.96%
Forestry	6	6	1	0.01%
Fishing, hunting, and trapping	15	2	3	0.01%
Metal mining	43	9	18	0.04%
Coal mining	12	4	8	0.01%
Oil and gas extraction	287	138	166	0.35%
Nonmetallic Minerals, Except Fuels	45	6	13	0.04%
General Building Contractors	2,138	461	987	2.15%
Heavy Construction, Ex. Building	347	128	193	0.40%
Special Trade Contractors	1,586	809	2,011	2.64%
Food and Kindred Products	252	141	226	0.37%
Tobacco Products	1	0	4	0.00%
Textile Mill Products	21	20	39	0.05%
Apparel and Other Textile Products	53	30	114	0.12%
Lumber and Wood Products	142	79	199	0.25%
Furniture And Fixtures	45	18	95	0.09%
Paper and Allied Products	30	10	47	0.05%
Printing and Publishing	224	131	416	0.46%
Chemicals and Allied Products	156	93	141	0.23%
Petroleum and Coal Products	34	12	33	0.05%
Rubber and Misc. Plastics Products	60	65	114	0.14%
Leather and Leather Products	5	4	15	0.01%
Stone, Clay, and Glass Products	164	79	139	0.23%
Primary Metal Industries	44	21	64	0.08%
Fabricated Metal Products	193	128	321	0.38%
Industrial Machinery and Equipment	258	212	520	0.59%
Electronic & Other Electric Equipment	98	136	226	0.28%
Transportation Equipment	49	42	79	0.10%
Instruments and Related Products	119	145	264	0.32%
Miscellaneous Manufacturing Industries	135	109	283	0.32%
Railroad Transportation	357	24	20	0.24%
Local and Interurban Passenger Transit	308	50	111	0.28%
Trucking and Warehousing	750	276	583	0.96%
U.S. Postal Service	61	50	92	0.12%
Water Transportation	86	8	26	0.07%
Transportation By Air	259	68	97	0.25%
Pipelines, Except Natural Gas	16	5	4	0.01%
Transportation Services	247	83	202	0.32%
Communication	4,030	248	421	2.81%

Market Sector	# of Electric Customers	# of Gas Customers	# of Combo Customers	% of Total Customer Base
Electric, Gas, and Sanitary Services	1,539	341	311	1.31%
Wholesale Trade--Durable Goods	1,269	904	2,755	2.95%
Wholesale Trade--Nondurable Goods	910	442	1,019	1.42%
Building Materials & Garden Supplies	353	266	532	0.69%
General Merchandise Stores	219	115	197	0.32%
Food Stores	736	458	1,180	1.42%
Automotive Dealers & Service Stations	645	569	1,352	1.54%
Apparel and Accessory Stores	639	287	622	0.93%
Furniture and Home furnishings Stores	354	340	775	0.88%
Eating and Drinking Places	2,013	1,484	3,586	4.24%
Miscellaneous Retail	2,108	1,319	3,265	4.01%
Depository Institutions	353	353	716	0.85%
Non-depository Institutions	254	79	201	0.32%
Security and Commodity Brokers	173	103	220	0.30%
Insurance Carriers	102	54	103	0.16%
Insurance Agents, Brokers, & Service	318	221	504	0.62%
Real Estate	10,435	3,211	6,227	11.90%
Holding and Other Investment Offices	1,121	435	909	1.48%
Hotels and Other Lodging Places	980	574	424	1.18%
Personal Services	1,241	839	2,473	2.73%
Business Services	4,537	1,779	3,926	6.13%
Auto Repair, Services, and Parking	794	697	2,110	2.16%
Miscellaneous Repair Services	399	242	716	0.81%
Motion Pictures	104	53	166	0.19%
Amusement & Recreation Services	1,605	623	1,128	2.01%
Health Services	1,919	1,498	2,510	3.55%
Legal Services	271	163	413	0.51%
Educational Services	1,738	866	979	2.15%
Social Services	979	493	1,018	1.49%
Museums, Botanical, Zoological Gardens	125	60	96	0.17%
Membership Organizations	6,083	1,749	3,277	6.65%
Engineering & Management Services	3,034	1,023	2,048	3.66%
Services, Nec.	361	177	403	0.56%
Executive, Legislative, and General	2,591	413	514	2.11%
Justice, Public Order, and Safety	632	205	264	0.66%
Public Finance, Taxation, and Monetary Policy	13	4	1	0.01%
Administration Of Human Resources	73	21	64	0.09%
Environmental Quality and Housing	714	284	190	0.71%
Administration Of Economic Programs	431	51	62	0.33%
National Security and International Affairs	27	13	15	0.03%
Unknown	8,747	1,900	4,665	9.17%

Products

An extensive portfolio of products is planned for the Business Program in 2014. Public Service is proposing to continue offering 16 electric and 8 natural gas direct impact products. Six of the 7 natural gas products coincide with their electric counterparts such as Custom Efficiency where electric, natural gas or both savings can be analyzed. Public Service intends to continue offering products targeting specific market segments that were launched in 2009. These products continue to penetrate their market segments and work to become larger contributors to the portfolio. The business product rankings are shown in Table 7 below, and the products goals and budgets are shown in Table 8a and 8b below. Additional detail on these products is presented in each product description.

Table 7: Business Product Rankings

Product Name	Product Ranking¹⁵	Type	Fuel
Lighting Efficiency	2	Prescriptive	Electric
Motor & Drive Efficiency	4	Prescriptive	Electric
Commercial Refrigeration Efficiency	5	Prescriptive	Electric/Gas
Computer Efficiency	6	Prescriptive	Electric
Cooling Efficiency	7	Prescriptive	Electric
Small Business Lighting	11	Prescriptive	Electric
Energy Management Systems	12	Custom	Electric/Gas
Data Center Efficiency	14	Custom	Electric
Recommissioning	15	Custom	Electric/Gas
New Construction	16	Custom	Electric/Gas
Process Efficiency	17	Custom	Electric
Custom Efficiency	18	Custom	Electric/Gas
Self-Directed Custom Efficiency	22	Custom	Electric
Segment Efficiency	25	Custom	Electric/Gas
Compressed Air Efficiency	26	Custom	Electric
Heating Efficiency	29	Prescriptive	Gas

Xcel Energy has extensive experience offering DSM products throughout its service areas including successful DSM product delivery in Public Service territory since 2006. It intends to continue building on its achievements in Colorado with the best of its product offerings. Xcel Energy also participates in larger regional and national efforts to design and develop the best products for customers. For example, Xcel Energy participates in the Consortium for Energy Efficiency's planning and research efforts. This group's primary purpose is to promote energy efficiency technologies through partnerships with utilities, manufacturers and other interested parties. In addition, Xcel Energy is a member of the Lighting Research Center. This organization provides relevant technical data on state-of-the-art lighting technologies and design practices.

¹⁵ Rankings are established by determining market segments that could participate in the program, customer classes available, total projected savings, MTRC score, participation, and participation % of market. The entire portfolio ranking can be found in the Appendices of this filing.

The following are the newest products or measures launched in 2012 and 2013 for the Colorado market: Commercial Refrigeration Efficiency, Building Tune-Up (Recommissioning) and Direct Evaporative Pre Cooling. These products were developed based on a need identified by stakeholders or an established gap found in reviewing utility best practices.

B. Overall Goals, Participants & Budgets

The Business Program contributes a significant portion of Public Service’s planned conservation and load management achievements in this 2014 Plan, accounting for 242 GWh at the generator and 128,224 Dth over the one-year period. This equates to 63% of the Company’s total electric energy savings goal and 21% of the total natural gas savings goal. The most significant Business Program energy savings will come from the Lighting Efficiency, New Construction, Small Business Lighting, Process Efficiency, and Motor and Drive Efficiency products. In this plan the Business Program is proposing a significant increase from 2013 goals due to higher portfolio level goals set from the Strategic Policy Issues Filing (Docket No. 10A-554EG). Public Service intends to accelerate market penetration in all customer classes through increased advertising, communications, promotions, trade channel development and long term planning with customers to hit these higher goals.

The Company is continuing to reduce its natural gas spending through rebate reductions due to its concerns about the reduced cost-effectiveness of many gas DSM products given low gas commodity prices, the lack of significant system benefits from gas DSM, and the rate impact on non-participating customers.

The following table shows the Company’s proposed electric and natural gas Business Program goals and budgets by product.

Table 8a: 2014 Electric Business Program Budgets and Goals

2014	Electric Participants	Electric Budget	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
Business Program					
Commercial Refrigeration Efficiency	1,890	\$2,149,734	994	9,257,997	1.49
Compressed Air Efficiency	124	\$770,990	479	2,465,669	1.36
Computer Efficiency	2,919	\$536,001	569	5,342,267	1.77
Cooling Efficiency	745	\$3,180,282	3,426	8,686,056	1.85
Custom Efficiency	34	\$1,791,404	1,266	8,894,756	1.80
Data Center Efficiency	16	\$1,115,347	716	7,385,370	2.28
Energy Management Systems	39	\$1,089,255	173	7,344,207	1.51
Heating Efficiency					
Lighting Efficiency	1,561	\$10,679,783	12,290	74,390,507	1.94
Motor & Drive Efficiency	843	\$4,494,467	2,836	16,967,161	1.70
New Construction	88	\$9,571,681	9,690	32,720,004	1.36
Process Efficiency	12	\$2,623,240	1,464	22,239,875	2.15
Recommissioning	112	\$1,130,264	802	6,692,473	1.33
Segment Efficiency	54	\$830,569	533	4,190,451	1.38
Self-Directed Custom Efficiency	12	\$1,382,803	1,190	8,890,332	1.77
Small Business Lighting	520	\$5,994,148	4,420	26,883,370	1.63
Standard Offer	0	\$7,395	0	0	
Business Program Total	8,969	\$47,347,362	40,852	242,350,496	1.71

Table 8b: 2014 Gas Business Program Budgets and Goals

2014	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Business Program						
Commercial Refrigeration Efficiency	1,220	\$50,233.50	6,892	137,209	812,806	11.67
Compressed Air Efficiency						
Computer Efficiency						
Cooling Efficiency						
Custom Efficiency	5	\$144,633.13	5,519	38,161	128,225	1.47
Data Center Efficiency						
Energy Management Systems	10	\$32,231.75	2,960	91,835	126,190	2.60
Heating Efficiency	202	\$612,120.76	25,354	41,420	203,299	1.11
Lighting Efficiency						
Motor & Drive Efficiency						
New Construction	56	\$761,654.33	82,049	107,724	1,915,270	1.43
Process Efficiency						
Recommissioning	16	\$16,360.57	2,509	153,348	53,267	2.63
Segment Efficiency	13	\$26,765.78	2,940	109,858	81,793	1.75
Self-Directed Custom Efficiency						
Small Business Lighting						
Standard Offer	0	\$1,000.00	0	0		
Business Program Total	1,522	\$1,645,000	128,224	77,948	3,320,850	1.48

Goals and Participants

Electric goals were established first at the portfolio level by the Commission in Docket No. 10A-554EG.¹⁶ The Company’s DSM management team reviewed these goals and completed an initial allocation to the Business, Residential, and Low-Income Programs. This allocation was accomplished through a review of historical data, discussions from the DSM Roundtable meetings, and meetings with local and national energy industry experts.

Once the overall portfolio goal was allocated to the individual programs, the program goals were allocated to each product. This allocation process was based primarily on a review of product performance for the past several years and longer-term experience with similar products in Minnesota. Each product team then reviewed the information and informed the program manager on whether the goals set forth are achievable.

Budgets

For 2014, DSM budgets were developed using a well-defined process. Relative to the goals setting process, budgets were first allocated across customer segments, specifically to Business, Residential, Low-Income, and Indirect. Under each program, the products rebate budgets were then established according to the desired number of product participants and estimated average project size. Next, budget components, such as advertising and promotion, were developed as part of the product planning process. Then, product delivery budgets, including Company labor and external resources, were calculated. Finally, the budgets are totaled and reviewed for reasonableness given the historical and projected performance of each product. The resulting overall goals and budgets from this planning process are shown in the executive summary section of this Plan.

¹⁶ Note that there were no natural gas DSM goals established by the Commission, Rule, or Statute, but rather that the gas DSM rules require utilities to propose a savings target.

Electric budgets have increased overall due to the need to achieve higher goals. Natural gas budgets for the business program have also increased due to the anticipated completion of several large new construction projects in 2014.

C. Market Analysis

Market analysis of both the commercial and industrial customer shows that the commercial segment had the highest potential for energy savings, with lighting, office equipment, cooling and ventilation, and refrigeration as the end-uses with the greatest potential. On the industrial side, pumps, compressed air, lighting, fans, drives and cooling show the greatest-end use potential.

Public Service's Plan shows the Company strengthening its efforts within the Business Program to address specific market segments and their needs. Data Center Efficiency, Segment Efficiency and Process Efficiency continue to penetrate their segments and are building a pipeline of projects with expected completions in 2014.

Transactional research is also conducted by Public Service to identify who is participating in our DSM products. Specific detail from our rebate applications, including customer name, vendor, type of equipment, etc, is collected on each transaction and added to a database. This information helps monitor trade allies that may not be participating in DSM products, which market segments are missed and what equipment types our customers are using. By analyzing specific end-use data, Public Service can begin to shape the Business Program to meet the further needs of the market.

D. Marketing/Advertising/Promotion

Trade allies, end-use equipment vendors, energy services companies, and Public Service's account managers primarily drive conservation and load management achievements in the Business Program. Although sales to the largest business customers typically require personal visits, Public Service also utilizes newsletters, customer events, direct mail, email communications, and awareness advertising to reach Business Program customers. The challenge of communicating with Business customers is that energy efficiency is not top of the mind – they are busy running other aspects of their businesses. Customers tend to focus on purchase price rather than lifetime costs and are unlikely to replace equipment until it is broken. Customers may also not be aware of available energy efficiency options when the need arises to make purchase decisions. Yet, there are several opportunities in marketing the Business Program to customers who have a growing focus on energy efficiency and the need to conserve. Energy supply and climate change issues have increased this awareness and affinity for energy-saving actions. To support marketing efforts, Public Service employs an integrated approach to marketing communications, where the tactics are designed to work in concert with each other and reinforce key messages over time.

Strategy

Public Service follows the “AIDA” (awareness, interest, desire, action) process for encouraging customers to use the rebate products. The following are the steps in this process:

1. Create awareness of electricity and/or natural gas impacts on bottom-line profits, potential savings and available rebates.
2. Create interest by offering more information about product offerings as details become available, including payback examples and case studies.
3. Create desire by showing hard numbers, based on available product and industry information, for a bundle of solutions for each targeted segment.
4. Move the customer toward action by offering a variety of options with varying degrees of commitment/long-term involvement.

Key Messages and Target Audience

When communicating with customers, Public Service uses several overarching key messages including:

- Energy efficiency reduces operating costs and improves the bottom line.
- Public Service helps lower energy bills by giving rebates and incentives for installing highly efficient equipment, using energy-saving building designs and running existing equipment to optimize comfort and energy savings.
- Rebates and incentives shorten payback periods for energy-efficient equipment and systems, providing lasting savings for years to come.
- Energy efficiency helps reduce the customer’s impact on the environment.

Public Service also markets its products differently to the various business sub-populations, depending on the target audience. Each of these target audiences are identified by key shared characteristics before analyzing their motivations. Once motivations are identified, Public Service can adjust the above key messages to meet the customers’ specific needs.

Small business customers traditionally own or work in buildings in segments such as offices, retail, healthcare, education, lodging, light manufacturing and grocery. They are motivated differently than larger businesses and are busy trying to keep their businesses successful and running smoothly which means energy is a low-interest category. Small business owners are motivated by how to save money and how to make things more convenient. Key messages used to address these needs include:

- Energy savings go right to profits.
- Partnering with the property manager (where applicable) to employ energy savings. lowers energy costs, often improves ambiance, and increases the owner’s property value.

Large commercial customers traditionally own or work in buildings in segments such as office, retail, education, healthcare, restaurants, auto dealerships and congregations. These customers recognize the value of environmental responsibility and sustainability efforts; but in doing so want to weave these efforts into their long-term financial strategies. Industrial customers

traditionally own or work in food processing, chemicals, fabricated metals, rubber and plastics and warehouses. These customers focus on energy conservation, not to benefit the environment, but to keep operating costs low. They are highly engaged in getting the most production from every unit of energy, eliminating waste and making smarter energy choices. In all, these customers are the most energy-savvy and are constantly monitoring processes. Key messages used to address both these customer groups include:

- Energy is a large part of the operating budget.
- Rebates help reduce up-front costs, shorten payback periods and provide ongoing savings for years to come.
- Energy savings go right to the bottom line as increased profits.
- Investing in energy savings is a smart decision.
- Energy-efficient equipment and systems help increase reliability while decreasing maintenance costs.
- Saving energy helps to reduce customer's impact on the environment and meet sustainability goals.

Marketing Tactics

Product- and program-specific promotions

Product-specific marketing efforts tie back to the overriding message, offering specific examples of concrete ways to do more. These examples show customers and trade partners the direct, personal impacts of their efforts, offering examples of energy savings, paybacks and lifetime savings or personal rewards.

Solutions-based marketing

These communications focus on product combinations that offer solutions for a specific customer segment (e.g., schools) or for common customers concerns (e.g., weather, energy costs, environmental) to offer customers several solutions rather than a product.

Communications vehicles:

- Product collateral, including feature sheets, applications, customer case studies, savings calculators, participating vendor lists and cross-product energy-savings guides.
- Newsletters for specific products or cross promotion, such as the Energy Exchange for trade partners and Energy Solutions for Public Service customers.
- Websites.
- Direct mail campaigns for specific product end uses announcing new incentives or for customer education, as well as general direct mail pieces targeted at specific market segments.
- Events, including product and technical training, customer education and customer recognition.
- Speaking opportunities in local industry meetings, business events (i.e. Chambers, National Association of Industrial and Office Properties, and Building Owners and Managers Association) and local conferences.
- Media relations, including free placement in appropriate media, focusing primarily on customer stories and product information and changes.

- Advertising in business magazines, newspapers, the internet and radio spots.

E. Program-Level Policies

The Company has adopted several general policies that are followed in the Business Program. Individual products may follow different policies as noted in the product descriptions. The general policies provide overall product management direction; however, they may be relaxed for specific time periods when warranted for promotional events or other purposes.

The program-level policies include:

- Proof of installation: All products require documentation of installation, whether it be proof of purchase (e.g., invoices) or a site verification
- Installation date: Rebates are provided for equipment installed within a 12-month period.
- Payback requirements: The payback policy for conservation products is that rebates may be paid on projects with paybacks more than 1 year.
- Studies: Study funding cannot exceed 75% of the study cost and studies must be completed within three months.
- Load Shifting: Load shifting occurs when a measure shifts electrical energy and demand usage to an off-peak period, without reducing the total load served over a defined time period. Potential load shifting projects need to meet all existing eligibility requirements of the applicable product as well as additional persistence requirements.
- Study Driven Savings: If a customer implements measures that are less than a one year payback, they will not receive a rebate, but Public Service will claim those study-driven savings. The Company believes that our financial and technical help in identifying and/or analyzing energy efficiency measures provide sufficient influence on the customer's decision to implement those measures.

F. Stakeholder Involvement

Since 2009, the primary avenue for external party involvement has been the DSM Roundtable. The Roundtable is open to all interested parties that want more information on Public Service's DSM products and would like to provide feedback into the design, planning, and implementation of the products. The group currently meets four times per year. Public Service appreciates this group's efforts and takes into consideration what is learned through this event. For example, Public Service requested feedback from the group on the design of a small business product originally designed to address lighting needs. Feedback from the group indicated the product design as sound, but suggested adding in steps to address other measures besides lighting. In response to this feedback, Public Service will focus on lighting in the Small Business Lighting Efficiency product, but address other measures to the extent the customer is interested when the lighting audit is undertaken. DSM Roundtable events have been well attended by a diverse group of participants. These participants include the Colorado Energy Office, Commission Staff, trade partners, large customers, Office of Consumer Council, and environmental activists.

Beyond the DSM Roundtable, each product manager individually involves the applicable trade allies and other groups in the development of the products. Public Service is fully cognizant that

the products will only be successful if the participants are fully satisfied with how the product is delivered and the results achieved.

G. Evaluation, Measurement & Verification

The M&V process for prescriptive and custom measures is detailed in the E,M&V section of the Indirect Products and Services in this Plan.

Products that will undergo comprehensive evaluations in 2014 are noted in the E,M&V section of the Indirect Products and Services, as well as in the respective product description.

➤ Commercial Refrigeration Efficiency

A. Description

The Commercial Refrigeration Efficiency Product offers refrigeration maintenance and upgrades to commercial customers with significant refrigeration loads, notably restaurants, and grocery, convenience, and liquor stores. Refrigeration systems in these targeted facility types typically account for over 50% of the facility's energy use and run 24 hours per day year-round.

This program consists of five major components:

1. Free On-site Energy Assessment – Each customer will be offered a free, no-obligation on-site facility energy assessment and walk-through to identify and explain key energy efficiency opportunities. This will be performed by a third-party implementer. A copy of the assessment report will be provided within two weeks of the visit, and will include a prioritization of identified opportunities.
2. Direct Install for Immediate Savings – While on-site for the energy assessment, the third-party implementer will perform free direct installations of the following energy savings measures where needed:
 - a. Screw-in LEDs for walk-in coolers/freezers;
 - b. Pre-rinse sprayers for restaurant and commercial kitchens and aerators in public restrooms and kitchen sinks; and
 - c. Coil brush give-away and demonstration of appropriate use on refrigeration coils.
3. Full Coil Cleaning – As part of the on-site visit, the third-party implementer will perform a free coil-cleaning service, including materials and training for self-contained equipment. Cleaning condenser coils in self-contained units is estimated to save an average of 6% of the equipment's annual energy consumption, depending on the system and its condition. Since coil cleaning should be performed annually, we will provide customers with a coil cleaning brush, an instructional "How-To" sheet, and an on-site tutorial, to equip them with the tools and knowledge to complete this task on a regular basis using in-house staff. We will claim energy savings for the cleaning performed by the third-party implementer.
4. New Rebated Refrigeration Measures – These measures represent the core of the Refrigeration Efficiency Product offering. In order to qualify for the rebate, the equipment must be professionally installed. These core measures include:
 - Enclosed Reach-in Cases
The Company will rebate reach-in cases with doors when the customer replaces existing open multi-deck cases with equivalent storage (cubic feet or linear feet).
 - Night Curtains

Night curtains may be rebated when they are installed on open refrigerated cases to reduce heat transfer and mixing of air inside and outside the case during times of low store traffic. The rebate will be available for permanent low emissivity (reflective) night curtain products only.

- Walk-in Electronically Commutated Motors (ECM)

PSCo will rebate the replacement of evaporator fan motors with new, more efficient motors, (typically ECM) in walk-in coolers and freezers where none previously existed

- LED Case Lighting

Rebates will be available for the installation of LED case lighting, including horizontal and vertical solutions, to replace existing mixed populations of older lighting technologies

- Anti-Sweat Heater Controls

PSCo will rebate efficient anti-sweat heater controls installed on commercial cooler and freezer doors to prevent the door from fogging or having condensation buildup on the glass.

- Floating Head Pressure Controls

Rebates will be available for floating head pressure controls. The floating head pressure control will control the compressor pressure based on outside temperature.

- Evaporator Fan Motor Controls

The Company will rebate fan controls that limit the fan runtime to 100% baseline speed for 5,875 hours per year and at 70% of baseline speed for 2,520 hours per year.

5. Turn-Key Services – The customer will be provided with proactive project management to assist with the implementation of prescriptive projects, including coordination between the customer, Public Service, and the installation contractors/trade allies to complete the improvements and submit rebate applications.

B. Goals, Participants & Budgets

Goals and Participants

The goals for this product were derived from historical data, market data, and equipment deemed savings values. This product will use a net-to-gross (NTG) ratio of 100% for all measures except screw-base LEDs, for which we will use the NTG of the same measure from the Lighting Efficiency Product.

Budgets

Public Service plans to work with a third-party vendor to provide this product. The forecasted spend in 2014 for this product is based on projected participation levels, promotion and administration expenses of this product. The majority of the product costs are for administration, vendor marketing/training and customer rebates.

C. Application Process

The Company plans to promote the Commercial Refrigeration Efficiency Product through the outreach efforts of a third-party provider. Secondary outreach is likely to occur through our Account Managers, the Xcel Energy Business Solution Center's Energy Efficiency Specialists, contracted trade allies, and/or other marketing efforts such as mailings, newsletters, and the Company website.

The Commercial Refrigeration Efficiency Product application process will include:

1. **Customer Intake:** We will work with the third-party provider to establish and follow a set protocol for receiving and qualifying customers who are interested in this product. Interested customers will be contacted to schedule an installation/assessment time.
2. **Identify Opportunities:** After installation of the direct installation measures, the third-party provider will use the assessment results to work with the customer and PSCo to identify deeper prescriptive savings opportunities.
3. **Turn-Key Support:** The third-party provider will offer proactive project management to assist with implementation of the prescriptive-rebate projects, including coordination between the customer, PSCo, and the installation contractors/trade allies to complete improvements and submit rebate applications.

D. Marketing Objectives, Goals, & Strategy

The Commercial Refrigeration Efficiency marketing strategy will build upon the Company and third-party implementer's experiences working in the Colorado market and will incorporate best practices learned from similar refrigeration programs offered across the United States. The third-party implementer will work with Public Service to coordinate with the Company's larger marketing efforts and will develop targeted marketing collateral that may include sell-sheets, direct mail, e-mail communications, case studies and leave behinds.

The third-party provider also will use education and training efforts to market the programs while building trade ally and customer knowledge about energy efficient technologies and encouraging better energy decisions to accelerate the product delivery infrastructure development in the region.

Marketing Channels: The third-party provider will use several marketing channels for the Commercial Refrigeration Efficiency Product, including:

- **Program Field Staff:** Field staff will be the on-the-ground marketing team, conducting targeted outreach to relevant customer groups and industry associations in addition to working with customers.
- **Existing Account Management staff:** The third-party provider will build relationships with Public Service's Account Managers and Business Solutions Center staff to drive customer participation. The product will also be promoted to applicable Small Business Lighting Program participants to offer them more comprehensive savings opportunities.

- **Trade Partners:** The third-party provider will engage trade partners as early as possible through training to increase their ability to reach customers at an appropriate time so that the product can influence a buying decision.
- **Direct Marketing:** PSCo will work with the third-party implementer to incorporate marketing materials into product training sessions, direct mailings to target customer segments (grocers, restaurants, convenience and liquor stores), and distribute at targeted locations.
- **Industry Associations:** Public Service will work with the third-party implementer to develop relationships and marketing strategies with food service and sales associations to target the major players on all levels.

E. Product-Specific Policies

Commercial Refrigeration Efficiency has the following product-specific policies:

- All rebated equipment must be new and meet all product rules and requirements. The rebate application must be submitted within twelve months of the invoice date.
- Rebates assume a one-for-one replacement of retrofit fixtures that will result in energy savings.

F. Stakeholder Involvement

There are relatively few trade allies who specialize in refrigeration. Public Service will target this network, and use other marketing outreach to ensure that all organizations have the opportunity to participate.

G. Rebate Levels

Customers may apply for prescriptive rebates of qualifying equipment. Other services and direct installations will be performed at no additional cost to the customer.

➤ **Compressed Air Efficiency Product**

A. Description

The Colorado Compressed Air Efficiency Product helps customers address inefficiencies in their compressed air systems. The product encourages repair and redesign of existing systems, and encourages the purchase of efficient options for new and replacement systems. The product has three components:

1. Prescriptive rebates for the most common high-efficiency options such as no-loss air drains and for certain Variable Frequency Drive (VFD) compressors;
2. Rebates for studies that help customers identify efficiency opportunities from fixing leaks as well as from redesign or replacement of system components; and
3. Custom rebates for implementation of unique improvements identified by studies. Improvements can include capital purchases, such as qualifying compressors and “process” changes, such as piping modifications or horsepower reductions.

Rebates are available for any size of compressed air equipment through the product’s custom component. For equipment over 50 horsepower, customers are advised to complete a system study prior to submitting for a custom efficiency rebate. Examples of equipment replacement that may qualify for the custom equipment rebate include:

- Replacing an oversized 50 horsepower compressor with a 40 horsepower compressor;
- After completing a compressed air study, replace an existing 150 horsepower air compressor with two 75 horsepower compressors and controls;
- After completing a compressed air study, replace an existing 150 horsepower air compressor with a 150 horsepower variable frequency drive compressor; and
- Installing a high efficiency air dryer.

The Compressed Air Efficiency Product is available to all electric commercial and industrial customers within the company’s service area. The primary targets are mid-sized business customers that have some or all of the following characteristics:

- Demand of 100+ kW, and
- Operates within energy intensive industries (e.g., food processing, mining, etc).

In addition, there is a secondary target of small business customers that may have these characteristics:

- Limited internal resources to purchase, install and finance projects,
- Limited technical expertise, and
- Focus on short-term paybacks.

Members of the trade are also targeted, including equipment manufacturers and installers, as well as design engineers and electricians.

B. Goals, Participants & Budgets

Goals and Participants

For 2014, goals are established at the portfolio level by Xcel Energy's management team by considering recent trends and longer-term experience. The team also reviewed all DSM product goals and completed an initial allocation of the goals to each product. This allocation is based on a review of past product performance and the allocation from the 2013 goal.

Planned participation in 2014 is derived from the 2013 goal, trade participant feedback, and an evaluation of potential customers within the Colorado service area. The participation is also adjusted due to the recent trend of customers bundling their compressed air measures within the company's interdisciplinary products.

Budgets

Once goals were established, the budget process is generally the same for Compressed Air as with the other DSM products. Historical cost and participation information is tracked and analyzed to project budgets. Comparative spending analysis of past year activity is conducted, but is not the determining annual factor, because of other external variables like promotions, materials and staffing.

For the Compressed Air Product, most of the budget is driven by rebates and internal labor.

- Rebates – The budget for rebates is established by estimating participation for the product and applying the rebate per kW, including a base rebate, an additional rebate level added in 2012 to stimulate participation.
- Internal labor – Compressed Air Efficiency is a labor-intensive product. It is one of the few products in Colorado that has prescriptive, study-based, and custom components. The study and custom components require Xcel Energy staff to conduct detailed analysis for pre-approval of each potential project. Labor is typically 25% to 30% of the product cost.
- Third-party consulting –A consultant will continue to provide measurement and verification (M&V) services.

C. Application Process

The customer can learn about the product through various channels including the account manager, compressed air vendor, website literature, or product advertising. Applications must be signed by the customer but can be submitted by customer representatives including building owners, contractors, engineering firms, energy services companies, and equipment vendors. Typically, the customer or a vendor selling to the customer identifies a project and starts the application process, as described below.

Compressed Air Prescriptive Measures

For prescriptive measures, Compressed Air's application process is similar to our other prescriptive products.

Customers may apply for rebates by completing the application and providing a detailed invoice for the installed equipment. The equipment must be new and meet all the qualifications detailed on the application. The customers may submit for a rebate within twelve months after the invoice date. Once the paperwork is completed and submitted, rebate checks are mailed within six weeks to the customer as indicated on the application.

The replacement of compressors must be of a new variable speed drive compressor(s) with horsepower that is less than or equal to that of the replaced load/no-load compressor(s). If the retrofit is not a reduction in horsepower or involves additional compressor types, customers may apply for pre-approval through the Custom Compressed Air process.

Compressed Air Studies

First, the customer obtains a study estimate from a participating compressed air vendor/contractor. A trade network list is available from the company for customers who have not chosen a vendor. The customer submits the Compressed Air Efficiency study application and the proposed cost of the study to the account representative. To receive pre-approval, the study application must propose to include the following components:

- An ultrasonic leak survey to locate and tag air leaks, and estimate the cost of inefficiencies due to system leaks and misuses;
- An efficiency report with system recommendations and estimate of energy cost savings due to each recommendation;
- Characterization of major compressed air system components including:
 - Compressor number, type, capacity, pressure rating and age
 - Compressor motor size, efficiency and age
 - Type, capacity and age of dryers and other conditioning equipment
 - Type of automatic compressor controls, if any
 - Description of major compressed air end uses
 - Location and layout of piping and major system components
 - Inspection of compressed air system components and identification of problem areas;
- Identification of system loading of major compressed air users including size, frequency and duration of use;
- Flow and/or electric metering results;
- Summary of the results of the leak and unregulated demand inspection, including the location and approximate size of each leak;
- Summary of the execution steps and cost estimate to repair the leaks, unregulated end-uses and inefficient compressed air applications;
- Recommendations for improvements to customer's maintenance procedures; and
- Recommendations for follow-up actions to improve operation and efficiency, including the installation of new equipment.

To receive the study rebate, the customer must deliver the completed study report and must repair at least 50 percent of the air loss due to leaks and/or waste as identified by the study. When the report is complete and the customer has repaired the leaks, the customer will inform their account representative. The customer and account representative review the list of identified leaks and note the repair status of each leak. The customer and Account Representative both sign the verification section of the application and submit it to the product manager along with copies of invoices and other required information as stipulated in the pre-approval letter.

Custom Compressed Air

If the customer chooses to implement recommended capital improvements to the compressed air system that do not qualify for prescriptive rebates, they may apply for pre-approval of their project through the Custom Efficiency Product application process. Please see the Custom Efficiency section for a description of the process to be followed.

D. Marketing Objectives, Goals, & Strategy

Marketing Strategy

Account managers and compressed air vendors are the primary marketing conduits for this product and market the product through their direct relationships with customers. In addition, the following strategies will help meet product goals in 2012-2013.

Target Industrial Customers. Industrial customers make up a sizeable untapped market that has the potential to bring in large compressed air projects. The company targets these customers with direct contact (which may include mailings, calls, etc.) to create awareness and answer questions about the product.

Partner with Trade Partners. Very few trade partners operate in Colorado, but they are a significant factor in the success of this product. Working directly with these trade partners helps them to identify customers for the product early in the planning stages of a project. The company continually strives to demonstrate how incorporating incentives into trade partners' bids can benefit their businesses.

Competition amongst the small group of vendors is high due to the limited market size. Therefore, we train each trade partner individually, rather than offer a group training format. Throughout 2014, we will continue one-on-one meetings with these trade partners. The meetings will provide a forum to review the vendor's work, make recommendations for a better end product and solicit feedback on the effectiveness of the product.

Marketing Collateral. Marketing collateral is an important tool to provide customers with useful, easy to follow guidelines for the product. The company continuously solicits feedback from customers and trade partners to improve these materials. Collateral is available in soft and hard copy format for customers, trade partners, and the company's internal staff. Customers and trade partners can request hard copies of the material or they can access material on Xcel Energy's website. The collateral available includes:

- **Compressed Air Feature Sheet** – Helps describe the product to customers and trade partners. It provides examples of projects that may qualify business reasons to participate, and a summary of the procedures to follow.
- **Compressed Air Application for qualifying prescriptive measures** – Lists qualifying prescriptive measures. The customer fills out several sections including technical information related to the proposed and existing equipment.
- **Compressed Air Study Application** – The document that customers fill out to start the process of participation. The customer or vendor is asked to fill out several sections including information about the location, applicable rates, project description, equipment supplier, technical information about existing and proposed equipment, and project verification.
- **Vendor List** – A list of trade partners who have submitted studies in the past or expressed an interest in participating in the product. The list is provided for the convenience of customers who do not have a working relationship with a vendor. The company does not endorse any particular company over another.
- **Compressed Air Study Template** – A detailed example of a study that is comprehensive and provides value to customers' energy saving efforts.

E. Product-Specific Policies

Compressed Air studies and custom projects require pre-approval before purchase and installation. This process helps minimize free ridership and it ensures the technical and financial soundness of projects that are awarded rebates. All compressed air equipment projects must have a payback period over one year.

The system requirements include:

- Electrically driven compressed air systems
- Minimum 50 horsepower total installed air compressor capacity (excluding backup equipment)
- Systems must operate at least 40 hours per week (2,000 hours per year)

F. Stakeholder Involvement

Customers, trade partners, and other stakeholders are currently engaged at the specific project level. Feedback is garnered individually from each participant and once a trend develops (positive or negative), the company makes a change to the product design. If it is a small change, it is then discussed internally and possibly with a few key trade partners and, if deemed acceptable, implemented. A larger change would possibly involve review by the product's external technical resources or other third-party consultant.

G. Rebate Levels

The Compressed Air Efficiency Product helps customers lower operating costs by offering rebates on compressed air studies and by providing rebates on compressed air equipment.

Rebates apply to new and leased equipment, but not to used equipment. All rebates are subject to Product-Specific Policies (Section E) and Program-Level Policies (Business Program, Section E).

Study rebates levels are described in the filed Planning Assumptions and are described in the study funding application and the company web site.

Prescriptive rebates for compressed air equipment are available for no loss air drains and select variable speed drive compressors. Prescriptive rebate levels are shown in the Planning Assumptions, rebate application, and company web site.

In 2014, the product provides custom rebates for all other compressed air energy saving projects of up to \$600 per kW saved. The rebate level is a continuation of the 2013 rebate established by the 2011 Settlement agreement. In 2014, the Company may adjust that increase upward or downward depending on product performance and cost-effectiveness.

➤ **Computer Efficiency Product**

A. Description

The Computer Efficiency Product offers incentives to desktop personal computer (PC) manufacturers and low-end server manufacturers that produce and sell PCs with high efficient power supplies to business customers in Xcel Energy's Colorado electric service territory and to business customers who implement a Virtual Desktop Infrastructure (VDI) strategy referred to in this document as Desktop PC Virtualization or install PC Power Management Software.

1) High Efficient Power Supply

The high efficient power supply measure provides upstream incentives to desktop personal computer (PC) manufacturers that design, install and deliver desktop computers with energy efficient power supplies to business customers in Xcel Energy's Colorado electric service territory.

This upstream component is administered through a third-party, Ecova, Inc. (formerly Ecos Plug Load Solutions), that develops and promotes their programs on behalf of utilities across North America. When units are shipped to qualified zip codes (as confirmed by the manufacturer) Ecova pays the manufacturer incentives and provides a report and invoice to Xcel Energy for reimbursement.

PC Manufacturers who sign a participation agreement and turn in a claim form to Ecova can receive incentives. The incentives and savings are prescriptive in nature. The PC incentive amounts are based on 56% of the incremental cost to the manufacturers for installing high efficient power supplies. The manufactures typically use this incentive to promote their efficient computers and to increase their number of products offered with high efficient power supplies.

2) Desktop PC Virtualization

This measure provides rebates to business customers who implement a Virtual Desktop Infrastructure (VDI) strategy. This strategy involves installing a VDI device (also known as thin clients, zero clients or ultra-thin clients) instead of the traditional desktop PC. The VDI device has a lower operating wattage and uses less energy than traditional desktop computers. The VDI device communicates with a server to enable access to software applications and for the user to store data on the server rather than on their local hard drive.

This measure is administered by Public Service and follows the methodology of Public Service's other prescriptive measures. Customers can apply for a prescriptive rebate of \$60 per VDI installed. Rebate amounts are based on 52% of the incremental cost to the customer for the change-over to the VDI system.

3) PC Power Management

This measure provides rebates to business customers who install power management software that remotely controls a computer's power management strategy from data centers or other

central locations. The software, which manages the computer's power management settings, is locked and the computer user cannot override the power management settings.

The prescriptive rebate is only for applications on desktop PC's and excludes installations on laptops, tablets and other hardware and is limited to computers used during a typical single shift work week. The computers being controlled by the power management software must be located in Xcel Energy's electric service territory to qualify for the rebate.

This measure is administered by Public Service and follows the methodology of Public Service's other prescriptive measures. Customers can apply for a prescriptive rebate of \$5 per computer controlled. Rebate amounts are based on 45% of the incremental cost to the customer for the licensing and installation cost of the software.

B. Goals, Participants & Budgets

Goals and Participants

1) High Efficient Power Supply

Demand kW and energy kWh impact goals were determined from equipment wattages levels determined by Public Service based on information from Ecova and ENERGY STAR®. Participant levels for the upstream manufacturer incentives were determined by product experience in our Minnesota service territory, and the 2012 performance in Colorado.

The baseline PC is a computer meeting ENERGY STAR 3.0 specifications. The energy efficient technology is a computer meeting 80 Plus Bronze, Silver, Gold or Platinum criteria. The overall net-to-gross (NTG) ratio is set at 0.88 based on the estimated market penetration of Bronze, Silver, Gold, and Platinum 80 Plus power supplies in Colorado as determined by Ecova. Other utilities around the country are using an NTG of 1.0 for their corresponding programs.

2) Desktop PC Virtualization

As with the High Efficiency Power Supply measure the baseline technology for Desktop PC Virtualization is a desktop computer meeting ENERGY STAR 3.0 specifications. The net-to-gross ratio is set at 0.92 based on applying a market penetration percentage of efficient computers at five baseline levels. The assumption is, if our program was not in place, some of the customers that bought VDI boxes would have bought desktop computers at ENERGY STAR 4.0 or higher; not all would have bought ENERGY STAR 3.0.

The number of participants per year for Desktop PC Virtualization was estimated by Public Service's customer base and market potential based on vendor comments on market size.

3) PC Power Management

Consistent with the products other measures, the baseline technology for PC Power Management is a desktop computer meeting ENERGY STAR 3.0 specifications. The net-to-gross ratio is set at 0.88 to align with the Computer Efficiency program weighted average NTG. The incremental energy savings for this measure is based on the difference in hours in each operating state (active, idle, sleep and off) caused by the computer controls. Within the technical assumptions

the assumed computer wattages improve over time as computers are assumed to be upgraded to ENERGY STAR 4.0 and 5.0 specifications during the lifetime of the measure.

The number of participants per year for PC Power Management was estimated by Public Service's customer base and market potential based on vendor comments on market size.

Budget

For the Computer Efficiency Product, rebates, program administration, labor and promotions drive most of the budget.

- Program Administration and Delivery: Ecova charges an administrative fee per each unit shipped (manufacturer incentive measure only). Internal administrative labor charges were determined by estimating the number of full-time employees needed to manage the product and execute the marketing strategy and incentive process. All manufacturer incentives that are retained by the manufacturer for promotion and product development are budgeted in this category.
- Advertising, Promotions and Consumer Education: The estimated promotional budget anticipates costs for contribution to the general conservation advertising campaign.
- Participant Rebates: The estimated participant rebates accounts for cost offsets to the incremental capital costs included in the technical assumptions. These rebates may take the form of a direct rebate to program participants, or a reduction in the ultimate cost the program participant's payment for the equipment.
- Measurement & Verification: The estimated M&V budget anticipates costs for both third-party customer on-site visits as well as third-party customer follow up communications detailed in Section G.

C. Application Process

Manufacturers learn of the upstream incentives and the benefits through marketing by Ecova. Interested manufacturers can sign up to participate in the program by contacting Ecova directly.

End-use customers will learn about the prescriptive rebates for Desktop Virtualization and PC Power Management through marketing by Public Service. Customers will apply for rebates through an application process managed by Public Service. Applications for the products are available on Xcel Energy's websites. The application process for the prescriptive products is similar to our other prescriptive products. Customers may apply for rebates by completing the application and providing a detailed invoice and specification sheet for the newly installed equipment. The customers may submit for a rebate after the equipment or software has been purchased and installed. All equipment must be new and meet all the qualifications detailed on the application. After the customer has installed the equipment or software, the rebate application and invoice must be submitted to Public Service within twelve months of the invoice date. Once the paperwork is completed and submitted, rebate checks will be mailed to the customer as indicated on the application within six to eight weeks. Participants in the product may submit their application to their account manager or the Business Solutions Center.

D. Marketing Objectives, Goals, & Strategy

The primary marketing efforts for the manufacturer incentives will revolve around Ecova connecting with computer manufacturers to continue increasing program participation with additional manufactures. Public Service will educate the benefits of purchasing high efficient computing products to our business customers through newsletters, Business Solution Center representatives, customer events and our websites.

Desktop Virtualization and PC Power Management product challenges include customer awareness, incremental customer costs, and educating trade partner mind-set around the technology and rebate structure. Public Service will promote the technology to the trade through: newsletters, Business Solution Center representatives trade relations managers, and our trade partner website.

E. Product-Specific Policies

For the upstream manufacturer incentive, manufacturers must submit a rebate claim form to Ecova within twelve months of unit delivery to receive a rebate.

For the end-use customer rebates, all equipment rebated through the measure must be new and meet all measure rules and requirements and the application must be submitted within twelve months of the invoice date.

F. Stakeholder Involvement

Public Service consulted with equipment vendors for guidance when designing the Computer Efficiency Product for Colorado. These vendors provided insight into the types of products to rebate and the incremental and total equipment costs to be expected. Public Service will also rely on the trade to help promote the product to customers.

G. Rebate Levels

3) High Efficient Power Supply

It is unclear how much of the incentive paid to manufacturers is passed on to program participants in the form of reduced purchase cost. Because of this uncertainty it is assumed that the incentives paid to manufacturers should not be accounted as a rebate. If there is evidence found that the incentives paid to the PC manufacturers directly result in purchase costs lower than the incremental cost assumed in the technical assumptions, this reduction in cost will be accounted as a rebate and not as an incentive.

The incentive structure is listed below:

- \$5 incentive for ENERGY STAR 5.0 / 80 Plus Bronze desktop power supplies
- \$10 incentive for ENERGY STAR 5.0 / 80 Plus Silver desktop power supplies
- \$15 incentive for ENERGY STAR 5.0 / 80 Plus Gold desktop power supplies
- \$20 incentive for ENERGY STAR 5.0 / 80 Plus Platinum desktop power supplies

The proposed rebate levels average 56% of the incremental cost to the computer manufacturers. This level balances the cost-effectiveness of the product with the influential value to the manufacturer and a payback less than 3 years.

1) Desktop PC Virtualization

Business customers are paid \$60 per desktop PC removed from their system and replaced with a “thin-client” or “zero-client” device.

The proposed rebate is 52% of the average incremental cost. This level provides a payback to the customer less than 3 years

2) PC Power Management

Business customers are paid \$5 per PC controlled remotely by power management software, and the proposed rebate is 45% of the average incremental cost.

➤ **Cooling Efficiency Product**

A. Description

The Cooling Efficiency Product encourages Public Service business customers to consider high efficiency options when choosing to replace existing cooling equipment. Cooling is typically the second or third largest user of electricity for business customers.

The Cooling Efficiency Product offers a broad range of prescriptive rebates for high efficiency options. However, some energy saving solutions require individual “Custom” evaluations to determine the savings and rebate potential. These projects follow all of the guidelines of the Custom Efficiency Product.

Product participants receive rebates to help buy down the initial capital cost and shorten the payback period. The new equipment also provides better reliability and lower maintenance costs, as well as lower utility bills from energy savings. Public Service reviewed and adopted best practices for DSM product development and product structure from across the country. The Company also adopted the guidelines of the IECC International Energy Conservation Code 2009 for equipment definitions, standard formulas, and minimum recommended efficiencies. These sources along with Public Service’s historical experience, allowed the Company to develop influential prescriptive rebates that encourage the most efficient choice of equipment in the majority of equipment categories.

B. Goals, Participants & Budgets

Goals and Participants

Cooling Efficiency goals are based on the achievements of past years, estimates of market penetration and a review of potential cooling technology improvements in the area of efficiency.

Participation was derived from the prior year’s (2012/2013) performance. Additional factors included feedback from trade partners, product participation trends, average project size, and historical participation.

Budgets

Once goals are established, historical cost and participation information is tracked and analyzed to project budgets in advance. External resources and discussions with local stakeholders are used to ascertain expenditures and market equipment cost. Comparative spending analysis of past year activity is generally conducted but is not the determining factor, since other external variables like promotions, materials, and staffing exist.

For the Cooling Efficiency Product, rebates, incentives, labor, and promotions drive most of the budget. The following was used to identify these specific drivers.

- Rebates: Developed using the average project rebate cost from the detailed technical assumptions and multiplying by anticipated participation.

- Incentives: The Cooling Efficiency Product offers upstream incentives to Manufacturers and Distributors to influence the sale of high efficiency products to contractors thereby increasing the availability in the marketplace.
- Administration: determined by estimating the number of full-time employees needed to manage the product and execute the marketing strategy and rebate process.
- Promotions: The estimated promotional budget anticipates several customer and trade communications events during the year and a contribution to the general conservation advertising campaign.

C. Application Process

Applications for the product are available both on Xcel Energy's website and from trade allies. The application process for the prescriptive product is similar to our other prescriptive products. Customers may apply for rebates by completing the prescriptive cooling application and providing a detailed purchase invoice for the newly installed equipment. The equipment must be new and meet all the qualifications detailed on the application. After the customer has installed the equipment, the application and invoice must be submitted to Public Service within twelve months of the invoice date. Once the paperwork is received and processed, rebate checks will be mailed to the customer, or alternate recipient, as indicated on the application, within six to eight weeks. Applications may be mailed to Public Service or submitted directly to participants Account Manager or Energy Efficiency Specialist.

Customers with projects that save cooling energy, but do not have a corresponding prescriptive rebate, can submit custom cooling projects for evaluation through the Custom Efficiency Product. Projects must meet all requirements of the Custom Efficiency Product including project pre approval prior to the purchase of equipment.

The sales cycle for cooling projects is typically influenced by the size and complexity of equipment. It may take two years to study, purchase and install a new, large system, while smaller rooftop units can take only two weeks to replace. For this reason, the Cooling Efficiency Product makes every effort to remind customers to evaluate high efficiency options when they are faced with a purchasing decision.

D. Marketing Objectives, Goals, & Strategy

The Cooling Efficiency Product creates a base level of knowledge in the marketplace through newsletters and direct mail to customers and trade allies. These tactics make customers aware of the key benefits of energy efficiency and its applicability to cooling systems, and gives the trade a platform from which to educate customers on high efficiency solutions for their particular applications. The product provides literature and tools for the customers and trade to evaluate rebates and incorporate them into purchase decisions. In addition, customers are served by Public Service's Account Managers and Energy Efficiency Specialists who educate them on energy efficiency, evaluating rebate potential, and the rebate application process. The trade can find similar assistance through the Trade Relations Manager. The Cooling Efficiency Product also benefits from opportunities identified for participants in the Energy Analysis and Recommissioning Products.

Marketing communications will revolve around the benefits of energy efficiency through paybacks, lifecycle costs, and environmental benefits. Newer cooling equipment is typically more efficient, more reliable and may have more effective controls than an older system providing both energy and non energy benefits to the end user. Public Service uses generally accepted information from sources such as ENERGY STAR®, the American Society of Heating, Refrigeration and Air-conditioning Engineers, the Federal Energy Management Product, and others to educate customers on no and low cost ways to save energy, such as performing regularly scheduled maintenance and simple tune up tips to ensure systems are operating optimally.

To reach its energy savings goal, Cooling Efficiency needs to continue to penetrate the centrifugal chiller market. These systems provide the largest per project savings for the lowest transactional costs, making them the most cost-effective opportunities. The product has been successful in penetrating this market through strong relationships between Public Service account managers and customers and increasingly strong relationships with the trade. Custom cooling strategies, such as cooling controls and energy recovery ventilators, have also been identified as an area of growth. Rooftop units, condensing units, and split systems help round out the portfolio with high participation and moderate savings. Future strategies will involve more online tools to help customers evaluate the benefits of high efficiency equipment. Rebate and payback calculators, as well as lifecycle costing tools, have recently been developed for vendors and customers to improve their decision making process when purchasing equipment. Online submission of rebate applications will also be a priority. The product also intends to continue to develop additional prescriptive rebates to add to the portfolio.

In 2013, a new prescriptive measure, Direct Evaporative Pre Cooling was added. A third-party consultant will oversee all marketing and promotion activity. The third-party consultant plans to work with manufacturers, trade allies, end-use equipment vendors, energy services companies and account managers to expand the reach and efficacy of the marketing plan and its implementation. The third-party consultant also plans to employ social media and other forms of innovative electronic marketing to create awareness, interest and desire to move business customers to act.

For 2014, five measures were added to the Cooling Efficiency Product. Anti Sweat Heater Controls were changed from a custom measure to a prescriptive measure to simplify participation among the trades. Four ECM (electrically commutated motors) prescriptive measures were moved from the Motors and Drives Product to the Cooling Efficiency Product.

The Indirect Evaporative cooling measure was re-evaluated for 2014 and removed as a prescriptive measure. This measure will be submitted under the Custom Product.

E. Product-Specific Policies

The Cooling Efficiency Product does not rebate back up equipment since deemed energy savings will not be realized.

F. Stakeholder Involvement

Because cooling systems can be very complex, trade support is imperative to achieving our goals. We have engaged trade allies in product design and improvement through the creation of the Cooling Council. This group meets twice per year to discuss new technologies, product issues, and general market topics. The Cooling Council members are representatives from all levels of the cooling equipment distribution chain. Members include manufacturer's representatives, mechanical engineering firms, and equipment contractors.

G. Rebate Levels

Most of the components of the product provide prescriptive rebates based on the size of the unit in tons combined with an efficiency bonus to encourage customers to exceed minimum qualifying efficiencies. The rebate structure by component is listed below:

EQUIPMENT	Equipment Size	MINIMUM TO QUALIFY	REBATE
PTACs		11.0 EER	\$65/ton + \$5/ton for every 0.1 EER above min
Water-Source Heat Pumps		14.0 EER	\$65/ton + \$5/ton for every 0.1 EER above min
DX Units (roof top, split systems, condensing units)	< 65,000 BTUH (<5.4 tons)	15.8 SEER	above min
	65,000 - 135,000 (5.5 - 11.3 tons)	12.0 EER	
	135,000 - 240,000 (11.4 - 19.9 tons)	11.5 EER	
	240,000 - 760,000 (20 - 63.3 tons)	11.0 EER	
	> 760,000 (> 63.3 tons)	10.5 EER	\$65/ton + \$.50/ton for every 0.1 EER above min
Direct Evaporative Pre-cooling for Air-Cooled Condensers (DEPACC)	>= 120,000 BTUH	see rebate rules and requirements	\$100/ton of installed cooling
Air Cooled Chillers	All Capacities	11.0 EER 12.9 SEER	\$8/ton + \$2.00/ton per FLV + \$1.50/ton per IPLV for every 0.1 EER above min
Chillers - Scroll or Rotary Screw	<75 tons	.759 FLV kW/ton .599 IPLV kW/ton	\$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
	>= 75 tons and < 150 tons	.759 FLV kW/ton .599 IPLV kW/ton	\$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
	>=150 tons and < 300 tons	.632 FLV kW/ton .532 IPLV kW/ton	\$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
	>300 tons	.632 FLV kW/ton .532 IPLV kW/ton	\$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
Chillers - Centrifugal	All sizes	Must improve upon IECC 2009 baseline by .016 kW/ton	\$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
Plate and Frame Heat Exchangers	All sizes	Only for water-cooled chiller and cooling tower systems without air side economizers installed	up to \$300/ton, based on wet bulb onset temperature
VSD's on Chillers	All sizes	Determined by existing chiller performance specifications and Manufacturers VSD performance specifications	\$1.50/ton per IPLV for every 0.01 kW/ton below max
ECM - Medium Temp Display Case		N/A	\$40.00
ECM - Low Temp Display Case		N/A	\$40.00
ECM - Medium Temp Walk-in, Evap fan <= 15" diameter		N/A	\$70.00
ECM - Low Temp Walk-in, Evap fan <= 15" diameter		N/A	\$70.00
Anti-Sweat Heater Controls		N/A	\$60/Door

Generally, Public Service has set the minimum qualifying efficiency at a point that nominally exceeds the IECC minimum efficiency requirements to encourage customers to purchase the most efficient equipment, while ensuring the manufacturers have equipment that meets the criteria of the product.

The proposed rebate levels average 50% of the incremental cost. This level balances the cost-effectiveness of the product with the incentive needed to motivate the customer to purchase high efficiency equipment, achieving a payback of less than five years in most cases. Rebates are designed to buy down the incremental cost of purchasing high efficient equipment, which is increasing with the stricter code requirements in the market.

➤ Custom Efficiency Product

A. Description

The Custom Efficiency Product offers custom electric and gas rebates to all business customers who install qualifying energy efficiency measures not covered under traditional prescriptive products.

The product also provides study funding up to 75% of the study cost, not to exceed \$25,000 to help identify project savings.

Many types of energy saving measures may not be eligible for a prescriptive rebate, but could be eligible for a Custom rebate, including but not limited to the following:

Equipment	Application
Compressed Air	New equipment, reduction in horsepower (hp) of compressors, storage, vacuum pumps, and variable speed drive compressors, reduction of compressor run time
Controls	CO ₂ based ventilation, compressed air and refrigeration controls
Cooling	Heat recovery, process cooling and controls
Lighting	Lumen output changes, exterior lighting, LED and daylighting, retrofits not one to one
Miscellaneous	Energy efficient windows (film, argon, Low E), humidification, insulation, printing presses, welders, and elevator modernization (DC to AC motor conversion)
Motors & Drives	Motors > 500 hp. Drives > 200 hp and any motor type outside the prescriptive program parameters.
Refrigeration	Ammonia compressors, freezer doors, and evaporative condensers
Process changes	New system produces more output than the old system while using the same amount of energy as the old system. New system produces the same output as the old system using less energy. Reconfigure system layout.

B. Goals, Participants & Budgets

Goals and Participants

The estimated goals for the Custom Efficiency Product were determined by looking at both historical performance and projects that are in the current pipeline, and the current economic conditions.

Participation was derived from historical performance over the last three years and in particular from 2012 and 2013 average project size and mix of custom technologies.

Budgets

Historical cost and participation information is tracked and analyzed to project future budgets. For the Custom Efficiency Product, administration, advertising, and customer rebates are the primary budget drivers. The following is information pertaining to these specific drivers:

- Administration – Custom Efficiency is a labor-intensive product due to the pre-approval process and analysis component of the product.
- Advertising – The custom corporate advertising budget is a significant portion of the total 2014 business portfolio expenditure.
- Rebates – The budget for rebates is established by estimating participation for the product and multiplying by the rebate per kW amount in the technical assumption models.

C. Application Process

The application process for Custom is more involved than the prescriptive products. Each project must meet specific eligibility requirements. This process can be broken into distinct steps: Application Submission, Project Analysis, Project Acceptance or Rejection, and Project Completion:

1. Application Submission

Public Service account managers and/or energy efficiency specialists work with a customer and their vendor to identify a project with energy efficiency opportunities and start the application process. Signed applications must contain a well-defined scope of work with enough detail to allow Public Service's engineers to analyze the savings opportunities.

2. Project Analysis

Engineers review the project information and enter pertinent data into a Total Resource Cost (TRC) model to determine the projected energy savings, benefit/cost ratio and payback. The model calculates energy savings for various end-uses (lighting, motors, cooling, compressed air, etc.) to ensure consistency in analysis from one project to another. All calculations are based on approved ASHRAE methods or other similar industry standards. Based on the modeled results, the project will either pass or fail.

3. Project Acceptance or Rejection

Once engineering has completed the analysis, a pre-approval or rejection letter is sent to the customer. The letter provides critical information regarding the project, including: project rebate amount, project description and costs, energy savings, and any conditions that must be met to receive the rebate (e.g., measurement and verification). Should a project be rejected, a rejection letter is sent to the customer with an explanation as to why the project was not approved.

4. Project Completion

When a project is completed, the customer will inform their account manager. The customer and account manager sign the verification section of the application and submit it to the product manager along with copies of invoices and other required information as stipulated in the pre-approval letter. If the final documentation matches the preapproved project information, the product manager will approve the project and submit paperwork to rebate operations for issuance of the rebate.

Occasionally, projects must undergo re-analysis because the final project parameters do not match the original project application. This may be due to minor changes in project scope, changes in final project cost, or the purchasing of similar, but not identical, equipment to what was analyzed during the pre-approval analysis. In these cases, the actual project information will be given to the technical staff for review and re-analysis. The original analysis will be updated with the new information to determine if the project still meets passing criteria. A passing project will be awarded a rebate based on the calculated savings from the updated analysis. A project that fails on re-analysis will not be issued a rebate.

D. Marketing Objectives, Goals, & Strategy

Marketing Strategy

Marketing of the Custom Efficiency Product is conducted primarily through account managers and their direct relationships with customers. In addition, we will use the following strategies to achieve our goals in 2012 and 2013:

Target Industrial Customers. Colorado's industrial base is relatively small, but these few customers offer tremendous opportunity. Many of the opportunities will come from specialized applications or processes requiring a greater insight into the individual customer's operations. To achieve this, we will rely heavily on leads from account managers and outreach to the vendor community.

Energy Efficiency Specialists. The Energy Efficiency Specialists provide direct support to the non managed commercial customers.

Use of Collateral. Public Service has developed a broad range of marketing collateral for the Custom Efficiency Product. This information is available in electronic format on Xcel Energy's web site and hard copy format for customers, trade allies, and internal Public Service staff. This material is continually reviewed and revised based on feedback from participants and as changes are made to the product. The key collateral includes:

- **Custom Efficiency Brochure** – This is the primary tool for account managers that helps describe the product to customers and trade allies. It provides examples of projects that may qualify, business reasons to participate, and a summary of the procedures to follow.

- **List of potential projects** – Projects that have fared well in Colorado and Minnesota serve as the basis for this list. The list includes both electric and natural gas conservation measures.
- **Custom Efficiency Worksheets** – The application itself is general in nature and does not provide enough direction on additional material needed for each technology. Therefore, Public Service created worksheets that cover some of the more common technologies that are submitted for analysis. Existing worksheets include:
 - Custom Efficiency - Lighting Worksheet
 - Custom Efficiency - Motor Worksheet
 - Custom Efficiency – Variable Frequency Drive (VFD) Worksheet
 - Custom Efficiency - Elevator Worksheet
 - Custom Efficiency - Window Worksheet
 - Custom Efficiency – Roofing Worksheet
- **Trade Ally website** – This resource was designed specifically for all of the trade allies involved with Public Service DSM products. The website includes all of the collateral indicated above and other helpful information.
- **Energy Exchange** – a quarterly email newsletter that goes out to all trade allies who have registered to be part of our trade ally network.
- **Custom specific workshops** – workshops will be conducted for vendors and/or customers to communicate project opportunities specific to custom end use situations.

Target Market

As with the other business rebate products, the bulk of savings is anticipated to come from the large commercial and industrial segment. The Custom Efficiency Product has an even greater reliance on this segment as most projects are from customers involved in manufacturing and processing. Approximately 80% of these customers are concentrated within the Denver metro area, which will enable us to provide concentrated marketing campaigns. Account managers manage the largest 800 accounts. We will continue to target mid-market customers outside of the Denver metro area with on-site workshops.

E. Product-Specific Policies

All Custom projects require pre-approval before order, purchase, and installation; a TRC ratio of equal to or greater than 1.0; and a simple payback criterion of over one-year and less than the estimated life of the product. Rebates are capped at 60 percent of the incremental project cost. This process is in place to help ensure free-ridership is kept to a minimum and that rebates are awarded to projects that are technically and financially sound.

F. Stakeholder Involvement

Customers, trade allies, and other stakeholders are currently engaged at the specific project level to gather input regarding best practices, methods, and support for evaluating new technologies.

G. Rebate Levels

Rebates apply to new and leased equipment, but not to used equipment. To determine eligibility for a rebate, all projects are analyzed as described in the application process. Rebates are calculated based on the demand savings of the project. Additional information on this process is described in the technical assumptions section. For 2014, Public Service is maintaining an incentive level of \$400 per kW for electric savings projects and \$4 per Dth for gas savings projects.

➤ Data Center Efficiency Product

A. Description

The Data Center Efficiency Product helps customers address energy conservation opportunities in both new and existing data centers. This specialized product was designed in response to the significant energy savings potential for the customer, and the projected growth in energy use in data centers over the next several years.

There are numerous ways data centers can become more energy efficient including the following:

- High Efficiency Servers
- Server Virtualization/Consolidation
- Airflow Improvements
- Electrical Equipment
- High-Efficiency Cooling
- Humidification
- Power Systems
- High-Efficiency Lighting

Any size data center may participate, and the program includes options for new and existing data center customers, encouraging a holistic approach to energy efficiency within the data center when feasible for the customer.

For existing facilities, the product provides funding toward an onsite evaluation and analysis, and rebates based on the energy savings resulting from implementing opportunities recommended in the study. Additionally, individual projects will be analyzed and rebated using a custom model. New Construction design assistance will be available as well. Study paths utilize a third-party expert for the analysis.

The portfolio's current prescriptive equipment rebates are available and, in time, new prescriptive rebates may be developed for technologies as standardized data becomes available.

Public Service Co. reviews qualifications to identify third parties to perform data center studies and analysis. As a result of that process, the Company will maintain a list of qualified contractors whose studies may be rebated by Public Service. If the facility also participates in the Energy Design Assistance Product, that contractor will partner with a study provider for analysis of the data center portion of the project.

B. Goals, Participants & Budgets

Goals and Participants

The demand, energy and participant goals were determined by looking at historic product participation and identified projects since the 2009 product launch. A logical division of data center square footage size was applied based on actual participation, and the estimated savings of the individual measures were calculated and totaled.

Budgets

Budgets were developed to be commensurate with the savings goals, based on historical ratios. The largest cost in the budget is for implementation and study rebates, which represent more than 60% of the overall product budget.

C. Application Process

Customers learn about the product through a variety of channels, including: the Xcel Energy website, Account Managers, Business Solutions Center representatives, and trade allies. In addition, the Company will recruit data center experts to help promote the product to customers. Product applications are available through all of these channels. Customers may submit an application through their account manager, trade allies or by mailing or emailing it to Public Service.

Customers building a new data center need to submit their application in the early phases of design to ensure our recommended strategies are included in final design plans. The data center design study will follow the existing Energy Design Assistance Product guidelines

Pre-approval is required for participation and rebates for studies and custom measures.

D. Marketing Objectives, Goals, & Strategy

The goal of the Data Center Efficiency Product is to build and retrofit data centers, with their copious electronic equipment, to be as efficient as possible. Because the market for this product is so specific, Public Service will have account management focused on data center customers. Face-to-face contact with our customer base is necessary to engage them in the product. Data Center customers typically require a great deal of effort to influence. Many are reluctant to make any changes to their mission-critical operations, and upgrades require agreement across many customer functions.

The marketing strategy for Data Center Efficiency includes a variety of channels, including account managers, trade relations managers, professional organizations, and direct customer communications. Tactics include collateral materials, newsletter articles, direct mail campaigns, advertising, and event marketing outreach.

E. Product-Specific Policies

Customers may perform a study by selecting a pre-qualified Data Center Efficiency study provider, or select another provider of their choice. New providers will be required to submit qualifications prior to receiving study funding approval.

The Company typically evaluates, measures identified within a study as one project, based on the customer's indication of implementation plans. The cost-benefit analysis is calculated on the aggregated NPV costs and benefits of the bundled project. The rebate is calculated based on the savings.

Rebate/energy savings validity: If at least two years has passed since a project was approved, the technical staff will re-analyze it with current energy rates to determine if the savings/payback has changed. This re-analysis is conducted prior to issuing a rebate check.

F. Stakeholder Involvement

As part of the product design effort prior to the 2009 product launch, Public Service conducted focus groups with data center facility managers and one-on-one interviews with information technology executives in order to better understand their needs and interest in energy efficiency. Some of the recommendations resulting from the focus groups were to create:

- An audit product that is specific to data centers and utilizes experts in data center design and operation.
- Audit products so they are more dynamic and better reflect the nature of the data center;
- Materials to help data centers select energy efficient equipment.
- Materials that show how a carefully managed, energy efficient data center may be more reliable than a standard data center. Connect reliability to energy efficiency.
- A quick "hit list" of things that data center operators should be aware of to aid in conservation of energy.
- Products to increase the awareness that information technology strategies have an impact on energy conservation in a facility.

All of these ideas have been considered and most of them included in the existing product. We plan to continue to develop collateral and education materials to support the product as the conversation around data center efficiency matures. As we receive customer participant feedback, we will evaluate feasibility of incorporating changes into the product whenever possible.

Xcel Energy has been an active participant in the Consortium for Energy Efficiency (CEE) Data Centers and Servers workgroup. The group works collaboratively with among utilities, striving for energy efficiency standards for data center equipment and sharing knowledge about the development of individual data center efficiency products.

G. Rebate Levels

Data Center Efficiency studies for existing facilities will be rebated up to 75% of the incremental study cost not to exceed \$25,000. This cap may be reevaluated if a very large data center is being reviewed. Prescriptive rebates will be applied where applicable, and all other energy efficiency upgrades will be handled through a custom-type analysis. Individual custom projects will be rebated at up to \$400 per kW saved. Additional promotional incentives may be considered, depending on their expected impacts to market participation and cost-effectiveness.

➤ Energy Management Systems Product

A. Description

The Energy Management Systems (EMS) Product is designed to offer customers rebates for installing systems that control and reduce a building's energy usage both on and off-peak. Electric and gas customers are eligible for participation in this product.

An energy management system is a system of controls and sensors that are centrally operated, typically via a computer software package. Through automatic programming, such systems may control the heating, cooling, ventilation, and lighting in a facility. Systems covered in the product include new energy management systems in an existing building, replacing a non-functional energy management system, replacing an obsolete energy management system, or adding functionality to a current system. The duplication of existing systems does not qualify for rebate under the EMS Product. Potential measures that fit well into the product are shown in the diagram below.

<p>Scheduling</p> <ul style="list-style-type: none"> • Holiday scheduling • Zonal scheduling • Override control and tenant billing • Night setup/setback • Optimum start • Optimum stop • Morning warm-up/cool-down 	<p>Resets</p> <ul style="list-style-type: none"> • Supply air/discharge air temperature • Hot deck and cold deck reset. • Entering condenser water temperature • Chilled water supply temperature and pressure • VAV fan duct pressure and flow 	<p>Miscellaneous</p> <ul style="list-style-type: none"> • Simultaneous heating/cooling control • Zone-based HVAC control • Chiller staging • Boiler control • Building space pressure • Variable speed drive control • Heat recovery
<p>Ventilation Control</p> <ul style="list-style-type: none"> • Carbon dioxide sensing • Occupancy sensing with central programming • Supply air volume/OSA damper compensation routines • Exhaust fans 	<p>Lockouts</p> <ul style="list-style-type: none"> • Boiler system • Chiller system • Direct expansion compressor cooling • Resistance heat 	<p>Lighting</p> <ul style="list-style-type: none"> • Lighting sweep • Occupancy sensors • Daylight dimming • Zonal lighting control
<p>Air-Side Economizers</p> <ul style="list-style-type: none"> • Night ventilation purge 	<p>Energy Monitoring</p> <ul style="list-style-type: none"> • Whole building or end-use • KWh or demand 	<p>Demand Control</p> <ul style="list-style-type: none"> • Demand limiting or load shedding, when in conjunction with other energy savings controls. • Duty cycling

Source: Energy Management Systems A Practical Guide, O&M Best Practices Series, Portland Energy Conservation Inc.

B. Goals, Participation & Budgets

Goals and Participants

For 2014, goals were established at the portfolio level by the company's management team, considering recent trends and longer-term experience. The team also reviewed all DSM product goals and completed an initial allocation of the goals to each product. This allocation was based primarily on a review of product performance for the past four and half years, and the allocation from the prior year's (2013) goal.

Participation was derived from trade participant feedback, recent product trends, average project size and historical participation.

Budgets

To develop the 2014 budgets, the company used the historical performance (costs and participation) of the product as a guide. The vast majority of the product's budget is driven by rebates, consulting, and labor.

- **Rebates** – The budget for rebates is estimated by looking at historical data and then checking anticipated payouts per kW and kWh to check for reasonableness.
- **Third-party consulting** – Initial project analysis duties continue to be from a third-party consultant, whose work is reviewed by our in-house engineering staff. The consultant also continues to provide measurement and verification (M&V) duties.
- **Internal labor** – EMS is a labor-intensive product due to the pre-approval process and analysis component of the product. Labor is less than one fifth of the total cost of the product.

C. Application Process

The application process for the EMS Product is similar to the Custom Efficiency Product because each project must be individually analyzed. Applications must be signed by the customer but can be submitted by other participants including: building owners, contractors, engineering firms, energy services companies, and equipment vendors. The general application steps and requirements are as follows:

1. Application Submission

Typically, the Company's account representative works with a customer and their vendor to identify a project with energy efficiency opportunities and starts the application process. The application form is available from the account manager, Xcel Energy website or from the product manager. The vendor's proposal or scope of work to the customer must accompany the application form. The package must contain a well-defined scope of work with enough detail to allow the company's internal engineers to analyze the savings opportunities. Most applications include:

- **General Building Information** – Total Square footage and square footage to be controlled, year built, building use type, and annual electric and gas use

- Types of Equipment In Use – Including lighting fans/air handling, cooling and heating, and each piece of equipments specifications and operating conditions.
- Process - Existing and new connected kW and operating hours; existing and new gas BTUh and full load hours
- Controls - Existing and new temperature setbacks and resets, outside air optimization, DDC conversions, variable air volume boxes

2. Application Review

Product Management receives the completed application from the account manager or Business Solutions Center (BSC) representative, and reviews the application for completeness. After the review, Product Management assigns a project number and enters the application into the tracking system.

3. Project Analysis

The Company's outside consultant completes the initial analysis of the project. The consultant reviews the project information and enters pertinent data into a spreadsheet model to determine the projected energy savings, benefit-cost ratio (i.e., TRC) and payback. The model for energy management systems was developed originally as the custom products model for Minnesota. The model was then adapted for differences in Colorado (e.g., different avoided costs, climate and other factors) and for EMS-specific calculations. The model is used to ensure consistency in analysis from one project to another. All calculations are based on approved ASHRAE methods or other similar industry standards.

Based on the modeled results, the consultant will approve or reject the project and forward the results to the company's internal engineering staff for review. Should an error be discovered, the internal engineer document it and send the information back to the external consultant for reanalysis. If everything was analyzed correctly, the company's engineer will approve the analysis.

4. Project Acceptance or Rejection

Once the company's engineer has approved the analysis, a pre-approval or rejection letter is sent to the customer. The pre-approval letter provides critical information regarding the project, including: the project rebate amount, the project description and costs, and any conditions, which must be met to receive the rebate (e.g., measurement and verification). Should a project be rejected, a rejection letter is sent informing the customer of why their project will not be eligible. A copy of the pre-approval or rejection letter is also sent to the account manager for project tracking. All project documents, including the application, specification sheets, proposals and the analysis model are stored in product files.

5. Completion

The final step in the application process is verification that the project was implemented. The customer first fills out the verification section of the application and provides invoices for the completed project. Customers may submit American Institute of Architects project continuation sheets in lieu of invoices. Product Management checks the completion documents for any variances to the project's proposed scope or variances to the costs of 10% or more. Projects with such variances are re-analyzed for rebate and impact adjustments.

D. Marketing Objectives, Goals, & Strategy

Marketing Strategy

Marketing of the EMS Product is primarily conducted through account managers and their direct relationships with customers. In addition, the following strategies will help meet product goals in 2012-2013.

Use of Collateral

This information is available in soft and hard copy format for customers, trade partners, and internal staff. Customers and trade partners can request hard copies of the material or they can access material on Xcel Energy's website. The marketing material includes:

- **Product Brochure** – The primary tool for sales staff that helps describe the product to customers and vendors. It provides examples of projects that may qualify, business reasons to participate, and a summary of the procedures to follow.
- **Product Application** – The document that customers fill out to start the process of participation. The customer or vendor is asked to fill out several sections including information on the business location, account manager, applicable rates, project description, and technical information related to proposed and existing equipment, equipment supplier and project verification upon completion.
- **Project Worksheet** – This tool is used to gather all of the necessary information about the project and the building. This tool should be filled out to the best of the account manager and vendor's ability to make the analysis process smoother.

Vendor Communications

The company will continue to communicate via email and site visits to all energy management system vendors. Each contact reminds vendors that the product exists and how they can take advantage of it with their customers. Communications may also include links to tools that will help with project analysis.

Other efforts to further strengthen relationships include:

- **Energy Exchange** - a quarterly email newsletter that goes out to all vendors who have registered to be part of our trade ally network.
- **Product Training** – Our site visits with trade partners usually include either a program review or complete product training for their new employees.

Target Market

All commercial and industrial customers within the company's service area are eligible to participate. The bulk of energy management systems are installed in commercial facilities (office buildings, schools). Due to the complexity of the analysis process, it is unlikely small customers will have a high participation rate. The product focus is on managed accounts and larger unmanaged accounts. Approximately 80% of these customers are concentrated within the Denver metro area, which will enable us to focus any marketing campaigns on the Front Range. Additional information on target markets includes:

Primary Market

The primary target is a large business customer with any of the following characteristics:

- Demand of 500+ kW
- Have facilities built before the 1990s.
- Have interest in newer building automation technologies.
- Own facilities with large cooling or refrigeration needs

Secondary Market

The secondary target is a small business customer with any of these characteristics:

- Demand of 100 kW to 500 kW
- Have limited internal resources to purchase, install and finance projects
- Have limited technical expertise

The product is also marketed to our trade partners, which primarily consists of:

- Manufacturers of equipment
- Electrical contractors
- Mechanical contractors
- Design engineers, architects

E. Product-Specific Policies

Much like the Custom Efficiency Product, EMS projects require pre-approval before any equipment is purchased or installed, must have a TRC ratio equal to or greater than one, and have a payback between one and twelve years within our analysis. Pre-approval must occur prior to purchase and installation of the equipment. Information pertaining to minimum requirements is included on the application.

F. Stakeholder Involvement

Customers, trade partners, and other stakeholders are currently engaged at the specific project level. Feedback is garnered individually from each participant. Once a trend develops (positive or negative), the company makes a change to the product design. If it is a small change, it is then discussed internally and possibly with a few key trade partners and, if deemed acceptable, implemented. A larger change would possibly involve review by the product's external technical resources or other third-party consultant.

G. Rebate Levels

In 2014, the Energy Management Systems Product offers rebates of up to \$600 per kW. The rebate level is a continuation of the rebate established by the 2011 Settlement agreement, and is 50% greater than the levels of other custom projects. In 2014 the company anticipates that the rebate increase may be adjusted depending on product performance and cost-effectiveness.

Additionally, the product offers natural gas rebates of up to \$4 per Dth saved.

➤ Heating Efficiency

A. Description

Public Service's Heating Efficiency Product provides rebates for business customers who purchase high efficiency natural gas or dual-fuel commercial equipment for space heating, water heating or process heating loads. Available rebates are designed to promote the installation of high-efficiency equipment that improves combustion and seasonal efficiency above standard levels. While this product is only available for Public Service's retail natural gas business customers, those who choose to switch from a third-party gas provider can also be eligible. The product has several components which include; hot water boiler systems, furnaces, water heaters, boiler auxiliary equipment improvements, pipe insulation, boiler tune-ups and other unique (custom) heating systems. The details for each product measure are described below.

1) Hot Water Boiler Systems

Public Service rebates hot water boilers that exceed the minimum efficiency levels established by the ASHRAE 90.1 Energy Standard and the Federal Energy Management Program (FEMP). Rebates cover three scenarios:

- Plan A-1 – Boilers equal to or above 85% efficiency.
- Plan A-2 – Boilers equal to or above 92% efficiency – Rebate for the installation of a new condensing boiler where either no previous boiler existed, or the current boiler is no longer functional.
- Plan B – Plan B boilers will be phased out beginning January 1, 2014 due to the impact of low natural gas prices reducing the benefits to customers. Plan B boiler qualified applications will be accepted up to March 31, 2014. Any Plan B boilers submitted after this date will be eligible for Plan A rebates.

2) Furnaces

Furnaces must have a minimum efficiency of 92% Annual Fuel Utilization Efficiency (AFUE), in line with ENERGY STAR®. Furnaces of 94% AFUE or higher efficiency receive a larger rebate.

3) Water Heater Systems

Public Service rebates commercial water heating systems that exceed the minimum efficiency levels established by the ASHRAE 90.1 Energy Standard and FEMP. These can be either tankless or with storage – systems greater than 150 MBTUH and more than 92% efficiency

4) Boiler Auxiliary Equipment Improvements

The performance of a boiler system can be enhanced with controls and system efficiency improvements. Boiler auxiliary equipment rebates are based on the incremental cost of

efficient equipment and are calculated based on a percentage of the project cost (i.e. how much it cost to perform that portion of the project, not the entire project cost). Rebates for tune-ups are available on the same boiler every two years. The following will be rebated:

a) Boiler Tune-Ups must include the following activities in order to qualify:

- Measurement of combustion efficiency using an electronic flue gas analyzer at steady state conditions
- Adjustment of air flow and reduction of excessive stack temperatures
- Adjustment of burner and gas input, manual or motorized draft control
- Cleaning of burners, combustion chamber and heat exchanger surface, when weather or operating schedule permits
- Cleaning and inspecting the burner nozzles
- Checking for proper venting
- Completing visual inspection of system piping and insulation
- Checking safety controls
- Checking adequacy of combustion air intake

b) Boiler Efficiency Retrofits:

- Modular burner controls (addition of controls to existing equipment) – 5:1 turndown ratio or greater
- Outdoor air reset controls
- Stack dampers
- Steam trap replacement/parts

c) Pipe Insulation. Insulation rebates are for boiler or water heater pipes and are based on the pipe's diameter, R-value of the insulation and the linear feet of insulation.

5) **Custom Boilers**

Equipment installations performed outside of the prescriptive scope may be eligible for rebates available through the Custom Efficiency program. All projects require pre-approval prior to purchase and installation and must conform to all Custom Efficiency product guidelines. These projects require individual evaluation to determine how much energy will be saved and ensure that it is cost-effective. Projects that typically fall under the custom category include, but are not limited to:

- Large boiler systems (greater than 10 million BTUh)
- Carwash boilers
- Pool boilers
- Boiler control systems
- Process loads

B. Goals, Participants & Budgets

Goals and Participants

Participation in the product increased rapidly through the first few years of the product being available in Colorado. As we continue to gather additional market specific information we are able to refine our calculation inputs. The average savings taken from these calculations was used for the benefit-to-cost analysis. Reported energy savings for the product will be determined by using project specific inputs of actual heating efficiency equipment and efficiency. Once goals were established, the budget process is generally the same for Heating Efficiency as with the other DSM products.

Pipeline and market potential have been used to determine product participation through 2014 in our Colorado service area. Due to customers reacting to low natural gas prices and subsequently the lower benefits of choosing high efficiency, pipeline momentum has slowed down. While participation exceeded expectations, we are continuing to see an increasing trend of small business participation over the larger commercial and industrial customers. We will continue to review new prescriptive products identified through the Custom product as technology improves and markets change.

Budgets

For the Heating Efficiency Product, rebates are the largest expense with promotions and labor also being factors. The following was used to identify these specific drivers.

- **Rebates:** calculated using average rebate cost per Dth and the gas savings goal.
- **Promotions:** Promotional dollars are important to build upon the awareness we have created and provide education about the benefits of high efficiency heating systems.
- **Labor:** determined by estimating the number of full-time employees needed to manage the product and execute the marketing strategy and rebate process.

C. Application Process

Applications for the product will be available on the Xcel Energy and Responsible by Nature web sites, as well as hard copies delivered by account representatives and trade allies. Participants in the product may submit their application through their account manager or via the Efficiency Specialist group of the Business Solutions Center. Customers must apply for rebates within 12 months of equipment purchase and start-up. Participants are required to complete an application, provide manufacturer equipment specifications and an invoice as proof of purchase. For Plan B boilers, customers must provide additional information including the most current Colorado State boiler inspection report indicating that the unit to be replaced is still operational and proof that their boiler is less than 25 years old – as indicated on the inspection report or invoice.

Customers will learn of the Heating Efficiency Product and its benefits through newsletters, direct mail, the trade, and Public Service's Account Managers and Business Solutions Center representatives.

The following equipment information must be included on the application when applying for a boiler rebate: Plan (A), use (space heat and/or domestic water heat), manufacturer, model number, efficiency, size (MMBTUH) and quantity. Pre-approval is not required before the customer buys or installs equipment for prescriptive measures, but will be required for Custom projects in accordance with the Custom policy. Information for other equipment can include: R-value, fluid temperature, pipe location (inside/outside) linear feet, pipe diameter, cost and serial number.

D. Marketing Objectives, Goals, & Strategy

The objective of the Heating Efficiency Product is to provide education and incentives that motivate customers to purchase high efficient heating equipment and run their existing heating systems at optimum efficiency. Boiler systems are typically installed in mid to large sized facilities, while furnaces tend to be in smaller buildings. The product will work to identify and target these different facilities for efficiency improvement.

The Heating Efficiency Product follows the marketing strategy of other prescriptive products and creates a base level of knowledge in the marketplace through Xcel Energy's Energy Solutions newsletter, direct mail campaigns to customers and trade allies as well as participation in trade shows and other events. These tactics make customers aware of the key benefits of energy efficiency and its applicability to heating systems. The product provides fact sheets and rebate applications for the customers and trade to evaluate rebates and incorporate them into purchase decisions. Case studies and guidebooks are being developed to support the energy and non-energy benefits of new, high efficiency equipment and auxiliary equipment. In addition, Public Service's account managers and energy efficiency specialists from the Business Solutions Center will educate customers on energy efficiency, how to evaluate rebate potential, and the rebate application processes. The trade can find similar assistance through the Trade Relations Manager. The Heating Efficiency Product will also benefit from opportunities identified for participants in the Energy Analysis Product. Marketing communications will revolve around the benefits of energy efficiency through paybacks, lifecycle costs, and environmental benefits.

E. Product-Specific Policies

There are no policies specific to this product.

F. Stakeholder Involvement

Public Service routinely consults with several of the major equipment suppliers and contractors for guidance when refining the Heating Efficiency Product for Colorado. These stakeholders provided insight into the types of products to rebate, the incremental and total equipment costs to be expected, and how the application process can be improved. We also work closely with State and local governments to promote energy efficiency within their areas.

G. Rebate Levels

Rebate levels have been designed to encourage customers to install high efficiency equipment. The early replacement bonus was added to condensing hot water boilers to persuade customers to make a change to a higher efficiency system, even if their current system is operating satisfactorily. Auxiliary equipment rebates are also available to encourage customers to further improve the standard choices that could be made. Pipe insulation and boiler tune-ups are lower cost options for customers who wish to enhance the overall performance and efficiency of their system.

There are two levels of hot water boiler equipment rebates. The Plan A-1 boiler measure rebates systems greater than 85% efficiency and is the lowest efficiency hot water boiler rebate offered. Plan A-2 covers boilers greater than 92% efficiency. This is for Public Service customers who have installed a new boiler where either no previous boiler existed, the existing boiler is no longer functional, or the existing boiler is more than 25 years old.

Hot Water Boilers		
Minimum Requirements	Plan A-1 - 85% (min efficiency)	Plan A-2 - 92% (min efficiency) - Modulating Burner - Outdoor Air Reset
Rebate	\$750/MMBTUH	\$3,500/MMBTUH

Notes: (1) Equipment must use natural gas fuel as the primary fuel but can have dual fuel capability for backup. (2) Efficiency is based on either thermal efficiency (natural gas fuel) or efficiency determined from a combustion analyzer test (boiler systems with optional controls). (3) MBH or MMBTUH is based on boiler input capacity.

Rebates for Furnaces are consistent with those offered through the Residential segment. The minimum efficiency requirements for participating furnaces align with the ENERGY STAR guidelines and rated in Annual Fuel Utilization Efficiency (AFUE). Customers may receive rebates of \$80 per unit for systems with minimum 92% AFUE, or \$120 per unit for systems with minimum 94% AFUE.

Commercial water heater equipment rebate levels are set at \$200/100,000 BTUH per unit. Rebates apply to tankless, or units with storage. They must be at least 92% efficient to qualify. Cost information was gathered from various vendors in Colorado to confirm we would not exceed 60% of incremental equipment cost.

Pipe insulation rebate levels are based on the size of the pipe being insulated and the R-value of the insulation. Larger diameter pipes with thicker insulation will be eligible for the highest rebates. Rebates are issued per linear foot of insulation installed. Cost information was gathered from various vendors in Colorado to confirm we would not exceed 60% of incremental equipment cost. Rebates are detailed in the table below.

Pipe Insulation		
Pipe Diameter	R-Value	Rebate per linear foot per inch of pipe diameter
0.5" – 2"	3.5	\$3.00
0.5" – 6"	5	\$4.00
2.5" – 12"	7.0	\$5.00

Retrofit Controls, Heat Recovery and System Improvements:

a. Boiler Tune-Ups: \$250/mmbtuh

b. Boiler Efficiency Retrofits:

- Modular Burner Control, 5:1 Turndown Ratio or Greater: \$750/mmbtuh; \$2,000 max
- Outdoor Air Reset Controls: \$250/mmbtuh
- Stack Dampers: \$250/mmbtuh
- Steam Trap Replacement/Parts: 25 % up to \$250/trap; max \$10,000/facility

Performance Indictors

The internal rebate processing application system at Public Service tracks data, such as general customer information, information specific to the equipment installed, and rebate amount paid. The internal rebate operations staff pulls monthly reports of a sample percentage of product application forms and checks the information that was provided on the forms against what was entered into the system. Errors are reported to rebate operations management and to the product manager who is responsible for the Product.

➤ **Lighting Efficiency Product**

A. Description

The Lighting Efficiency Product offers prescriptive and custom rebates to Xcel Energy electric business customers who install qualifying energy efficient lighting equipment in existing or new buildings. Rebates are offered to encourage customers to purchase energy efficient lighting by lowering the upfront premium costs associated with this equipment. The product is primarily marketed through our account managers for our large customers. We also work closely with our trade partners, manufacturers' representatives, distributors, and contractors to market the product.

The product's main offerings include the following:

- Prescriptive rebates for products from a pre-defined list of lighting measures that save energy. Typical options include:
 - Replacement of high intensity discharge (HID) fixtures with new fluorescent fixtures;
 - Light emitting diode (LED) and compact fluorescent lamps and fixtures that replace inefficient systems, including incandescent and HID.
 - Niche LED measures, including refrigerated case lighting, as well as exterior wall pack, canopy and soffit lighting.
- Custom rebates for energy saving lighting projects that do not fall within the requirements of the prescriptive rebates.
- Study funding is available for customers who have facilities that are under or mis-lit. Studies will identify and quantify lighting solutions that include energy saving opportunities.
- The Company will be exploring mid and upstream LED lamp incentive product models internally and with local manufactures and distributors. If we find the results positive, we will file a 60-Day Notice and move forward with implementation.

The main offerings are described below.

Prescriptive Lighting Rebates

The product offers rebates for qualifying lighting equipment that is more efficient than existing equipment in retrofit situations or more efficient than standard equipment in new construction applications. Lighting measures most applicable to a prescriptive rebate format are ones that are commonly installed in the marketplace and have an easily identifiable means to determine energy savings.

Custom Lighting Rebates

Energy saving lighting measures that do not fit into a prescriptive rebate category can be evaluated through the Custom Efficiency analysis, provided the customer obtains pre-approval before proceeding with the project. While this option provides rebates for projects that may not otherwise be rebated, there are a number of barriers to participation, which limit the number of

projects received. These barriers include purchasing equipment before obtaining pre-approval, as well as not having the capability or time to gather and provide all information needed to analyze the energy savings potential of the project.

Lighting Redesign Studies

Funding for lighting redesign studies is available to customers who have facilities where the lighting is not meeting the needs of the employees. This may include situations where the lighting system was installed prior to the prevalence of computers, when more lighting was needed to work on tasks, but is now causing eye strain or glare on computer screens. It may also be appropriate when the use of a facility changes and the current lighting system is no longer sufficient for the application.

Studies must be performed by an individual who holds one of the following credentials: Lighting Certified professional, Certified Lighting Efficiency Professional, or someone who is a member of the International Association of Lighting Designers. Customers may also elect to work with an individual who does not hold one of these designations; in that situation, the individual must provide sufficient documentation to demonstrate his or her lighting design qualifications to Xcel Energy. Implementation rebates are available to customers who proceed with recommendations from the study and install energy efficient lighting equipment.

B. Goals, Participants & Budgets

Goals and Participants

The product's participation, energy savings goals, and budgets were determined by looking at the Company's overall electric goal, past participation levels, as well as the large number of LED products that are expected to become commercially available during the time period of this Plan.

We reviewed the equipment and project characteristics of historical projects to develop projected average cents per kWh rebates for each measure. Anticipated energy savings for the product was determined using Xcel Energy's deemed savings database.

Budgets

Once goals are established, the budget process is generally the same for Lighting Efficiency as with the other DSM products. Historical cost and participation information is tracked and analyzed to project budgets two years in advance. With increasing DSM goals in 2012-13 and beyond, additional budget dollars assume product expansion, incorporating rebates for emerging technologies such as LEDs, and offering additional customer and trade incentives to remove less efficient technologies from the Colorado commercial and industrial markets. Experience and trending from the Minnesota Lighting Efficiency products is used as a checkpoint.

The main budget drivers include the following:

- Participant Incentives – The vast majority of the budget is allocated for rebates. This budget reflects the new rebate levels and projected customer participation in each measure, which was based on 2012-2013 participation across the offerings.

- Administration – These budgets are based on past product performance with a slight increase built in for expanded product offerings, engineering, and account management involvement.
- Advertising and Promotion – A small promotional budget was derived using historical data from past activities. Promotions are targeted to customers and trade partners and typically focus around activities such as new or revised product offerings, case studies featuring successful projects, educational opportunities, and bonus rebates.
- Customer Service – This budget will be applied to consulting and analytical services for lighting projects that are analyzed through the Custom Efficiency product.

C. Application Process

Customers may hear of the Lighting Efficiency Product through several channels, including the Company's website, advertising, direct mail, email promotions or through the lighting trade. Company account managers work directly with our largest customers to help them identify energy saving opportunities in lighting and our Business Solutions Center is available for all business customers, particularly the small- and mid-sized business customers who need information on our rebate products.

Lighting Efficiency Retrofit and New Construction Applications

The application process for the prescriptive retrofit and new construction products is similar to our other prescriptive products. Customers may apply for rebates by completing the application and providing a detailed invoice for the newly installed equipment. The customers may submit for a rebate after the equipment has been purchased and installed. The replacement of fixtures for retrofit situations must be a one-for-one replacement that will result in energy savings. If the retrofit is not a one-for-one replacement but still results in energy savings, customers may apply for pre-approval through the Custom Efficiency Product. The equipment must be new and meet all the qualifications detailed on the application. After the customer has installed the equipment, the application and invoice must be submitted to the Company within twelve months of the invoice date. Once the paperwork is completed and submitted, rebate checks will be mailed to the customer as indicated on the application within six to eight weeks.

Custom Efficiency Lighting and Lighting Redesign

Applications for energy saving lighting projects that do not fit into the prescriptive paths may be reviewed using the Custom Efficiency Application and the accompanying Lighting Evaluation Worksheet. Project analysis and pre-approval of Custom Efficiency lighting projects is required prior to equipment purchase and installation.

In the Lighting Redesign path, rebates for pre-project studies require pre-approval. After the study is completed by a licensed lighting professional, the Lighting Redesign Study Rebate application may be submitted to the Company with a copy of the study proposal for rebating. If the recommended energy saving measures are carried out, the customer (with assistance from the lighting professional and the Company) may apply for a Lighting Redesign implementation rebate, which is based on a dollar amount per kW saved.

D. Marketing Objectives, Goals, & Strategy

The key marketing objective is to raise awareness, interest and participation in the Lighting Efficiency Product, contributing to goals for energy savings and demand reduction.

Marketing Strategy

Lighting Efficiency is primarily promoted through Company Account Managers, Energy Efficiency Specialists via inbound and outbound telemarketing, through Colorado's lighting and electrical trade via the Company's Channel Managers, and by traditional marketing vehicles such as advertising, mailings, Web content and tools, email and other sales promotions.

Account Managers and Energy Efficiency Specialists sell the Lighting Efficiency product--especially to mid- and large-sized commercial and industrial customers where the majority of savings are realized--in their planning and day-to-day interactions with business customers.

Significant market segments for potential Lighting Efficiency savings include office buildings, manufacturing sites, retail establishments, schools and 24-hour facilities. Marketing campaigns targeted to those segments are executed by one-on-one Account Manager meetings and planning, Energy Efficiency Specialist scripted calls, or mass communications that drive inquiries to the Company's inbound phone center.

Marketing to Trade

The Company's outreach and relationship building with lighting and electrical trade, professional engineers, architects and lighting designers is another key strategy to reach important business segments and indirectly influence the purchase and installation of energy-efficient lighting systems. The Company establishes and maintains contact with this audience by:

- In-person training and presentations by the Channel Managers at industry events and trade shows, such as the Energy Efficiency Expo held in first quarter, for both customers and trade allies;
- The Lighting Advisory board, described in the Stakeholder Involvement Section below;
- Energy Exchange, a quarterly email that is sent to the trade discussing energy efficiency lighting applications, case studies, product changes, and other pertinent topics; and
- Trade website, including applications, specific brochures and informational pieces directed toward the trade, and updates on product offerings.

Marketing to Small Business Customers

We reach out to this harder-to-reach market primarily through direct mail, email and the Business Solutions Center. The Lighting Efficiency Product will continue to reach out to small business customers with direct marketing approaches as well as the Company's Small Business Lighting consultant.

In addition, several printed pieces are available on the Company's websites for viewing or download, and the Lighting Efficiency team will continue to refine and improve them. These pieces are targeted to both large and small business customers as well as the trade. The websites offer information on lighting technologies, case studies of successful lighting upgrades, and

external sources highlighting reasons to pursue lighting upgrades or implement efficient lighting sources.

- Prescriptive Rebate Applications – Applications detail product requirements, rebate levels and additional information to help customers complete the form and submit it for rebate with accompanying invoices and equipment specifications.
- Lighting Efficiency Product summary – This brochure is available on the Company’s website and is used by Account Managers, Energy Efficiency Specialists and trade to describe the product, discuss reasons to upgrade to more efficient lighting, and identify potential lighting projects.
- Resource Documents – The Lighting Efficiency web page links to several documents on energy efficient lighting technologies, written by outside organizations such as E-Source, that further identify lighting efficiency sources and opportunities.
- Managing Costs by Segment Documents – Documents identifying specific energy savings ideas for key segments, such as grocery stores, office buildings, schools and universities.

Marketing Messages Driven by Future Regulatory Requirements

In the coming years, Lighting Efficiency energy savings potential will be affected by necessary compliance with several new Federal and State legislative rules (example: Department of Energy Rulemaking on fluorescent lighting technology). An imperative marketing strategy is to keep Account Managers, Energy Efficiency Specialists, trade partners and customers aware of the requirements and timing deadlines for these pending energy efficiency standards. These new rules will also influence Lighting Efficiency product development, such as expansion of LED lighting applications, and the phasing out of obsolete technology.

E. Product-Specific Policies

Lighting Efficiency has a number of product-specific policies:

- All rebated equipment must be new, meet all product rules and requirements, and the application must be submitted within 12 months of the invoice date.
- In cases where the customer is unable to obtain an equipment invoice, the Company will send an Account Manager to complete an onsite field verification to confirm that equipment was installed as stated on the application.
- Pre-approval is required for Custom Efficiency lighting projects prior to the purchase and installation of lighting equipment. The customer has up to 24 months after the pre-approval date to implement the lighting project. Custom projects that exceed their timeframe, or have significant equipment deviations from the original plan, require reanalysis and approval.
- The parking garage lighting retrofit rebate application is available for prescriptive projects to replace high intensity discharge technologies (high-pressure sodium and metal halide) with more efficient fluorescent options.
- Lighting redesign studies must be submitted no later than three months after the study is completed.

F. Stakeholder Involvement

Stakeholder involvement in the Lighting Efficiency Product comes through a Lighting Advisory Board and the quarterly DSM Roundtable meetings. The Lighting Advisory Board was formed

as a collaborative effort between several key lighting professionals and the Company's management team. The objectives of the board are to identify gaps in our product offerings, suggest areas of improvement, and to offer a forum for open discussion of lighting topics. Several recommendations from the board have been addressed through the Company's product development process and incorporated into the product. The board will continue to meet on a regular basis or as long as needed.

G. Rebate Levels

Lighting Efficiency offers rebates through the retrofit and new construction prescriptive components, Custom Efficiency and Lighting Redesign paths.

➤ **Motor and Drive Efficiency Product**

A. Description

Public Service's Motor and Drive Efficiency Product strives to assist customers with awareness and incentives to reduce the barriers associated with equipment purchases. Over time, the product line has adjusted to market and regulatory conditions, and incorporated input from evaluations.

We offer prescriptive incentives for:

- Variable Frequency Drives and for Constant Speed Motor Controllers (CSMCs), which provide savings on devices like escalators, and under-loaded conveyers.
- Motors which exceed NEMA Premium® efficiencies by more than one percentage point, motors with NEMA Premium® efficiencies when upgrading a working motor of lower efficiency

We also offer custom rebates for motor-related equipment that falls outside the prescriptive criteria. The products allow customers to operate efficiently, and provide multiple benefits like longer equipment life span, and reduced maintenance costs.

For 2014, Electronically Commutated Motors (ECMs) will no longer be included within this product. Incentives for ECMs will be offered within other product(s).

B. Goals, Participants & Budgets

The individual product goals are based on historical performance data, inputs using our 2010 CO Motor & Drive Program evaluation, and empirical research from primary and secondary research sources, including:

- The Motor Decision Matters workgroup,
- The Best Practices - Non-Residential Large Comprehensive products
- The Electric Apparatus Service Association (EASA) State of the Industry Report, and Other utility programs.

Goals were established at the portfolio level using participation trends, sales and marketing pipeline data, a review of historical product performance, employee experience and other variables. The goals represent a snapshot of anticipated customer participation.

C. Application Process

Customer awareness occurs through various channels: our website, direct and email promotions, and Public Service's internal sales force, end-use equipment trade allies, and energy services companies. The rebate applications are available to download via the Internet, from our sales force, or from our participating vendors. Whether a prescriptive or custom option is pursued,

completed applications and the supporting documentation (invoice and equipment specifications) are reviewed.

Custom equipment measures must receive pre-approval for their potential claim, and undergo engineer review and analysis to confirm viability and cost-effectiveness. Customers with successful projects receive their rebate within eight weeks.

D. Marketing Objectives, Goals, & Strategy

A comprehensive impact and process evaluation has revealed many positive aspects of the product, and has also influenced our marketing objectives, goals, and strategies. Per the evaluation recommendations we will continue to: expand our outreach and training to vendors; streamline our applications; look for opportunities to streamline our Custom process; and increase our penetration into the small and mid-sized market segments.

We also continue to apply a low net-to gross factor which results in results in less net impact per customer and relatively high cost per unit of net impact.

Motor and Drive Efficiency plans to meet its goals using a variety of resources and communications paths, including personal sales visits to business customers, newsletters, customer events, direct mail, email communications, and awareness advertising to reach our business segment customers. The Company also participates in customer fairs, trade shows, and customer meetings, and works with trade organizations and service providers to raise customer awareness throughout the year when warranted.

To overcome market barriers, marketing materials specifically addressing the importance of planning for a motor failure, the importance of inventorying existing equipment, and the need to develop for a decision criteria regarding whether to replace or rewind a particular motor were created based on insights from primary and secondary research regarding customer needs.

We also have collaborative efforts with the following organizations:

- Motor Decision Matters - Motor Decisions MatterSM is a national public-awareness campaign. Its sponsors include a consortium of motor manufacturers, motor service centers, trade associations, electric utilities, government agencies, and Public Service.
- National Electrical Manufacturers Association (NEMA) – The member companies established premium energy efficiency motors thresholds to provide energy efficient products that meet the needs and applications of users and original equipment manufacturers based on a consensus definition of "premium efficiency" and use of the NEMA Premium® logo for premium products.

E. Product-Specific Policies

Public Service customers must submit their rebate application claim within 12 months from the purchase date on the invoice. Custom projects that exceed their timeframe or have significant equipment deviations from the original pre-approval, require reanalysis and approval.

F. Stakeholder Involvement

Public Service’s Motor and Drive Efficiency Product has been successful because of external support from trade allies and others who understand our product and assist us with customer support, education, and awareness. Customers benefit from hearing a consistent message from a variety of sources. Input comes for our customers, sales representatives, roundtable workgroups, primary and secondary research, and through discussions with other utilities. Comments are considered and implemented if and when appropriate.

G. Rebate Levels

Rebates are paid directly to customers unless the customer reassigns the rebate to their vendor as an alternate rebate recipient. The program offers the following rebates:

Description	Horsepower (hp)	Rebate Amount
New/Restored Capacity - Plan A Enhanced efficiency (greater than NEMA Premium®)	1 hp – 500 hp	Tiered rebate offer depending on the horsepower
Early Replacement/Upgrades – Plan B (Standard and Enhanced)		
VFDs controlling motors used on fans and pumps	1 hp – 200 hp	Tiered rebate offer depending on the controlled horsepower
Constant Speed Motor Controllers	5 hp to 500 hp	Tiered rebate offer depending on the controlled horsepower
Custom for larger and non-prescriptive motors, drives, or related measures	Outside the prescriptive parameters	Individually determined under the Custom Efficiency Product

➤ New Construction Product

A. Description

The New Construction Product influences building owners, architects, and engineers to include energy efficient systems and equipment in their design for new construction and/or major renovation projects. Since the Company services building owners of different areas and size, the New Construction Product offers two individual components: Energy Design Assistance (EDA) and Energy Efficient Buildings (EEB). Both components are available to non-residential customers in Public Service's electric and natural gas service territory.

Energy Design Assistance

The EDA offering provides a source of energy expertise to encourage energy efficient building design and construction practices. As part of Public Service's Business New Construction portfolio, EDA offers design assistance in support of integrated design process by providing comprehensive computer modeling of the planned design, funding to offset the cost of design time associated with the increased energy analysis, financial incentives to improve the cost effectiveness of a package of energy-efficient measures, and field verification to ensure that the strategies are installed per the design intent. Public Service covers the average energy modeling cost of an EDA project for Public Service business customers.

According to the *Best Practices Benchmarking for Energy Efficiency Programs*¹⁷, it is crucial for new construction products to begin in the early part of design and utilize the integrated design process. The report states that, "Integrated design adds value because cost-effective energy savings opportunities decline as the project progresses through the various design stages." The EDA Product uses computer energy models and a well-established, collaborative method for exchanging information with the design professionals, contractors, developers, and building owners in this integrated design process. Important information is provided at critical points in the design process about the value and application of strategies for reducing peak demand and energy use. By analyzing integrated systems in the beginning of the design process, customers can make a building significantly more efficient, more comfortable for the occupants, and less costly to operate in the future.

In addition to technical assistance, Public Service provides financial incentives to building owners to improve the cost-effectiveness of energy efficient materials and equipment. Incentives are paid only after a verification process is completed, which typically occurs within two months of building occupancy. Verification ensures the measures are installed as proposed and provides an added degree of confidence with associated savings.

EDA offers two tracks for customer involvement: Basic and Enhanced. The Basic track is for all Public Service customers interested in the opportunity to participate in a collaborative design

¹⁷National Energy Efficiency Best Practices Study, Quantum Consulting Inc., Dec. 2004, pg. NR8-2

process and identify energy savings opportunities using new technologies and energy methodology. The following requirements apply to the Basic track:

- Square footage: Greater than 20,000 square feet (new construction, major renovation or addition)
- Design phase: Schematic design or early design development
- Energy Savings: 15% peak demand savings required to receive incentives

The Enhanced track is for Public Service customers interested in obtaining sustainable building certifications, such as the United States Green Building Council's Leadership in Energy and Environmental Design (LEED[®]). The Enhanced track allows for further analysis in daylighting, lighting and mechanical system comparison, and building orientation, and mechanical system changes. The following requirements apply to the Enhanced track:

- Square footage: Greater than 20,000 square feet (new construction, major renovation or addition).
- Design phase: Pre-design or early schematic design
- Energy Savings: 30% energy demand savings required to receive incentives

Public Service administers the EDA Product in a number of ways. First, qualified energy design consultants are used to help identify product candidates, facilitate meetings with the design teams, including the owner, and complete energy modeling activities. Due to the high costs associated with modeling and this product, the number of consultants is limited for the product to remain cost-effective. Consultants are qualified through two paths:

- 1) **Xcel Energy EDA contracted consultant.** These modelers are chosen with a Request for Proposal approximately every three to four years. Contracted consultants are paid on a fee for service basis. This path has been in existence in Colorado since 2006.
- 2) **Open EDA consultant.** Energy modelers are chosen through a qualification criteria review to become a qualified consultant providing EDA services. Qualification opportunities will be open once a year or as Public Service deems appropriate. Consultants are paid on a pay for performance basis. This new pilot path began in mid-2013 in an effort to allow customers to have a greater choice in energy modelers. The pilot path will be evaluated to determine if it can become a permanent path in the future.

Since 2006, the product has achieved approximately 54 GWh in savings. Acceptance into the Colorado market exceeded Public Service's expectations up until the recession of 2008. The slow down in new construction resulted in less than originally anticipated projects and a lower than expected number of new building starts in the past few years. All segment types can participate in the EDA Product; however, many of our projects fall in the sectors of office, schools, retail, multifamily and healthcare.

Energy Efficient Buildings

The EEB offering is intended to provide a simplified approach to optimizing energy efficiency options in new construction or major renovations. This component addresses the portion of the new construction market not suited for the full-blown energy modeling of the EDA offering. Projects must be a minimum of 5,000 square feet. Projects are also generally less than 50,000 square feet and/or past the schematic design stage of new construction.

Focusing on the needs of small building owners, the EEB offering provides a comprehensive list (in a calculator format) of typical energy efficiency measures that can be incorporated into the new building design, as well as the rebate amount available for each measure. Incentives are provided for heating and cooling, lighting, building envelope, electric motors, and custom opportunities. Customers will receive a rebate tailored to their building after the project has been constructed and onsite verification completed.

Public Service administers the EEB Product using both internal and external resources to review the calculations, rebates and verify installation. The EEB offering is open to any consultant to assist the customer with the EEB process.

National Industry Review

Public Service's Colorado Energy Design Assistance offering was developed based on a similar award-winning product in our Minnesota territory. The Minnesota Energy Design Assistance Product has been recognized by the American Council for an Energy Efficient Economy (ACEE) for its approach and use of best practices. Specifically, they said, "Energy Design Assistance is an exemplary product as recognized by ACEE in its 2003 and 2007 national reviews. It has been and continues to be a model product." The European Council for an Energy Efficient Economy also recognized the Minnesota product as "The Product Most Likely to Meet the Intent of the Kyoto Protocols in the Shortest Time." The Colorado product benefits from the lessons learned in the over 15-year history of the Minnesota product.

B. Goals, Participants & Budgets

Goals and Participants

The EDA energy goals were estimated based on the average energy savings of participating buildings when compared to the usage of a baseline building. The baseline building is defined as a building compliant with the ASHRAE 90.1-2007, or the local code, whichever is more stringent. Net-to-gross ratios are determined and applied relative to the stringency of the code base being used for new projects. The specific ratios are included in the planning assumptions section. Since the sales cycle for EDA is typically two to four years—from project initiation in the beginning of project design to the completion and occupancy of a physical building—the projects expected to finish in 2014 are already known and tracked.

The design of the EEB offering was based on a similar product in Minnesota (called the Plan Review component of the Energy Design Assistance Product). EEB was introduced in late 2009 to the Colorado marketplace and has been steadily gaining traction since its inception. Goals were developed using actual data as well as historical experience with the Minnesota product,

recognizing that new buildings generally take one to two years from project initiation to completion and occupancy.

Budgets

Once goals were established, the budget process is generally the same for the New Construction Product as with the other DSM products. Historical cost and participation information is tracked and analyzed to project budgets two years in advance.

For the New Construction Product, average project modeling drives the budget, construction incentives, measurement and verification, and promotional dollars. The following was used to identify these specific drivers:

- **Consulting Charges:** Much of the product delivery budget is associated with the cost of modeling specific customer projects. Modeling costs are estimated to be approximately \$260 per kW saved for the basic track and \$300 to \$400 per kW saved for the enhanced track. Modeling costs are then split between the year modeling begins and the year in which the project will be completed due to final as-built modeling used in final rebate calculations. There are minimal consulting dollars allocated for the EEB offering.
- **Incentives:** Incentives are determined by establishing a dollar value per participant at the appropriate rebate level.
- **Measurement and Verification:** Measurement and verification is completed in two steps for the offering and described in the M&V section of this filing. Cost estimates are based on construction document and site review and are analyzed on a per project basis. Verification costs on average range between \$5,000 and \$10,000 per project.
- **Promotions, Advertising and Customer Education:** Promoting the product through specific advertising campaigns, trade shows and lunch and learn opportunities is an important part of the Business New Construction offering and aids in shifting the new construction market towards higher efficiency. As such, historical data in both Minnesota and Colorado were used to determine the appropriate levels needed for this plan.

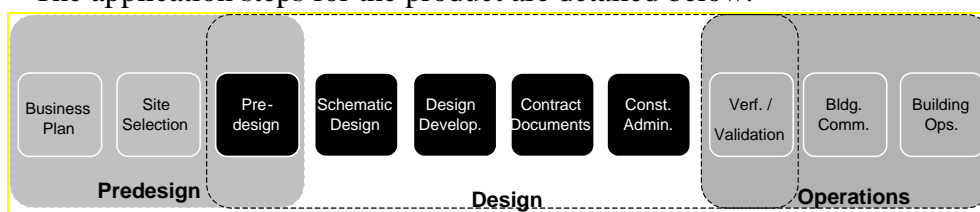
C. Application Process

Energy Design Assistance

The application process for EDA is more involved than for prescriptive products and follows the design schedule of a new construction project as outlined in the following diagram. The average time frame for project completion can range from two to four years depending on project schedules. Thus, projects beginning modeling in 2014 will likely be completed in 2016 or beyond.

Building Design Process

The application steps for the product are detailed below.



1. **Application Submittal:** Each project is evaluated by Public Service and our third-party consultants to ensure the project meets the eligibility requirements:

Customers who are interested in participating in the product but whose projects are later in the design schedule are considered depending on their flexibility and timeline. Once approved to participate in the EDA offering, the customer receives an email approving the project and a note explaining next steps.

2. **Introductory Meeting:** An introductory meeting with the customer, design team, the EDA consultant, the Public Service Account Manager, and other key parties, takes place within two weeks of approval, depending on the design schedule. This meeting sets the tone for the collaborative approach, by explaining how the process works, who is involved and what results should be expected. Initial project details, such as baseline systems, are collected during this meeting.
3. **Preliminary Analysis:** Using project details and costs from the design team, the EDA consultant begins the modeling process. Analysis is completed using a whole-building energy simulation computer program. Modeling software and protocols are established by Public Service, with reference to ASHRAE 90-1 – 2007 or the local code, whichever is more stringent. Further analysis under the Enhanced track, if applicable, is also completed using the relevant modeling program and code base.

Within this analysis, different energy efficiency opportunities are explored that fit into the project criteria—payback analysis, energy expectations, and original design strategy. A meeting is then held to review these strategies to find the ones that meet the original project criteria and which ones should be considered moving forward.

4. **Final Energy/Strategy Analysis:** Conservation opportunities are then packaged together in design alternatives, or bundles, to show expected building energy savings, paybacks and incentives. A whole building approach is used to identify the net effect of multiple strategies on a project. This approach provides opportunity for more energy savings impact, by trading less effective ideas that may be in the budget for more effective, new concepts. The bundling of design alternatives also provides protection against the typical value-engineering phase of the design/construction process, which typically cuts individual elements of projects based on their first cost and impact on the tangible elements of the building, with little regard for on-going energy use. These energy alternatives are then presented to the design team who chooses the best alternative for their project.
5. **Construction Document Analysis:** Once the design team completes construction documents (CD), the external consultant reviews the CDs and adjusts the energy model. This energy model is used to determine the expected Public Service incentives and to verify compliance with the energy savings intent of the customer. A meeting is held to review this CD energy analysis before construction.

6. **Verification:** The final step in the EDA offering occurs when Public Service completes an onsite verification of the energy alternative addressed within the energy model. Equipment and systems are logged to evaluate performance variables as appropriate to verify consistency with modeling assumptions. The actual results are compared to the estimated savings to determine the final customer rebate.

Energy Efficient Buildings

Customers may hear of the EEB offering through several channels including account managers, the Business Solutions Center, architects and engineers, general contractors, or equipment trade. The application process is similar to other Public Service prescriptive products, however, pre-approval is required between Public Service and the customer to allow for calculations of energy efficient measures, review of construction documents for verification of project design, and for final verification of actual installation.

The first step in the process is for the customer to submit a pre-approval application and agreement to Public Service. Once received, Public Service will review the project to confirm the project timing, square footage, and customer engagement (interest in energy efficiency options). Once pre-approved, the customer will receive an email from Public Service which explains the terms of the EEB offering and processes. An introduction meeting will be offered to the customer to offer assistance with an energy calculator tool as well as energy efficiency advice. The owner will then submit the project data throughout the construction and completion of the project for review by Public Service. The customer will receive the final construction rebate once the project and onsite verification have been completed.

D. Marketing Objectives, Goals & Strategy

The New Construction Product is primarily marketed through our sales team and external energy consultants directly to architects, engineers, general contractors, and Public Service customers, as detailed below. The Company fosters a collaborative approach, meeting with design teams to show how the product works and how it is beneficial to their customers. Marketing strategies used within the product scope include trade shows, electronic newsletters, face-to-face meetings, advertising, and participation with various trade organizations including American Institute of Architects, Association of General Contractors, and ASHRAE. A secondary market is building owners and developers. The EEB offering, on the other hand, is primarily marketed to developers and customers, also detailed below.

Public Service continues to identify opportunities to improve the product through multiple methods. An evaluation of the product was completed in 2009 and the recommendations were reviewed for adoption into the 2011 product. To continue to promote higher efficiency levels in buildings, allow other qualified energy companies to participate in EDA, and customers more choices of energy modeling companies, Public Service provided an Open EDA pilot path in mid 2013. The Open EDA path pays consultants on performance, thereby allowing smaller buildings (20,000-50,000 sq.ft) access to the EDA and energy modeling and design. In addition, we increased the minimum savings requirements from 5% to 15% in 2011 for the Basic track and

from 15% to 30% in the Enhanced track; the electric incentive was increased from \$300 to \$400 per kW. The EDA baseline continues to become more stringent as Colorado counties continue to adopt more stringent code levels. These changes only impact new projects starting under the New Construction Product.

Primary Market-General Contractors, Architects, Mechanical and Electrical Engineers:

- Implements energy efficiency
- Influences customer/developer decisions
- Trusted by owner
- Often suggests product to owners and developers
- Key to actual inclusion of strategies and cooperation

Secondary Market-Owners and Developers:

- Makes initial decision on budget
- Hires and contracts with architect, engineers, and general contractor
- Initiates conversations on energy efficiency
- Makes final decision on equipment choices
- Key to moving general contractors to energy efficiency strategies within a limited budget

There are several pieces of collateral used for the New Construction Product and Public Service continually tries to improve and update these pieces available to customers via events or website.

- Product feature sheet: explains the features and the benefits of the product
- Case Studies: provides examples of how various customers benefited from participating in the product
- Process flow chart: detail information on the product processes
- White Papers: explain different options for energy efficiency in lighting, heating, cooling, envelope, and other measures.

The EEB offering provides Public Service with the opportunity to conduct a larger marketing effort for New Construction. Several strategies are used, such as:

- Trade and Customer seminars: In person opportunities to educate customers and trade on the benefits of new construction review are an important part of the marketing strategy.
- Conferences and Exhibits: In-person expertise to help customers determine what product best fits their needs, as well as guidance on the respective processes.
- E-newsletters: Another avenue to educate our market on the product and benefits of reviewing new construction for energy efficient opportunities.

E. Product-Specific Policies

The following policies are in place for the New Construction Product:

- **Natural Gas Impacts.** In taking the whole building approach, there are times when an efficiency measure might cause a decrease in one fuel, but an increase in another fuel, such as when the change from an incandescent light to a compact fluorescent bulb reduces the lighting heat output, thereby increasing the heating need for the space. This results in a net decrease in BTU consumption and a decrease in electricity consumption, but a slight increase in gas consumption (assuming a space heated with natural gas). In these situations, Public Service will account for both the decreases (energy savings) and increases in fuel consumption and will rebate accordingly.
- **Completion of several opportunities.** The EEB offering will require installation of new equipment in both the electrical and mechanical sections of the building. Major renovations that only require adjustments to lighting will be referred to our current prescriptive product. The same will be required for any other stand-alone equipment or systems.

F. Stakeholder Involvement

Customers, trade allies, and other stakeholders are currently engaged at the specific project level. Feedback is garnered individually from participants and once a trend develops (positive or negative), Public Service makes a change to the product design. If it is a small change, it is then discussed internally and possibly with a few key trade allies and, if deemed acceptable, implemented. A larger change would possibly involve review by the product's external technical resources or other third-party consultant and then would be submitted through the DSM Roundtable review process. In addition, Public Service meets with representatives of the Energy Modeling industry for the possibility of product enhancements requested by this group. An outcome of these meetings was to add the Open EDA path in mid-2013 for qualified consultants to provide EDA services.

Xcel Energy continues to coordinate with other utilities and organizations to improve and effectively deliver the New Construction offerings. In addition, surveys are used to gather feedback from participants to continually improve the product.

G. Rebate Levels

The EDA offering covers energy modeling services valued at an average of \$25,000 per project. Public Service also reimburses design team members to offset the incremental cost of their participation from \$4,000 to \$12,000 per project depending on the square footage of the building.

In addition to energy modeling, Public Service provides financial construction incentives to building owners to improve the cost-effectiveness of the chosen energy efficiency measures. Customer incentives are based on demand and energy savings set at a base rate of \$400 per kW saved and \$0.04 per kWh saved. In addition, a natural gas savings rebate of \$4 per dekatherm saved is available.

➤ **Process Efficiency Product**

A. Description

The Process Efficiency Product targets large customers. Its holistic approach to energy conservation helps the customer create and implement a sustainable energy management plan. This product is typically delivered in three phases. Each of these phases is defined in a Memorandum of Understanding (MOU) that is customized to reflect the needs of the specific customer.

Phase 1: Identification - A high level analysis is performed to identify opportunities for energy savings in both a customer's business practices and the technical opportunities within their operations. This is completed at no cost to the customer.

Phase 2: Scoping - Support and resources are provided to further define and offer recommendations for energy savings opportunities identified in Phase 1. We fund 75% of the cost of this work with the customer paying a maximum of \$7,500 towards these efforts.

Phase 3: Implementation – We work with the customer to compose schedule and conservation goals that translate their energy management plan into actual conservation impacts. Project estimates of the rebates Xcel Energy will provide to support these efforts is also made.

Equipment rebates for this product include both prescriptive and custom measures. The guidelines and rebate levels of the other products are mirrored with enhancements to drive customers to approach conservation on a system level versus a component level.

Delivery of this product is resource intensive both internally and externally. The magnitude and complexity of the projects require significant resources from our company's technical staff to support not only the project but also the M&V requirements. The more developed relationship with the customer requires significant account management resources and the customization of the offering to match customer needs requires significant marketing resources.

External resources are used to deliver both the Identification and Scoping phases of the product. A third-party provider identified through an RFP delivers the Phase 1 session, but given the breadth of opportunities and the volume of studies, we have augmented their resources with additional providers. The product emphasizes building on what the customer has in place, so when possible we include vendors that the customer is already working with who are familiar with the operations. This has included various engineering firms and equipment vendors. We do require that the vendor possess the necessary skills and experience and deliver the required services at a reasonable price. This is achieved by pre-approving proposals for the studies that are delivered in Phase 2 in a fashion similar to Xcel Energy's Engineering Studies.

The product budget was developed based on historical performance with consideration given to the following factors:

- Rebate dollars are increased throughout Xcel Energy's product portfolio to drive additional conservation projects to implementation.
- Customers are reaching a point in the implementation of their energy management plans where a larger percentage will complete system optimizations that will result in them qualifying for rebate bonuses.

B. Goals, Participants & Budgets

Goals and Participants

Participation levels are based on the number of customers actively participating in the product. We generally will not see impacts from new customers in their first year, which is the result of the extended sales cycle for the large process-related capital intensive conservation improvements we are targeting. Although we anticipate an 18-24 month period before we see that type of project installed, we do anticipate being able to influence the installation of some smaller, energy efficiency projects in the interim.

Budgets

The majority of the budget traditionally has been, and will continue to be, spent on consulting services to provide the assessment and scoping phases of the product. The budgets and goals were developed by reviewing historical performance, the pipeline for projects, potential for new customers to join and anticipated market.

C. Application Process

Due to the narrow focus of this product, Public Service has identified potential product participants by cross referencing historic electric usage with general industry energy consumption and conservation potential data for Colorado customers using more than 20 GWh per year.

A Public Service account manager serves each large customer. The account manager will approach the customer with a description of the product and facilitate an informational meeting, if appropriate, with the customer, product manager, and other relevant parties. If the customer chooses to proceed with participation in the Process Efficiency Product, the account manager will coordinate the walk-through of the customer facility described in Phase 1 above. The remainder of a customer's progression through the product follows the description presented in Section A.

Although custom type projects that receive a rebate through this process will require a pre-approval to determine the rebate level, the comprehensive nature of the relationship Public Service establishes with the customer provides a significant sphere of influence that drives energy efficiency into a broad array of business decisions. The result is that a type of conditional pre-approval is established for the measures the customer chooses to pursue after being accepted into this product. This also allows us to more effectively manage the costs for the product because projects are not analyzed until the data is collected to accurately project energy savings.

D. Marketing Objectives, Goals, & Strategy

This product is marketed primarily to large customers through Public Service's internal account managers. In addition, the Company will continue to offer segment-specific seminars to introduce new energy efficient technologies to the market and attract customers to participate in the product. The comprehensive nature of the EnVinta process will evaluate energy use throughout a customer's operations instead of focusing on implementation of specific technologies or efficiency upgrades. This holistic approach can lead to the identification of significant conservation opportunities resulting from process or business practice changes.

The product is available to all business customers, but because of the minimum conservation potential requirements of the energy management plan, it is expected to attract participants primarily from the large managed accounts.

E. Product-Specific Policies

Target customers and projects are Public Service's electric customers who have a minimum conservation potential of 2 GWh.

Conservation opportunities may be grouped into a single or multiple projects in the energy management plan. This plan will identify the expected sequencing and scheduling for the projects.

If a study conducted at a Process Efficiency customer's facility identifies custom projects that do not meet the Custom Product rebate eligibility requirements, energy savings credit can still be claimed by the product as study-induced savings.

The anticipated time from project initiation to completion is expected to be 18-36 months. No impact will be recorded until a project is fully installed, operational, and the final rebate (if applicable) is issued. This results in significant investment by the utility in the year preceding the impact. There will also be customers who start the sales cycle but withdraw before completing any projects resulting in stranded investments by Public Service. The risk for this should be mitigated through monitoring corporate commitment throughout the energy management self-assessment process.

The incentive to optimize a system versus implement individual projects may also result in a lag between when individual components are installed and when the rebate is paid. These rebates will not be paid until all projects identified in the MOU 3 and associated with a system are completed.

Bundling of two or more projects to achieve favorable TRC, payback or rebate requirements will be available to Process Efficiency participants if they meet certain requirements. Projects included in the bundle cannot be completed before they are pre-approved and bundled. Additionally, payback for each project should be individually analyzed and within the lifetime of the measure.

F. Stakeholder Involvement

The Process Efficiency Product is being offered in direct response to requests from customers who have significant conservation potential and a willingness to complete efficiency projects, but do not have available resources or internal expertise.

The CO DSM Roundtable quarterly meetings provide a forum for stakeholder involvement and feedback about this product as well as the full portfolio of Public Service's DSM products offered in Colorado.

G. Rebate Levels

Participants will be eligible for both study funding and end-use rebates. The funding for studies will be based on the customer contributing 25% of the cost up to a maximum customer contribution for Phase 2 studies of \$7,500. Projects will be rebated based on the measures installed and the energy and demand savings. Rebates will be valued according to the levels established in each of the end-use products. Bonus incentives may be given for completion of milestones within the Energy Management Plan, or achievement of conservation exceeding that detailed in the MOU-3 package of projects.

➤ **Recommissioning Product**

A. Description

Building Recommissioning is the process of reviewing existing equipment and systems within a building to ensure that they are working as efficiently as possible and operating as intended. Public Service's product covers both recommissioning and retrocommissioning. Recommissioning is commissioning a building that has already been commissioned in the past. Retrocommissioning is commissioning a building that has never been commissioned. Public Service's Recommissioning Product is designed to assist electric and/or natural gas business customers to improve the efficiency of their existing building operations by identifying existing functional systems that can be "tuned up" to run as efficiently as possible through low- or no-cost improvements.

Examples of typical recommissioning measures include:

- Calibration/tune-up of Energy Management System points
- Adjustment of outside air and return air dampers
- Resetting the chilled water and hot water supply temperatures
- Optimum start/stop of air handlers and makeup air units (early shutdown in the evening, late start in the a.m.)
- Resetting of a chiller's condenser water temperature
- Eliminating simultaneous heating and cooling

Recommissioning consists of two main steps: diagnosis (studies) and implementation. Public Service offers rebates for recommissioning studies and the implementation of recommissioning measures. To facilitate participation from a variety of recommissioning professionals, the customer selects and hires a qualified engineering firm to complete the study and implementation.

The Recommissioning Product has four different paths a customer can choose:

1. Study and implementation –Customers receive funding for both the study and implementation from Public Service. Public Service works with the customer from the beginning of the project until the end. This path has historically been the most popular choice for Public Service's customers.
2. Fast track implementation- This path is for customers who have either performed a study outside of our program or have identified a few recommissioning measures within their building, without doing a full blown study. To qualify, Public Service will review their study and/or recommendations/savings opportunities to determine recommissioning implementation rebates.
3. Refrigeration recommissioning – This path is focused on analyzing grocery/convenience store refrigeration systems to determine how their refrigeration systems can be tuned up to save energy. Due to the nature of the recommended measures, implementation of the energy savings recommendations occur as the provider is conducting the analysis.

4. Building Tune-up – This path, new to the Recommissioning Product in 2014, is a less expensive study/implementation option targeted to buildings less than 75,000 square feet. An onsite study is still performed, but focuses on a shorter checklist of measures along with the study vendor completing fixes on-site as appropriate. This option opens the door to owners of smaller buildings to recommissioning activities without having to spend 10's of thousands of dollars on a study.

B. Goals, Participants & Budgets

Goals and Participants

To achieve the product goal, Public Service recognizes energy and demand savings as a customer implements the measures identified in their study. Participants are allowed to pick which measures they want to implement and a typical recommissioning study may suggest anywhere from five to ten measures, with varying cost and paybacks.

Budgets

Once goals were established, the budget process is generally the same for Recommissioning as with the other DSM products. Historical cost and participation information is tracked and analyzed to project budgets in advance. For the Recommissioning Product, most of the budget is driven by the number of studies completed and the number of customers who implement projects in a given year. The following factors were used while determining the budget: total participants; rebate levels offered; promotional, advertising, and educational opportunities; and labor requirements to achieve the goals.

For 2014 the product is not budgeting for gas measurement and verification (M&V), electric levels remain consistent with previous year's levels. Historically, no identified gas measures have required (M&V).

C. Application Process

Customers learn of the product through their Public Service account manager, direct marketing efforts and through recommissioning providers. If a customer is interested in participating in a study, they should apply for pre-approval before they begin the study. To obtain pre-approval, the customer will submit an application and a proposal from their recommissioning provider that outlines the scope of the project. After the customer receives pre-approval, they can begin the study on their building. When the study is completed, Public Service's internal engineer reviews the study to ensure that it meets our requirements and that the energy savings calculations are reasonable. After Public Service approves the study, the provider will present their final recommendations to the customer and then the customer can receive their study rebate. At this point, the customer will review the study internally and select individual measures to implement. After they finish implementing, they will receive their implementation rebate check for the individual measures.

The typical sales cycle for a regular recommissioning project (study and implementation) takes one to two years to complete. Once pre-approved, the study can typically take three to six

months to complete and receive Public Service approval. Another year or more may be required for the customer to receive internal budget approval and complete their project.

If a customer wants to participate in our fast track option, where they receive implementation rebates only (no study funding), they obtain pre-approval for implementation rebates prior to completing the measures. To obtain pre-approval, they need to submit either their study or their project proposal for review. The sales cycle for fast track projects is typically shorter than a regular recommissioning project since they have already completed a study and/or are just requesting a proposal from the provider.

To participate in our Refrigeration Recommissioning Product, a customer can receive instant pre-approval via the product website by entering relevant information regarding the project. After their investigation/implementation is completed, Public Service's technical staff reviews the project to determine energy savings.

D. Marketing Objectives, Goals, & Strategy

Our marketing strategy is to educate customers and trade allies on what recommissioning entails and the benefits of recommissioning a building. Due to the long sales cycle, it is important to continually build the study pipeline to meet future year's goals. To build the pipeline and to attract customers and recommissioning providers, we use various marketing tactics such as direct mail, educational seminars, targeted email newsletters, in person meetings, case studies, and the website. Another tactic we have used is to provide increased study funding to customers if participation is low.

The most common target market for recommissioning is commercial customers that are 50,000 square feet and larger, such as offices, hospitals, and schools. These markets are good candidates due to the following reasons:

- Office real estate owners are looking for quick paybacks on their buildings and want to cut their operating costs without sacrificing the tenant comfort. This is the ideal situation for Recommissioning as many measures are low/no cost with quick paybacks.
- Hospitals are intense energy users, and their energy systems frequently run as if there is full load, although that often isn't the case. There are many opportunities for low cost savings in hospitals and medical centers.
- Schools are closed down for more periods than most buildings and have more opportunities for optimizing their energy systems.

A comprehensive list of marketing materials has been developed for our customers, providers, and our account management team. Available materials include:

- Product feature sheet – explains the features and the benefits of the product
- Study pre-approval application – used to obtain study pre-approval
- Study rebate application – used to receive study rebate after study has been approved
- Fast track pre-approval application – used to obtain fast track pre-approval
- Recommissioning guidebook – information booklet that explains recommissioning, benefits, process, etc.
- Provider list – contains providers who have participated in our product in the past

- Case Studies: Hospital, school, office building, hotel, medical and research facility – provides examples of how other customers benefited from participating in recommissioning
- Process flow chart – detail information on the product process
- Provider tips booklet – helps providers through the process
- Customer website – snapshot of our product and links to many useful resources and all of our literature
- Provider website – contains information on our product and tips that are specific to providers participating in the product. The website also has links to all of our literature for easy access.
- Provider calculation tool - helps providers with basic calculations of recommissioning energy savings

Periodically, specific marketing materials that cover timely information are developed, such as:

- Direct mail pieces – promotional piece that is sent to a specific target market either based on size or segment
- Customer newsletters – reminds customer of product offering, highlights product changes/enhancements
- Customer email – a brief email that is available to our account management team to send to their customers
- Customer seminar – educate customers about recommissioning and the benefits
- Provider newsletters – highlights product tips, changes, announcements
- Provider seminar – educate providers on how to participate in the product

Recommissioning providers play a key role in the success of the product since customers rely on providers to identify energy saving opportunities in their building. While provider interest in participating in the product is increasing, we need to identify additional providers to help meet future demand. Our goal with providers is to make sure they understand our expectations for the product and to provide the necessary tools so that they can help customers through the process. To help providers participate in our product, we meet with them one-on-one or in group training sessions to explain the process and requirements and encourage them to work through their projects with us.

E. Product-Specific Policies

Recommissioning has a few policies that are specific to the product which include:

- Study/analysis driven credit: If a customer implements measures that are less than a one year payback or over a 15 year payback, they will not receive a rebate, but Public Service will claim those study/analysis-driven savings. The Company believes that our help identifying and/or analyzing energy efficiency measures provide sufficient influence on the customer's decision to implement those measures.
- Maintenance: The Recommissioning Product claims energy savings for maintenance items identified and implemented through the recommissioning process.

- Rebate/energy savings validity: If at least two years has passed since a project was approved, the technical staff re-analyzes it with current rates to determine if the savings/payback has changed. This re-analysis is conducted prior to issuing a rebate.
- Customer eligibility: The product is available to retail business customers who are served both electricity and natural gas or electricity only. Gas only customers are not eligible for this product
- If it is too burdensome for the customer to gather invoices for a project, we will accept only their signatures as documentation of implementation as long as the customer is acceptable with foregoing any rebate they may have qualified for. There are instances where the customer may not qualify for a rebate due to the payback of the measure; the rebate may be very small; and/or it may be difficult to obtain an invoice as the cost of the measure may be imbedded in an invoice that was for a larger project. When this is the case, the customer may be hesitant to spend the time to gather invoices, but they are ok with foregoing an implementation rebate because Public Service helped pay for the study. When this happens, Public Service will claim the credit for the measure, but will not issue a rebate to the customer.

F. Stakeholder Involvement

We value feedback from customers and providers and make an effort to gather their input to ensure the product is effective. As ideas are generated, the team will review and implement if feasible. The product team as well as the trade relations manager has met with our active trade allies to discuss product specifics and to obtain feedback. Continuous communication with this group through informal conversations and project work, provide opportunities to keep this line of feedback open.

G. Rebate Levels

The Recommissioning Product offers two types of customer rebates: study and implementation.

Study rebate:

Public Service will pay up to 75% of the recommissioning study cost, up to \$25,000. Payment of the remaining balance by the customer shows customer interest in identifying and implementing measures found within their study.

Implementation rebate:

Public Service will pay up to \$400 per peak summer kW or \$0.08 per kWh saved, whichever is higher, and an additional \$4/Dth saved for Public Service natural gas customers, up to 60% of the recommissioning measure cost that are identified in recommissioning studies or pre-approved through our fast track option.

By providing rebates, Public Service helps influence the customer's decision to participate in the product to identify ways to use energy more efficiently.

➤ Segment Efficiency Product

A. Description

The Segment Efficiency Product targets particular market sectors with specialized packaged conservation offerings to overcome unique barriers to customer participation. In 2014, Segment Efficiency will continue to focus and build on the commercial real estate sector, specifically office space, to address a historical lag in participation.

The commercial real estate effort is expected to yield four main benefits:

- Large energy savings projects
- Whole building customer-focused analysis
- A large percentage of projects that reach completion
- Increased probability that decision-making processes will incorporate energy efficiency best practices in the future.

The commercial real estate component will target owner-occupied and leased buildings of at least 50,000 square feet. The buildings within this segment are, in many cases, greater than one million square feet. This product is a comprehensive whole building evaluation of energy savings opportunities. The Segment Efficiency Product will offer customers one-on-one energy efficiency counseling as well as financial incentives for energy efficiency improvements based on technical studies. The Company will provide an energy assessment report identifying energy efficiency opportunities, an optional engineering study providing an investment grade analysis, and incentives for measure implementation and installation. The Company's existing prescriptive and/or custom offerings will then be incorporated into rebate packages that roll up to the Segment Efficiency Product.

B. Goals, Participants & Budgets

Goals and Participants

Savings will come through existing prescriptive (lighting, motors/drives, cooling, boilers), custom (lighting, motors/drives, cooling, energy management system), and recommissioning measures. Estimated energy savings are based on participation estimates and the average savings per participant from existing products.

Participation was based in part on past participant levels and the increase pipeline of potential energy saving measures yet to be implemented.

Budgets

Once goals were established, the budget process is generally the same for Segment Efficiency as with the other DSM products

For the Segment Efficiency Product, the product rollup includes the rebates and costs associated with performing the studies, which will identify the measures, as well as the implementation-related costs and rebates. Product planning and design, study rebates, and implementation rebates drive the majority of the budget. The following was used to identify these specific drivers.

- **Study Rebates:** Based on an estimated cost rebate for investment-grade engineering studies.
- **Implementation Rebates:** Based on the number of participants in each end-use. An average rebate for each end-use was used to come up with a total implementation rebate for each year.
- **Contract Outside Vendor:** Based on estimates for participation and study costs. The provider will complete customer phone interviews, onsite visits, energy assessment reports, and provide product support as needed.
- **Measurement and Verification:** Based upon historical program spend data no budget has been allocated to measurement and verification for the gas side of this product.

C. Application Process

Segment Efficiency is introduced primarily to commercial real estate customers through the Company's account managers. In most cases, the Company leverages existing relationships with this customer group to bring participants to the product. Customers submit an application to enter the product. Once the information is received, the product study provider will contact the customer to set up the assessment and onsite walk-through.

There are three primary phases within the product process:

- Energy Assessment Report
- Investment-Grade Engineering Study (optional)
- Implementation Phase

In the first phase, the Company's study provider and account manager will interview the customer by phone and an engineer will visit the site for a building walk-through. Customers receive a report with their building's ENERGY STAR Benchmark Score, Energy Systems Rating and an exhaustive list of energy conservation opportunities (ECOs) identified within their buildings. This process typically will take three to four weeks following the onsite walk through. The study provider will be paid a fixed amount per study and customers will be billed up to \$2,500/building on their Xcel Energy bill.

The study provider will note in the energy assessment if there are any measures that require additional engineering analysis. If the customer chooses to go through the investment-grade engineering study, they will determine what vendor they'd like to use, submit a study pre-approval application with a project proposal, estimated energy savings, and a study cost. Public Service will review the application and determine funding levels of up to 75% of the cost of the study, not to exceed \$25,000. Upon completion of the engineering investigation, the customer pays for the study and submits a study rebate application to receive their rebate.

Typically, customers will plan for a phased approach based on resource availability. In some cases, customers will implement findings immediately based on the energy assessment report. For those requiring additional analysis, measures may not be implemented for 24 to 36 months following product enrollment. Customers will utilize our existing end-use product rebate applications to apply for implementation rebates and be eligible for up to a 30% bonus rebate, not to exceed 75% of project cost.

D. Marketing Objectives, Goals, & Strategy

The commercial real estate sector was identified as the first target of the Segment Efficiency Product because it presents unique challenges in the inherent complexity with landlord-tenant lease and ownership issues. Public Service's marketing of this product will focus on addressing these barriers by providing a credible, consistent message to customers.

In order to establish credibility with commercial real estate customers, Public Service will seek out endorsements from trade partners such as the National Association of Industrial and Office Properties (NAIOP) and the Building Owners and Managers Association (BOMA). The Segment Efficiency Product will be marketed through trade newsletters and events to members of participating building organizations. Product awareness will be generated at multiple levels and utilized through Account management, trade publications, trade relations managers and local associations such as NAIOP and BOMA.

This product will:

- Deliver cost-shared financial and engineering consultations, benchmarking, and related outreach/assessment activities.
- Propose a specific call to action within the product lifecycle to capitalize on additional benefits such as a 30% incentive bonus for all measures that are implemented.
- Educate customers about energy efficiency and financial incentive products with the goal of increasing uptake for these products among this hard-to-reach sector.

Marketing Strategy	Description
Product Collateral	<ul style="list-style-type: none"> • Feature Sheet • Application forms • Sample energy assessment • Product process flow chart
Newsletter Articles	<ul style="list-style-type: none"> • Energy Solutions business newsletter • Energy Exchange trade newsletter • BOMA newsletter • NAIOP newsletter
Direct Mail	<ul style="list-style-type: none"> • Benefits to program, reiterate bonus, and how to sign up
Advertising	<ul style="list-style-type: none"> • BOMA newsletter • NAIOP newsletter • Denver Business Journal • CO Real Estate Journal • Online Search hubs
Customer Outreach	<ul style="list-style-type: none"> • BOMA meetings • NAIOP meetings

E. Product-Specific Policies

The Segment Efficiency Product is open to commercial real estate buildings equal to or greater than 50,000 square feet. The individual measures will follow end-use product guidelines and policies.

F. Stakeholder Involvement

The product team meets with all of our active trade associations, and trade allies to discuss product specifics and to obtain feedback. Continuous communication with these groups through informal conversations and formal meetings, provide opportunities to keep this line of feedback open.

Bi-Weekly Status Meetings - The Public Service product team and study provider meet to review the status of all projects to ensure that we are meeting customer needs and deadlines, and to help accurately forecast implementation measures to identify gaps and ensure goals are met.

G. Rebate Levels

The Segment Efficiency Product provides financial incentives in the form of study subsidies and rebates for the purchase of energy efficiency measures. Energy Assessments will be billed to the customer up to \$2,500 per building (roughly 25% of study cost). Engineering studies will be reimbursed at 75% of their cost (up to \$25,000). Measures will be rebated at end-use product levels with an additional bonus of up to 30%, not to exceed 75% of project cost.

➤ Self-Directed Custom Product

A. Description

The Self Directed Custom Efficiency Product provides large commercial and industrial customers in Colorado the opportunity to control all stages of their energy saving project's rebate application process. Customers who identify, engineer, implement, and commission qualifying projects will receive rebates to implement efficient projects. The dollar value of the rebates will be calculated based on the incremental energy savings achieved. Because the Self-Directed Product shares many of the features of the Custom Efficiency Product, it should be viewed as a traditional Custom Product targeted towards a unique subset of customers.

A fundamental principle and differentiating factor of the Self-Directed Product is that the customer performs all of the work and incurs all the costs for the identification study, design, engineering, measurement & verification (M&V), and reporting work associated with the energy saving projects. Large customers with energy saving evaluation resources may choose to participate in the Self Directed Product because they believe that it is beneficial for them to perform more of the administrative and engineering activities, and in doing so, receive a higher rebate over Public Service's other DSM products.

Participation in the Self Directed Product will generally follow the sequence below:

- Public Service pre-qualifies customers who are eligible for participation in the Self Directed Product.
- Once pre-qualified, a customer identifies the opportunity, then develops and submits a project proposal.
- Public Service provides confirmation of application receipt, reviews the application, and requests additional information as necessary.
- Public Service notifies the customer of pre-approval or denial of the application, expected rebate amount, expected energy savings and mutually agreed on M&V plan.
- Public Service encourages a project planning meeting to discuss Public Service's application preparation and project details.

If the customer chooses to implement the pre-approved project they must follow the requirements detailed in their M&V plan and conduct all necessary steps in order to verify energy savings. Any data required for pre-installation monitoring detailed in their M&V plan should be submitted to the Company and approved before the customer implements the efficiency measures. Upon acceptance of the data the customer can then implement the measures and perform any follow-up monitoring as described in their M&V plan.

Once the project is implemented, operational and all necessary M&V is complete; the customer will submit their project completion report along with all appropriate cost information. Appropriate costs can include internal and external labor for the identification and implementation of the opportunity. It cannot include freight, engineering or tax. Public Service

will review the report, request any additional data, and calculate the final rebate. The rebate will be paid by check upon completion of project and Public Service's approval of project completion report.

B. Goals, Participants & Budgets

Goals and Participants

Due to the large scale and long lead-time that Self Directed projects typically experience, much of the achievement expected for 2014 is already identified in the pipeline. Therefore, goals and participants were forecasted based on this pipeline.

Budget

Budget has been estimated based on the project pipeline.

C. Application Process

Customers are most likely to hear about the Self Directed Custom Efficiency Product through their account managers or trade partner. Customers must be pre-qualified for participation before submitting a project application. The customer is responsible for providing the Company with justification for eligibility (prequalification). Justification must include, but is not limited to, a list of the customer's account numbers, locations, and meter numbers to be aggregated.

Once pre-qualified, the customer will submit a project application for each Self Directed project. The project applications may contain a single measure, or a combination of multiple measures at a single, or multiple locations. All energy conservation measures must be at customer locations receiving electric service from the Company.

D. Marketing Objectives, Goals & Strategy

The Self Directed Product is marketed to large customers who have expressed an interest in overseeing their own DSM energy efficiency improvement projects. Other marketing efforts will focus on customers based on their energy use, conservation potential, and in-house experience and expertise with energy efficiency improvement projects.

E. Product-Specific Policies

The Self Directed Product is open to Public Service commercial and industrial electric customers who have an aggregated peak load of at least 2 MW in any single month and an aggregated annual energy consumption of at least 10 GWh. The customer of record must be the same for all aggregated meters to qualify for this product. New customers or customers with new facilities that demonstrate, to the satisfaction of the Company, predicted demand and usage above the minimum requirements, may participate in the Self Directed Product.

The Total Resource Cost (TRC) value for each application will be calculated based on the combination of all measures proposed in the application. The customer will calculate a final project TRC value in the completion report using the actual implementation costs, energy

conservation data, non-energy costs and/or benefits and the calculation methodology provided by the Company. The Company will verify the final TRC for the completed project during the review of the project completion report.

Participants in the Self-Direct Product will be allowed to participate in other conservation products offered by the Company, but may not be rebated for the same efficiency measure through two different products. No funding will be paid by Public Service for the identification (study) of projects being rebated through the Self-Direct program. Customers may enroll their new facilities in either the Self-Direct Product or the New Construction Product, but not both. If the customer chooses to participate in the Self Directed Product for a new building project, the design work and energy modeling shall follow the protocol established in the New Construction Product; however, the customer will be required to pay for all energy modeling costs.

Project Application

The project application must include the following components:

- Description of the customer including electric and gas rate classifications, business activities at involved sites, roles of personnel involved in the project, history of and expertise with energy efficiency projects.
- Description of the proposed project(s) including technology, locations, implementation schedule, expected measure life, how the projects fit into the customer's operations, and a description of previous implementations of similar technology or projects. The project description should include product specification sheets, white papers, quotes from vendors to validate cost estimates, and other supporting documentation. Self Directed project applications may contain a single measure, or a combination of multiple measures at a single or multiple locations. All energy efficiency measures must be at customer locations receiving electric service from the Company.
- For new buildings, the application must contain computer energy modeling specific to the planned building to forecast the base case and efficient energy use. Computer modeling should be in accordance with the protocol specified in the Energy Design Assistance Product.
- Engineering calculations to forecast energy and demand savings, non-energy benefits and costs, and the estimated rebate.
- Benefit-cost calculations to determine the TRC Test, including a discussion of the sensitivity of the TRC and payback to various inputs, and the perceived accuracy of the inputs.
- Description of the controls the customer will use to reduce the likelihood of project cost and schedule overruns.
- Description of the proposed monitoring activities that will be used to document demand and energy savings. Pre- and post-installation metering and verification will be required for all projects with predicted energy savings greater than 0.25 GWh unless the Company and customer agree upon another methodology. The Company reserves the right to require measurement and verification on projects of any size.
- Any information reasonably requested by the Company to document and support the application.

Project Completion Report

The format of the project completion report must include the following components:

- Description of all deviations from the application package including equipment substitution, cost adjustments, operating procedures, etc;
- Documentation of all actual costs incurred including invoices, internal labor, incremental operation and maintenance costs, etc;
- Raw monitoring results and engineering calculations to demonstrate actual energy and demand savings based on monitoring results;
- Requested rebate amount; and
- Any information reasonably requested by the Company to document and support the completion report.

F. Stakeholder Involvement

Customers, trade allies, and other stakeholders are currently engaged at the project level. Feedback is garnered individually from participants and once a trend develops (positive or negative), Public Service can opt to make a change to the product design. If it is a small change, it will be discussed with key stakeholders and if deemed acceptable the change will be implemented. A larger change would possibly involve review by the product's external technical resources or other third-party consultant.

G. Rebate Levels

Public Service will pay rebates based on the actual savings from a project, up to \$525 per customer kW or \$0.10 per customer kWh. Rebates will be given for either peak demand or energy savings for a project, not both, and will be limited to 50% of the incremental costs of the project. Rebates will apply to new and long-term leased equipment, but not to used equipment. The maximum lifetime and payback for a measure is limited to the lease duration. All measures submitted in a Self Directed application will be combined for calculation of financial tests and rebate levels. Rebates will not be given for applications with expected paybacks of less than one year. Rebate levels will be adjusted downward so that no project (with rebates included) has a payback less than one year. For rebate calculation purposes, kW saved shall reflect the reduction in the customer's peak demand (kW) as a result of the energy efficient project. For rebate calculation purposes, kWh saved will be the annual kWh saved as a result of the energy efficiency project(s).

The expected rebate for the project will be communicated to the customer upon pre-approval. The final rebate amount will equal the preapproved rebate amount if the actual project costs and energy/demand savings are within 10% of the estimated values and the TRC ratio for the completed project meets the criteria stated above. If actual project costs, energy or demand savings differ from the estimated values by more than 10%, the customer should include revised calculations for the requested rebate in the project completion report. Customers may be required to return their rebate, or a portion thereof, if the Commission determines that the Company is not allowed to recover costs associated with the project.

➤ **Small Business Lighting Product**

A. Description

The Small Business Lighting Product offers free lighting audits and rebates for energy efficient lighting upgrades and special services to small and mid-sized business customers of Public Service Company of Colorado (“Public Service” or the “Company”) with peak demand of up to 400 kW. In addition to lighting, the customer will be informed of other energy saving opportunities available for rebates, such as heating, ventilation, cooling, motors, and recommissioning of their existing equipment.

The product specifically targets barriers that often prevent small businesses from investing in energy efficiency products: limited financial resources and time, limited knowledge of lighting products and a lack of access to quality contractors. To address these issues the product offers:

- Intensive outreach to bring the service to the customer, rather than relying on the customer to seek it out;
- Simple, one-stop services that hold customer time requirements to a minimum;
- Computerized lighting audits and reporting systems that generate site-specific feedback and reports;
- Objective recommendations backed by the credibility of the Company;
- Substantial rebates to offset the cost of installing energy efficient fixtures and lamps; and
- Assistance with preparing and submitting the rebate paperwork to the Company; and
- The Company will be exploring mid and upstream LED lamp incentive product models internally and with local manufactures and distributors. If we find the results positive, we will file a 60-Day Notice and move forward with implementation in 2014. .

To facilitate the above offerings, the product is implemented by a third-party implementer who is responsible for the following: provide a walk-through audit of a facility focusing on the lighting systems, provide a report with recommendations including the level of potential lighting energy savings along with other identified energy saving opportunities, serve as a liaison between the customer and the contractor during the retrofit, and complete and submit the rebate paperwork.

A similar product in Minnesota, the One-Stop Efficiency Shop, administered by the Center for Energy & the Environment (CEE), was used as a model for the Colorado Small Business Lighting Product.

B. Goals, Participants & Budgets

Goals and Participants

In support of the business program’s growing goals for energy savings and demand reduction, Small Business Lighting’s primary objective is to use rebates and other incentives to motivate small- and mid-sized customers to replace less efficient lighting with energy efficient lighting systems.

The participation and savings goals are derived from prior years participation and savings in Colorado; trade participation and feedback; lighting industry, economic and market trends; average project size and historical participation in the Minnesota CEE Product.

Budget

Budget was based on prior year actual participation and costs, as well as historical data from CEE's Minnesota Product. The largest budget driver in the Small Business Lighting Product is the lighting audit because it is free to the customer. The Company has projected an increase in costs in 2014 to accommodate increased participation.

With increasing DSM goals in 2014 and beyond, additional budget dollars assume product expansion, incorporating rebates for emerging technologies such as LEDs, and offering additional incentives to remove less efficient technologies from the Colorado commercial and industrial markets. Experience and trending from CEE's Minnesota Product is used as a checkpoint. For the Colorado Small Business Lighting Product, the majority of the budget will be driven by the third-party product implementer's costs to perform the customer lighting audit, along with rebates and promotional expenses.

C. Application Process

The Company promotes Small Business Lighting mainly through outreach efforts of the third-party product implementer. Secondary outreach occurs through the Company's website, direct mail, email promotions, collaboration with the Lighting Efficiency Product and through the lighting trade. Energy Efficiency Specialists are also available for all small- and mid-sized business customers, who may inquire about our rebates. Energy Efficiency Specialists may refer new leads to the third-party product implementer for follow-up. The third-party product implementer is expected to aggressively promote the product to increase participation.

The application process is similar to our prescriptive Lighting Efficiency Product. The first step in the process is to conduct a lighting audit at the customer's facility. Then, the third-party product implementer will assist customers in applying for rebates by completing the application and including a detailed invoice for the newly installed equipment. The replacement of fixtures for retrofit situations must be a one-for-one replacement that will result in energy savings. The equipment must be new and meet all the qualifications detailed on the application. After the customer has installed the equipment, the application and invoice must be submitted to the Company within twelve months of the invoice date. Once the paperwork is completed and submitted, rebate checks will be mailed to the customer as indicated on the application within six to eight weeks. The third-party product implementer will also assist customers in applying for a Custom Efficiency lighting rebate for projects that do not fit into the prescriptive menu. Project analysis and pre-approval of Custom Efficiency lighting projects is required prior to equipment purchase and installation, and the third-party product implementer assists the customer with that process.

D. Marketing Objectives, Goals, & Strategy

The key marketing objective is to raise awareness, interest and participation in the Small Business Lighting Product, contributing to goals for energy savings and demand reduction. The product is marketed primarily through the third-party product implementer. They are required to meet the implementation goals for which they are contracted and will determine the marketing strategies needed to meet them.

The Company will also continue to take lessons from the Minnesota product. CEE has had a great deal of success in lining up audits through the use of telemarketing and through referrals from contractors, customers, and Company staff.

The target customers for this service are small to mid-sized businesses of up to 400 kW annual demand. All market segments are eligible and the product will be available to all customers. Our Strategic Marketing group identified small business as a customer segment that has historically had low participation in energy efficiency products due to barriers such as:

- Lack of awareness of energy savings potential in lighting system upgrades;
- Lack of time to complete all the necessary steps to upgrade lighting system;
- Lack of capital to make lighting improvements;
- Uncertainty of value when facility is not owner-occupied; and
- Limited availability of qualified contractors due to small margins on small business lighting projects.

The Company selects the third-party product implementer via request for proposal to implement the Small Business Lighting Product. The third-party product implementer will perform these product responsibilities:

- Customer is to receive a free lighting audit when they agree to participate in the product;
- Will look for other energy savings opportunities during the audit and, at a minimum, make customers aware of other rebate opportunities;
- Will build a network of qualified contractors, approved by the Company, to aid the customer in implementation of lighting retrofits;
- Will serve as a liaison between the customer and the contractor;
- Will follow up with the customer to ensure that recommended measures get implemented and assist the customer as needed to hire a contractor
- Will prepare and submit the customers' application for rebate.

Marketing Messages Driven by Future Regulatory Requirements

In the coming years, Small Business Lighting energy savings potential will be affected by necessary compliance with several new Federal and State legislative rules (example: Department of Energy Rulemaking on fluorescent lighting technology). An important marketing strategy is to keep Energy Efficiency Specialists, trade partners and customers aware of the requirements and timing deadlines for these pending energy efficiency standards. These new rules will also

influence Lighting Efficiency Product development, such as the expansion of LED lighting applications and the phasing out of obsolete technology.

E. Product-Specific Policies

Small Business Lighting has a number of product-specific policies:

- The product is for customers with peak electricity demand of 400kW or less.
- All rebated equipment must be new, meet all product rules and requirements, and the application must be submitted within twelve months of the invoice date.
- Rebates assume a one-for-one replacement of retrofit fixtures that will result in energy savings.
- Once completed paperwork is submitted, rebate payments are usually issued in 6 to 8 weeks.
- Pre-approval is required for Custom Efficiency small business lighting projects prior to the purchase and installation of lighting equipment. The customer has up to 24 months after the pre-approval date to implement the lighting project. Custom projects that exceed their timeframe, or have significant equipment deviations from the original plan, require reanalysis and approval.

F. Stakeholder Involvement

The third-party product implementer has considerable influence on the success of the product, as they will be the face of the Company to potential participants. The Company expects that the third-party product implementer will engage stakeholders in the implementation of this product.

Lighting trade partners are an important stakeholder as they will be performing the lighting retrofits as well as promoting the product to customers. The Company expects the third-party product implementer to continue to grow the trade partner list of qualified contractors available for lighting retrofits. The trade partners on this list will have a vested interest in the product's success, as they will benefit from the work generated by the audits.

Stakeholder involvement in the Small Business Lighting Product also comes through a Small Business Lighting Advisory Board and the quarterly DSM Roundtable meetings. The Small Business Lighting Advisory Board was formed as a collaborative effort between several key lighting professionals and the Company's management team. The objectives of the board are to identify gaps in our product offerings, suggest areas of improvement, and to offer a forum for open discussion of lighting topics. The board will continue to meet on a regular basis or as long as needed.

G. Rebate Levels

Prescriptive rebates will be paid based on the same technologies listed in the Lighting Efficiency Product description.

➤ **Standard Offer Product**

The Standard Offer Product has been discontinued in accordance with the 90-day notice filed March 19th, 2013.

Public Service will maintain a reduced budget in order to fulfill the product's three year measurement and verification requirement of the projects already completed. During the period from January 1st, 2014 through until December 31st, 2016 there is the potential that additional rebates may be paid and kWh committed.

As of December 31st, 2016 the product will be officially closed and no further costs and achievement will be incurred.

Following is a description of the product as it was filed in it's last active year. All existing projects will still need to adhere to any conditions stipulated in this document.

A. Description

The Standard Offer Product is designed to provide Public Service business electric and retail gas customers, who have little or no upfront capital, the opportunity to participate in the implementation of energy saving measures through Performance Contracting. Performance Contracting allows the customer to pay for the improvements through the energy savings that result. Targeted primarily to public entities such as K-12 schools, colleges and universities, state, local, and country government, all business customers are eligible to participate. The Standard Offer program works closely with the Governor's Energy Office (GEO).

Business customers contract with an Energy Service Company (ESCO) who will identify, evaluate energy saving opportunities, recommend, and install a package of improvements to be paid through the savings they generate. The ESCO will guarantee that savings meet or exceed annual payments for the project.

The ESCO will provide a Technical Energy Audit (TEA), which is an investment grade audit, to Public Service for review of the measures. Agreed upon measures will be "bundled" into a comprehensive project that qualifies for both kW, kWh and Dth rebates.

The Standard Offer program allows alternate forms of energy audits other than a TEA for multiple building projects. A single application can be submitted for multiple premises. Both TEA's and alternative energy audits must be individually approved to qualify for rebates. Public Service will pay 50% of the study costs up to \$0.10 per square foot.

The initial phase of the Standard Offer Product involves the customer submitting to Public Service a proposal for a TEA or Statement of Work and a cost estimate for completing the study. This is submitted along with the Technical Energy Audit (TEA) Pre-approval Application for the TEA rebate. This should be submitted prior to completing the full TEA audit. The technical

energy audit is typically performed by an Energy Service Company (ESCO), but also may be performed by the customer. A list of pre-qualified ESCO's is available through the Governor's Energy Office. The audit follows the format established by the Governor's Energy Office. The customer receives a final report detailing the energy conservation opportunities, financial analysis, and potential funding mechanisms. Additionally, the audit report provides additional calculations detailing the technical inputs required for the project's benefit-cost analysis.

B. Goals, Participants & Budgets

Goals and Participants

Launched in 2009, the program has had few projects complete the entire project implementation process. Projects initiated in 2009 and early 2010 are being completed in 2011. Participation has continued to increase, resulting in an extensive pipeline of projects expected to be completed within this filing period.

Goals have been determined by evaluating the project cycle time and the expected closing date of projects in the pipeline.

Budget

The majority of the budget will provide rebate dollars to customers. Of the budget proposed for customer rebates, it is estimated that approximately one third will be study rebates and the remaining two thirds will be implementation rebates.

C. Application Process

Due to the comprehensive nature of the Standard Offer Product, Public Service expects the sales and completion cycle to range from 12 to 24 months. The Standard Offer Product is marketed through the account managers and ESCOs, as well as supported by the GEO. The Standard Offer process involves filling out applications at the various stages of the project as follows:

1. The customer fills out the Technical Energy Audit pre-approval application. This should be completed before the study begins. The account manager or ESCO can assist with this process.
2. The customer fills out the Technical Energy Audit rebate application once the TEA is completed. After all supporting documentation is supplied including the TEA, commitment to install bundled measures, signed monitoring plan, and TEA invoices, the study rebate can be paid.
3. The customer fills out the Standard Offer Measure Rebate Application at the completion of the project. Measures are verified by the account manager and submitted for rebate.

D. Marketing Objectives, Goals, & Strategy

Primarily, Public Service relies on the Governor's Energy Office and participating Energy Service Companies to market this product to customers. The Company expects that state and local governments, school districts and higher education institutions will be particularly

interested in this product. Additionally, Public Service will work with ESCOs to identify conservation opportunities with the Standard Offer Product outside of the public sector buildings. To supplement the efforts of the GEO and ESCOs, Public Service plans to offer training seminars to ESCOs, as well as targeted customer groups such as school administrators and government buildings staff. Additional communication formats including newsletters and direct mailing may be used to increase customer awareness.

E. Product-Specific Policies

The customer may perform the technical energy audit using a pre-qualified ESCO, or internally.

Public Service will not rebate for measures identified through the TEA that are outside of the scope of the Company's DSM product offerings. For example, although the audit may identify the installation of a solar photovoltaic system as a worthwhile investment, this type of measure is not rebated through Public Service's DSM products, and therefore will not be covered under the Standard Offer Product. These measures may however be eligible for rebates under alternate Public Service programs, such as Solar*Rewards. Public Service will identify these opportunities during the technical energy audit review process, and provide assistance with the appropriate supplemental Public Service rebate application process.

All measures agreed to in the final audit and construction contract/letter of intent will be evaluated together as one bundled project. The benefit-cost analysis and rebate amount will be calculated on the aggregated incremental costs and savings of the bundled project. Prescriptive rebates will not be issued for measures implemented in the Standard Offer Product. Instead, predicted and actual energy and demand reductions (measured through M&V) will be used to determine the rebate amount. For example, installation of a variable frequency drive on a 10 hp motor would not be issued a rebate based on the Motor & Drive Efficiency Product prescriptive dollars per horsepower standard. Rather, predicted and actual savings from the installation of the drive would be measured and calculated as part of the entire package of implemented measures. The amount of the rebate for the bundled project would be calculated based on the methodology described in section H, Rebate Levels.

F. Stakeholder Involvement

Public Service continues to meet with the Governor's Energy Office and the Colorado Energy Services Coalition to maximize the effectiveness of the Standard Offer Product. Going forward, GEO will play a significant role in challenging schools, higher education institutions, state, and local government building participation. Additionally, the ESCO community, customers, and the GEO will provide valuable feedback through discussions with the product portfolio manager on possible product improvements.

G. Rebate Levels

Public Service will offer two main types of rebates in the Standard Offer Product. Study rebates will be given to offset a portion of the cost for the technical energy audit, and implementation rebates will be given based on actual energy and demand reductions to offset a portion of the

incremental costs to implement the bundled project. The combination of study and implementation rebates are intended to encourage conservation projects, especially in educational and government buildings where peak demand may not correlate with system wide peak demand, and annual operating hours may vary significantly from project to project.

Study rebates will be provided for pre-approved energy audits at 50% of the cost up to \$0.10 per square foot. Implementation rebates apply to new and long-term leased equipment, but not to used equipment and will be capped at 60% of the bundles incremental cost. Rebate levels are based on actual savings up to \$250 per kW saved and \$0.05 per annual kWh saved. Rebates will be provided to Public Service retail gas customers for gas conservation projects up to \$4.00 per annual dekatherm.

Implementation rebate levels will be calculated based on the initial M&V baseline results for the agreed upon bundled project. M&V data from each year will be reviewed to determine if the implementation rebate amount was appropriate. Additional rebate dollars will be given if the actual conservation is greater than 110% of the conservation calculated for the implementation rebate. Conversely, if the actual savings are less than 90% of the estimated savings, the customer will be required to return the portion of the rebate commensurate with any rebated savings above the actual measured savings.

Residential Program

A. Description

Public Service will continue to offer a wide range of product offerings to serve the Residential Program in 2014. The Residential Program will be available to over 1.23 million electric and 1.18 million natural gas customers.¹⁸ Customers traditionally reside in single-family homes, multi-family homes, and apartments/condominium residences. To address this varied set of customers, the Company will offer a unique set of products targeted to reach the vast majority of the residential market and provide customers with multiple opportunities to participate.

While the Business Program focuses on customers with large energy savings projects, the Residential Program is truly a mass-market program that will touch thousands of customers annually. The products will be implemented to allow large numbers of customers to participate and benefit from the products.

The portfolio of products focus on educating our customers on energy efficiency and giving them simple ways to participate and encouraging them to make long-term commitments to reduce their energy usage. The Company offers a comprehensive set of products including prescriptive rebates for heating and cooling equipment, whole house solutions for new or existing homes, lessons on energy efficiency to school-aged children, and recycling of old secondary refrigerators. The program also contains Saver's Switch, a demand response product available to residential customers.

Products

A thorough portfolio of residential products is planned for 2014. The full list of residential products is provided in the table below, along with rankings and other market data. Public Service is adding new energy efficiency measures through this Plan, kitchen and bathroom faucet aerators for both the Showerhead and School Education Kits and electronically commutated motors for furnace fans.

¹⁸ Customers counts as of June 4, 2013.

Table 9: Residential Program Product Rankings

Product Name	Product Ranking¹⁹	Type of Product	Fuel
Home Lighting & Recycling	1	Prescriptive	Electric
School Education Kits	3	Prescriptive	Electric/Gas
Showerhead	9	Prescriptive	Electric/Gas
Evaporative Cooling Rebates	10	Prescriptive	Electric
Refrigerator Recycling	13	Prescriptive	Electric
Saver's Switch	19	Prescriptive	Electric
Energy Star [®] New Homes	20	Prescriptive	Electric/Gas
Heating System Rebates	23	Prescriptive	Electric/Gas
Insulation	24	Prescriptive	Electric/Gas
Pool Pump	27	Prescriptive	Electric
High Efficiency Air Conditioning	28	Prescriptive	Electric
Home Performance with Energy Star [®]	30	Prescriptive	Electric/Gas
Water Heater Rebate	31	Prescriptive	Electric/Gas

In developing and refining the portfolio of products, Public Service worked closely with external consultants familiar with residential and low-income products nationally. This included assessing possible products, developing technical assumptions specific to efficiency measures and the Colorado climate and energy codes, and performing an initial cost effectiveness test. The Company researched other utility offerings to learn about new products, understand their challenges, and discover how the existing products could be improved. The Company worked with industry consultants and vendors such as E-Source, American Council for an Energy Efficient Economy, and Consortium for Energy Efficiency to learn about activities across the nation. In addition, Public Service spoke with several local energy industry members to shape and refine products and discuss partnership opportunities. The list of key external energy efficiency experts is located below in the Stakeholders section.

B. Overall Goals, Participants & Budgets

The Residential Program products have a large reach to customers and provide a wide portfolio of offerings that will allow all customers to participate. Planned achievements of 99 GWh and 244,306 Dth over the one-year period account for 25% of the Company's total electric energy savings goal and 39% of the total natural gas goal. The most energy efficiency savings within the Residential Program will come from Home Lighting & Recycling, School Education Kits, Evaporative Cooling, and Refrigerator Recycling.

¹⁹ Rankings are done by determining market segments that could participate in the program, customer classes available, total projected savings, MTRC score, participation, and participation % of market. The entire portfolio ranking can be found in the Appendices of this DSM Plan filing.

Table 10a: 2014 Electric Residential Program Budgets & Goals

2014	Electric Participants	Electric Budget	Customer kW	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
Residential Program						
ENERGY STAR New Homes	1,924	\$631,958	1,000	429	1,689,054	1.38
Evaporative Cooling Rebate	4,525	\$2,436,861	12,629	6,335	3,927,304	7.93
Heating System Rebate	2,500	\$306,833	266	186	2,371,209	1.33
High Efficiency Air Conditioning	3,651	\$2,780,206	3,360	2,220	2,000,075	0.93
Home Lighting & Recycling	838,750	\$8,379,231	115,599	11,367	76,523,940	2.68
Home Performance with ENERGY STAR	497	\$230,400	409	132	295,245	1.14
Insulation Rebate	1,400	\$378,696	1,266	710	821,218	1.08
Pool Pump	1,265	\$704,843	2,288	793	2,196,769	1.33
Refrigerator Recycling	8,000	\$1,307,459	1,371	481	4,214,464	1.63
Saver's Switch	12,000	\$12,420,170	12,240	13,261	227,759	2.00
School Education Kits	38,500	\$1,539,289	7,508	390	4,418,484	1.88
Energy Efficiency Showerhead	2,255	\$33,980	23,678	0	696,290	16.91
Water Heater Rebate	50	\$39,288	68	9	76,474	0.63
Residential Program Energy Efficiency Total	903,317	\$18,769,044	169,442	23,051	99,230,525	2.93
Load Management Program - Residential Saver's Switch	12,000	\$12,420,170	12,240	13,261	227,759	2.00
Residential Program Total	915,317	\$31,189,213	181,682	36,312	99,458,284	2.65

Table 10b: 2014 Gas Residential Program Budgets & Goals

2014	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Residential Program						
ENERGY STAR New Homes	2,544	\$2,546,788	95,294	37,417	2,361,788	1.38
Evaporative Cooling Rebate						
Heating System Rebate	4,950	\$711,142	38,645	54,342	-906,566	0.78
High Efficiency Air Conditioning						
Home Lighting & Recycling						
Home Performance with ENERGY STAR	500	\$181,506	8,439	46,494	32,827	1.06
Insulation Rebate	4,000	\$860,363	47,640	55,372	88,871	1.03
Pool Pump						
Refrigerator Recycling						
Saver's Switch						
School Education Kits	38,500	\$617,815	30,131	48,770	4,017,797	6.10
Energy Efficiency Showerhead	18,245	\$252,620	20,341	80,520	2,994,380	9.85
Water Heater Rebate	1,200	\$158,453	3,816	24,084	-432,809	0.42
Residential Program Energy Efficiency Total	69,939	\$5,328,687	244,306	45,847	8,156,288	1.50
Load Management Program - Residential Saver's Switch						
Residential Program Total	69,939	\$5,328,687	244,306	45,847	8,156,288	1.50

Goals and Participants

Electric goals were established first at the portfolio level by the Commission in Docket No. 10A-554EG.²⁰ The Company's DSM management team reviewed these goals and completed an initial allocation to the Business, Residential, and Low-Income Programs. This allocation was

²⁰ Note that there were no natural gas DSM goals established by the Commission, Rule, or Statute, but rather that the gas DSM rules require utilities to propose a savings target.

accomplished through a review of historical data, discussions from the DSM Roundtable meetings, and meetings with local and national energy industry experts.

Once the overall portfolio goal was allocated to the individual programs, the program goals were allocated to each product. This allocation process was based primarily on a review of product performance for the past three and half years and longer-term experience with similar products in Minnesota. Each product team then reviewed the information and informed the program manager on whether the goals set forth are achievable.

Budgets

For 2014, DSM budgets were developed using a well-defined process. Relative to the goals setting process, budgets were first allocated across customer segments, specifically to Business, Residential, Low-Income, and Indirect. Under each program, the products rebate budgets were then established according to the desired number of product participants and estimated average project size. Next, budget components, such as advertising and promotion, were developed as part of the product planning process. Then, product delivery budgets, including Company labor and external resources, were calculated. Some products, such as New Construction, issue competitive bids to secure consultant resources. Finally, the budgets are totaled and reviewed for reasonableness given the historical and projected performance of each product. The resulting overall goals and budgets from this planning process are shown in the executive summary section of this Plan.

The Residential electric energy efficiency budget is increasing overall in 2014 due to the Home Lighting & Recycling product net to gross downward adjustment. This leads to the product needing to sell more equipment to maintain consistent levels of achievement. The natural gas budget is decreasing due to the removal of several non cost effective measures.

C. Market Analysis

With the increase in awareness of energy issues and saving energy, there continues to be good energy efficiency opportunities for residential customers. There is also an opportunity to impact both the short-term and the long-term in how new homes are constructed through our ENERGY STAR Homes Product. Related to this issue is the quality of existing homes from an energy efficiency perspective.

Public Service believes evaporative cooling is an excellent low cost source for cooling in the Colorado climate. While supporting this technology, the Company also realizes that customers are looking for central air conditioning options. To address this demand, the Company offers products focused on quality installation of new units and tune-ups for existing units.

The Company will continue to investigate technologies that were assessed but not included in this filing, mostly due to cost-effectiveness concerns. These are ideas that are regularly screened, developed and evaluated in a routine process, including the following ideas for improving home efficiency:

- Radiant cove and radiant floor heating
- Solar tube lighting
- Expanded LED lighting options

- Solar water heating, electric & gas
- Smart power strip for TV's, and electronics
- Improved windows

The marketing, technical and development staffs are continually looking and adding new ideas to the database and discarding some that are not viable in the relevant time period.

D. Marketing/Advertising/Promotion

Trade allies, end-use equipment vendors, energy services companies, and Public Service's call center representatives primarily drive conservation and demand response achievements in the Residential Program. The Company utilizes newsletters, customer events, direct mail, email communications, and awareness advertising to reach customers. The challenge with customers is that energy efficiency doesn't tend to be on the top of their minds. Customers tend to focus on purchase price rather than lifetime costs and are unlikely to replace equipment prior to failure. Customers may also not be aware of energy efficient options available when the need arises to make purchase decisions. Yet, opportunities are growing in marketing to customers because energy costs and climate change have increased this awareness and affinity for energy-saving actions. To support marketing efforts, Public Service employs an integrated approach to marketing communications, where the tactics are designed to work in concert with each other and reinforce key messages over time.

Strategy

Public Service follows the "AIDA" (awareness, interest, desire, action) process for encouraging customers to use the rebate products. The following are the steps in this process:

1. Create awareness of electric and/or gas prices with respect to their monthly income and living expenses and potential savings from energy efficiency offerings.
2. Create interest by offering more information about product offerings as details become available.
3. Create desire by showing how customers can save in the short-term with rebates and in the long-term in the monthly operating costs for their appliances or equipment.
4. Move the customer toward action by providing a wide range of product offerings that may address one or more of their needs.

Key Messages and Target Audience

When communicating with customers, Public Service uses several overarching key messages including:

Energy efficiency reduces monthly utility bills due to lower operating costs.

Public Service helps lower energy bills by giving rebates and incentives for installing highly efficient equipment.

Energy efficiency helps reduce the customer's impact on the environment.

Communications vehicles:

- Product collateral including brochures, applications, and participating vendor lists.
- Newsletters that promote energy efficiency products and efficiency education.
- Xcel Energy website and email marketing.
- Direct mail campaigns for specific products.

- Events including product and technical training for contractors and customer education.
- Speaking opportunities at local trade association events.
- Media relations including free placement in appropriate media, focusing primarily on customer stories and product information and changes.
- Advertising in newspapers, radio, periodicals and the internet.

E. Program-Level Policies

There are several general policies that are followed in Public Service's Residential Program. Individual products may follow different policies as noted in the product descriptions. The overall program-level policies include:

- Proof of installation: All products require documentation of installation through either proof of purchase (i.e. invoices) or site verification.
- Installation date: Rebates are provided for equipment installed within a 12-month period.

F. Stakeholder Involvement

Throughout the product development process, Public Service had discussions with key external parties. The discussions were done in group meetings, one-on-one meetings, phone calls, and brainstorming sessions. The Company talked with several local members to shape the new products and refined existing products. This includes: City/County of Boulder, City of Denver, Colorado Energy Office, Center for Resource Conservation, Colorado Department of Public Health and Environment, Lightly Treading, Energy Efficiency Business Coalition, Denver Water, and Resource Action Programs.

In addition to local contacts, Xcel Energy also worked with national organizations in developing the products. This includes: American Council for an Energy Efficient Economy, Consortium for Energy Efficiency, Department of Energy/ENERGY STAR, E Source, Southwest Energy Efficiency Project, and Wisconsin Energy Conservation Corporation. Several of these local and national organizations will either be involved in one or more products or they will be utilized to provide feedback on the new product to understand what areas could be improved in the future.

G. Evaluation, Measurement & Verification

The specific product measurement and verification plans are included in the E,M&V section of the Indirect Products and Services in this Plan.

Products that will undergo comprehensive evaluations in 2014 are noted in the E,M&V section of the Indirect Products and Services, as well as in the respective product description.

➤ ENERGY STAR New Homes Product

A. Description

The ENERGY STAR[®] New Homes Product provides homebuilders with an incentive to exceed state and local building codes and common construction practices. The product continues to build on the work started in 2009, when Public Service launched the product. This product encourages homebuilders to consider a “whole-house” approach to energy conservation when building new single-family and small multi-family homes. This approach combines energy saving construction methods with energy efficient appliances to achieve significant energy savings and provide the customer with lower energy bills, fewer maintenance concerns, higher resale value, and a more comfortable, quiet home.

In 2012, Public Service added a new ENERGY STAR-certified Version 3 (v3) rebate tier to this product. This tier requires the home to be constructed to the v3 standard. Our analysis indicates the v3 standard by itself is not cost-effective due to the increased costs to our builders and the minimal additional energy savings realized from the v3 standards. Further, if the v3 standard were adopted for all product tiers, the ENERGY STAR New Homes Product would no longer be cost-effective. However, the other ENERGY STAR New Homes rebate tiers remain cost-effective at their current levels. The Company remains an active supporter of ENERGY STAR and will continue to actively promote the ENERGY STAR brand and encourage builders to construct their homes to the ENERGY STAR standard.

This product applies to builders of residential single-family, multi-family (duplex, triplex, fourplex) and town homes that receive combined electric and gas service or gas only service from Public Service. Structures that have common conditioned space such as hallways and elevator shafts are not eligible for the product. In order to qualify for our product, participants are required to build homes that exceed state and local building codes. Our baseline for forecasting purposes is 2009 IECC; however, product savings are calculated individually for each home based on the difference between the home’s local jurisdictional code (baseline) and the new home as built. Builders will receive rebates based on the final HERS Index achieved for their home and energy raters will continue to receive compensation for each qualified home that completes the product requirements. Additional rebate dollars are available to the builder if qualifying energy efficient appliances are installed at the time the home is rated.

The estimated code compliant home in the Denver Metro area climate zone is expected to fall under the 2009 IECC and yield a HERS Index of approximately 80. Builders participating in the product must build homes that reach the minimum HERS Index of 75 to receive a rebate (where lower HERS scores indicate a more efficient home).

Builders constructing homes in cities or counties with more stringent codes are eligible to participate, but the required HERS Index in order to receive a rebate will be set below the existing code requirements for that area. An example of a jurisdiction with a requirement to exceed the adopted IECC code by a minimum of 30% is included in Section G.

Builders have the flexibility to mix and match efficient technologies or building techniques to obtain a HERS Index that meets the product requirements and qualifies for rebate. For example, a builder could install a high efficiency furnace of 96% AFUE combined with less efficient windows, and meet the threshold provisions. The builder has the option to install any combination of technologies to obtain the desired HERS Index target. Additional prescriptive rebate dollars are available to the builder when qualifying appliances are installed. These include an ENERGY STAR clothes washer, dishwasher, or refrigerator and builders can install one or any combination of the three qualifying appliances to receive a rebate.

The Company uses a third-party product implementer to enroll builders and maintain a quality pool of HERS rating companies. The HERS rater will model and test the home to determine whether it meets the product requirements and to establish a final HERS Index. HERS rating companies have the flexibility to participate in this product by agreeing to a standard Scope of Work managed by the company's product implementer. The HERS raters in the state of Colorado have established strong relations with the builder community they serve and the Company wishes to build on those relationships and support the raters in their efforts. The product implementer will provide product training for the rater and will be available to assist with builder training when needed and will be responsible for obtaining the rating information from the rater and reporting it to the Company.

B. Goals, Participants & Budgets

Goals and Participants

The product goals are based on previous product performance and a forward look into new construction trends based on available market intelligence. Nationally, new home construction starts in 2012 reached their highest level since 2008, but remain way below long-term normal levels. The Colorado market seems to be doing better than the national market but growth levels will continue to be modest. Construction lending remains tight and challenging for builders to obtain and potential new homeowners are still finding it difficult to meet the lending requirements in order to qualify for loans. As a result, we are expecting product participation to increase only slightly in 2014.

Budgets

The budget for this product is driven in large part by forecasted participation levels and includes costs for product administration, builder rebates, rater compensation, materials, promotional events, measurement and verification and labor. Product administration costs include those for our third-party product implementer and compensation paid to the HERS raters for providing rating information and meeting the program requirements. Builder rebates are the single largest expense component for this Product.

C. Application Process

Application (or enrollment) for this product is done by the participating HERS raters who have strong, long standing relationships with most of the builders operating within our service territory. To initiate the process, HERS raters will contact their builders or the builder will express interest in constructing a home better than code to a rater. The rater will explain the product and potential rebates available, review the home's blueprints and building schedule, and enter the home details into our third-party implementer's tracking database. The rater will also work with the builder throughout the construction phase to construct the home to better than code standards.

When the home is completed, the HERS rater will perform an air tightness test on the house and the energy impacts, which in turn drives the final HERS Index achieved. This information is submitted to our third-party implementer who will review and approve each request. The builder will receive a rebate based on the final HERS Index achieved. The HERS Index is correlated to specific gas and electric savings as determined by the HERS raters modeling and evaluation of the home. There is no rebate application for the builder or rater to complete since all required information is submitted electronically by the HERS rater to our third-party implementer who also ensures all the information entered into their database system is correctly tracked and submitted to Public Service.

D. Marketing Objectives, Goals, & Strategy

The goal of the ENERGY STAR New Homes Product is to motivate builders to construct homes that are more energy efficient than required by local building codes. The product is primarily promoted to HERS raters and builders and, to a smaller degree, consumers, using targeted marketing tactics. The third-party implementer provides recruitment and training services for our HERS rating companies. The participating HERS rating companies conduct and report on each home's efficiency level when construction is complete. The product is promoted to builders by the participating raters and the product implementer using individual sales and recruitment techniques.

Public Service will continue to work with the Colorado Energy Office, cities, environmental organizations and other interested parties to build awareness throughout the customer and builder markets. This marketing effort is intended to communicate the benefits of the product, ENERGY STAR and motivate builders to differentiate themselves by building homes better than code and, if possible, to be ENERGY STAR certified.

E. Product-Specific Policies

Homebuilders will be encouraged to register as an ENERGY STAR partner. Participating HERS raters must be Residential Energy Services Network (RESNET) authorized and use modeling software approved by RESNET. All qualifying homes must be rated using the widely adopted performance path method. The BOP and Sampling test out options will not be allowed for this product. The performance path requires independent verification by a qualified, participating HERS rater.

A HERS rating is determined using approved software, such as REMRate, to model the home's energy use to verify that it meets a target HERS Index. In order to qualify and receive a rebate from

Public Service Company, homes need to meet a minimum HERS Index of 75 in the mountain communities and Denver area. Homes do not need to be ENERGY STAR-certified to receive rebates, except for those homes constructed and submitted under the new ENERGY STAR-certified v3 rebate tier. Each rebated home must reach a minimum HERS Index in order to qualify for any incentives, which can be seen in Section G. Public Service requires each house to be modeled and tested using the HERS performance method and the HERS rater must complete the—Thermal Enclosure Checklist (TEC) and the home must pass all sections in order for the builder-to receive a rebate.

The ENERGY STAR-certified v3 builder rebate tier is only available to combined gas and electric homes served by the Company. Gas only homes served by the Company are not eligible for this rebate. Qualifying homes that earn the ENERGY STAR label, meaning the participating HERS Rater verifies the home meets all requirements of the ENERGY STAR New Homes Version 3 standard, are eligible to receive a rebate when the following criteria are met:

- a) the ENERGY STAR label is be applied to the breaker box;
- b) the home receives a HERS Index value of 60 or less;
- c) qualifying ENERGY STAR refrigerator, dishwasher, and clothes washers are installed in the home;
- d) More than 20 or 100% of ENERGY STAR-qualified light fixtures (whichever is less) are installed in the home; and
- e) The home receives both electric and gas service by Public Service.

Public Service will offer a separate rebate structure for homes requiring low HERS Index scores. An example is provided in Section G.

Gas only participants are not eligible to receive the \$10 rebate for installing the ENERGY STAR refrigerator measure. Homes that receive electric service only from the Company are not eligible to participate in this product. In other words, the home must receive gas only service or combined gas and electric service from the Company in order to participate.

The product does not include the impacts of a PV or other renewable generation systems when calculating the HERS Index for a home. Incentives for PV systems are paid through the Solar*Rewards product. Accordingly, energy savings credit for PV systems is not taken under this product.

F. Stakeholder Involvement

The product continues to be refined due to changes occurring in the new homes marketplace. We strive to maintain our on-going relationship with the Environmental Protection Agency (EPA) and Department of Energy, who manage the national ENERGY STAR program. The Company is an active Sponsor and participant in the national program and recognizes, among other things, the strong awareness of the ENERGY STAR brand. In order to maintain this relationship and grow the product, we worked with the EPA to develop the new ENERGY STAR-certified v3 rebate tier.

In addition, Public Service Company serves on the new home construction committee for the Consortium for Energy Efficiency, which meets regularly and works closely with the EPA and ENERGY STAR, attends the ENERGY STAR Homes Partner meetings, and is represented at RESNET conferences by its third-party program implementer.

Public Service will strive to work with the Colorado Energy Office as well as other Colorado entities, such as the City of Denver, to make the ENERGY STAR New Homes product successful by offering a consistent message and process.

We recently implemented a monthly communication process whereby all builders are updated on product achievements such as number of completed homes, savings realized and other important information.

G. Rebate Levels

Builders are eligible to receive a rebate based on the final HERS Index achieved for their home and may also be eligible to receive a rebate for installing one or any combination of the qualifying appliances.

Builder Rebate Levels

HERS Index for Rebate Eligibility	2014 Rebate
75 – 71	\$100
70 – 66	\$250
65 – 61	\$500
60 or below	\$1,000
60 or below, ES v3 Certified	\$1,200

Public Service will offer a separate rebate structure for homes requiring low HERS Index scores. An example of a jurisdiction with a requirement to exceed the adopted IECC code by a minimum of 30% is included below:

Example Rebate Structure for Jurisdictions Requiring Low HERS Index Scores

HERS Index for Rebate Eligibility	Up to 3,000 sq ft Rebate for 2014	3,001 sq ft and Over
65 – 61	\$300	N/A
60 or below	\$600	N/A
60 or below, ES v3 Certified	\$900	N/A

The example above assumes this jurisdiction requires homes up to 3,000 sq ft to be 30% more efficient than 2006 IECC. In this example, a 3,000 square foot home that achieves a HERS Index of 65 would receive a total rebate of \$300 (for meeting the minimum Rebate Eligibility threshold). Homes larger than 3,000 sq ft would not be eligible for any rebates.

Additional product requirements (refers to both rebate Tables above) include:

- The final HERS Index must be less than the maximum allowed by code to qualify for a rebate.
- Rebate levels will be adjusted as appropriate to account for codes requiring lower than standard HERS Indexes.
- No rebates will be given for homes with a baseline HERS Index requirement of 60 or lower.

For the appliance rebate option, the builder will receive a rebate for installing one or any combination of the three qualifying appliances including: ENERGY STAR clothes washer, dishwasher, and/or refrigerator. The appliance rebate option is available to all newly constructed homes served by the Company with combined residential gas and electric service. Gas only homes are not eligible for the ENERGY STAR Refrigerator Rebate; however they are eligible for the ENERGY STAR dishwasher and clothes washer rebates.

Appliance Rebate Structure for ENERGY STAR New Homes

Appliance	Rebate
ENERGY STAR Dishwasher	\$10
ENERGY STAR Clothes Washer	\$50
ENERGY STAR Refrigerator	\$10

Rebates for this product will only be paid for a qualifying HERS rating and appliances. Separate prescriptive rebates for other equipment such as lighting, air conditioners, furnaces, insulation, and hot water heaters are not available for homes participating in the product since the impacts from this equipment is already included in the HERS analysis and final HERS Index.

Participating HERS energy raters will receive a maximum payment of \$200 for qualified homes tested using the HERS Performance method. Homes must earn a rebate and successfully complete the Company’s specified requirements for the Rater to receive the \$200 payment.

➤ **Evaporative Cooling Rebate Product**

A. Description

The Evaporative Cooling Rebate Product provides a cash rebate to Public Service's electric customers who purchase high efficiency evaporative cooling equipment for residential use in Colorado. There are three rebate tiers available for the Evaporative Cooling Rebate Product. Two of the tiers are for basic ducted systems and one for whole house ducted systems.

This product dedicates resources toward increasing energy efficiency in residential homes by encouraging consumers and builders to purchase evaporative coolers rather than central air conditioning. Participating customers benefit by reducing the cost of buying energy efficient units in addition to experiencing energy savings throughout the lifetime of the equipment.

Qualifying equipment must be new and be a permanently installed direct, indirect or two-stage evaporative cooling unit. Portable coolers or systems with vapor compression backup are not eligible, nor is used or reconditioned equipment. Customers need not be replacing an existing evaporative cooling or air conditioning unit to qualify.

The purpose of the Evaporative Cooling Rebate Product is to transform the market over time from central air conditioners to evaporative cooling. For homes in dry climates, such as Colorado, evaporative cooling provides an experience like an air conditioner, but with significantly less energy use.

B. Goals, Participants & Budgets

Goals and Participants

The goal is based on past activity, current market conditions, and projected sales of evaporative coolers. Proposed savings were estimated on a per unit basis using the projected number of participants. However, participation in this product is weather-sensitive. Cooler-than-normal summers result in lower participation as customers may choose to delay purchasing a unit if the weather is mild.

Budgets

The budget was developed using historical Evaporative Cooling Rebate participation. The budget is based on projected participation and the funds needed to promote and administer the product. These promotional efforts will take place in the summer months when the cooling season is in full swing.

C. Application Process

Public Service will make customers aware of the product through a variety of sources including bill inserts, direct mail pieces, the Xcel Energy website, HVAC contractors, builders, retailers and HERS raters. To participate, eligible customers must submit a completed application with a copy of their invoice or receipt. At this time, customers may self-install the units, provided that they supply the paid sales invoice along with the rebate application form. When a customer submits the rebate form with an invoice, it is reviewed for accuracy and qualifications prior to mailing a rebate check. Invoices or receipts must detail purchased equipment. If it is a first-time or a whole house installation, the customer must provide all receipts for additional components purchased or have these items detailed on the invoice. If the documentation does not meet the first time installation or whole house requirements, the application will be processed as a replacement.

D. Marketing Objectives, Goals, & Strategy

The main objective of the Evaporative Cooling Rebate Product is to promote the use of evaporative coolers in place of air conditioning. The product will be promoted through the following strategic marketing efforts:

- Local newspaper advertising – mid-summer promotions are generally most successful;
- Internet ads that will track number of views and “clicks”;
- Monthly customer email updates;
- Bill messages/inserts in the spring and mid-summer;
- Contractor packets to all contractors in the Colorado area,
- QR codes and Point of Purchase advertising; and
- Contractor education.

Public Service has partnered with over 500 dealers and over 150 retailers in the state of Colorado who receive our product literature and help to promote the product. Contractors and builders in Colorado are also an essential part of customer awareness and will receive information on product changes regularly.

In addition, Public Service utilizes a channel manager to assist with the communication of product details to the dealer and distributor channels. Other activities of the channel manager may include: training sessions on product specifics, product related mailings, and overall relationship development and maintenance.

E. Product-Specific Policies

Customers must purchase qualifying units in order to be eligible for a rebate. Units are qualified for the product based on the manufacturer's specifications. New models are added to the list of qualifying units as Public Service is notified of their release.

F. Stakeholder Involvement

Public Service is in frequent contact with the evaporative cooling manufacturers to remain up-to-date on the latest models available. In addition, the Company worked with Nexant to design the Tier 3 rebate level for this product.

G. Rebate Levels

Three rebate levels are available for the Evaporative Cooling product. For the Tier 1 and Tier 2 rebates, the program offers both replacement rebates and first-time installation rebates. Tier 3 customers can earn a rebate for a newly installed whole house ducted evaporative cooling system. Coolers must be permanently installed, direct, indirect, or two-stage evaporative cooling units for customer equipment rebates.

Tier 1: Qualifying evaporative cooling units have a minimum Industry Standard Rated (ISR) airflow of 2,500 CFM. The first-time installation rebate amount is the lesser of \$250 or the purchase price of the unit and replacement rebate is \$100. Taxes and ancillary items such as hoses are not covered by the rebate. Retailers or contractors will receive a \$50 incentive for every approved rebate application received.

Tier 2: Qualifying evaporative cooling units have a minimum Media Saturation Effectiveness of 85% and above. The units must be manufactured with a remote thermostat and a periodic purge water control or have these two features included on the invoice. The first-time installation rebate amount is the lesser of \$600 or the purchase price of the unit and replacement rebate is \$500. Contractors or retailers will receive a \$75 incentive for every approved rebate application received.

Tier 3: To qualify for the whole house rebate, the whole house cooler must be indirect/directly cooling and fully ducted in the home with a minimum of four down ducts installed (two at a minimum must be newly installed). The rebate amount is \$1,000 to the customer. Builders and/or contractors will receive a \$100 incentive for every approved rebate application received.

Rebate applications must be submitted by July 31 of the following year after installation to qualify for a rebate.

➤ Heating System Rebate Product

A. Description

The Heating System Rebate Product provides an incentive in the form of a cash rebate to Public Service's natural gas customers who purchase high-efficiency heating equipment, including boilers, furnaces, and electronically commutated motor (ECM) furnace fans for residential use.

This product dedicates resources toward increasing energy efficiency in residential homes by encouraging consumers to purchase high efficiency furnaces and boilers. Public Service customers benefit by receiving a reduced cost for energy efficient units, in addition to experiencing energy savings throughout the lifetime of the equipment. In making a purchase decision, consumers can check with Public Service or a participating Heating, Ventilating and Air Conditioning (HVAC) contractor to ensure all minimum qualifications exist with the chosen system to obtain a rebate. Public Service allows customers to choose their own independent residential heating system contractor or installer. Rebates are also available for self-installations.

The product is applicable only for the purchase of qualifying new furnaces, ECM furnace fans and boilers installed in new or replacement applications. Rebates are offered for a minimum furnace efficiency of 96% Annual Fuel Utilization Efficiency (AFUE). The Company previously offered rebates for 92% and 94% AFUE furnaces, but these rebate tiers are being eliminated in 2014 because they are not cost-effective. Although 96% AFUE furnaces are also non-cost-effective, we have included them in the product to encourage the use of high efficiency furnaces in the marketplace. Public Service will use an 85% AFUE minimum efficiency level for boilers, which is consistent with the ENERGY STAR recommended minimum for boilers.

B. Goals, Participants & Budgets

Goals and Participants

Goals were developed based on the Colorado 2011 and 2012 participant data and knowledge of similar products in Xcel Energy's other jurisdictions. Total product participants will be similar to the 2013 goal.

Budgets

Budgets were developed based on the costs per participant from the 2012 Colorado product results. The budget also accounts for costs needed to engage the HVAC contractor base in order to serve the customers in the territory. It is essential to the success of this product to continue to build the contractor community. The budget includes promotional costs for newsletters and informational letters to the contractor community to build their awareness so they can assist customers with purchasing energy efficient units and submitting the rebate application to Public Service once installation is complete. The 2014 budget also contains contingency funding to pay incentives to further motivate the HVAC contractors. In our past experience throughout Xcel Energy's service territories, contractor incentives have helped to increase customer participation in the slower months where heating systems sales are slow. The incentive would be a dollar amount for each rebate application submitted.

C. Application Process

The customer will learn about the Heating System Rebate Product primarily through web site content, bill messaging, advertising, and the HVAC contractor community. The typical sales cycle begins with a customer hiring an HVAC contractor, learning about energy efficient models, and purchasing and installing the unit. Following installation, the customer or contractor submits a completed Public Service rebate application and equipment invoice. Invoices must reflect the same information provided on the application form, specifically the model number, serial number, installation address, and purchase date. Other information gathered on the application form includes the customer's Public Service account number, mailing address if different from installation address, customer signature, and contractor signature (if installed by a contractor), and the unit's efficiency level.

Equipment eligibility is determined by using the Air Conditioning and Refrigeration Institute (AHRI) directory. Xcel Energy personnel review each application and verify that all the required data has been provided as well as the unit's energy efficiency level. Rebates are mailed within four to six weeks, but may take longer during the busy heating season.

D. Marketing Objectives, Goals, & Strategy

The Heating System Rebate Product's objectives are to increase demand for high efficiency heating equipment among Public Service customers, and through consumer demand, assist the overall effort to increase the availability of high-efficiency heating units in the marketplace. The product's goal is to help Public Service customers save energy with their heating needs and understand the immediate and long-term value of purchasing and installing high efficiency equipment.

Public Service uses the following marketing communications strategies to make customers aware of the product:

- Print and online banner advertising. (radio on contingency basis). Advertising is an effective way to reach a broad audience. Banner advertising will be strategically placed on local popular news and weather sites, in addition to the local larger print newspaper sites. Print advertising media plans will include the larger print papers serving the metropolitan areas, and print papers in smaller cities and other parts of the state.
- Public Service bill messaging. These are timed according to appropriate seasons for the equipment. Typically, heating season promotion begins as early as July to coincide with the busy summer trade season when heating and cooling equipment is being replaced or installed simultaneously in customer homes. Bill messaging for high efficiency heating equipment has also proven to be effective in the spring, when winter has ended and customers have had recent experience with high heating bills.
- Xcel Energy website. The website contains heating-related pages targeted to both customers and energy partners—installers, contractors and distributors. The pages are updated according to equipment efficiency changes and available promotions. The rebate schedule is always available on these pages, along with links to related pages or to forms and collateral.
- Channel Manager. Public Service utilizes a channel manager to communicate product details to the contractor and distributor channels (i.e. trade community) and conduct training

sessions on product specifics. The Marketing team participates in appropriate tradeshows and presentations related to heating.

- Trade Community. The product's primary promotions channel is the trade community. Training, meetings, telephone calls, letters and newsletters with quarterly frequency keep the HVAC trade informed about the product and help to increase awareness among new contractors. Contractors are encouraged to register as Public Service product participants and obtain contractor ID numbers. This number is a unique identifier and helps with trade promotions internally.

E. Product-Specific Policies

Eligibility requirements for participation include having a residential natural gas account with Public Service for gas furnace and boiler rebates, and a residential electric account with Public Service for the ECM furnace fan rebate. The product is applicable only for the purchase of qualifying new furnaces, ECMs and boilers installed in new or replacement applications. Public Service also accepts self-installed units in addition to HVAC contractor installations, though they are rare.

F. Stakeholder Involvement

Public Service considers its stakeholders for the Heating System Rebate Product to be the HVAC contractors and distributors, the Colorado Energy Office (CEO), local municipalities within the service area, and environmental organizations. Stakeholders will be invited to share their product suggestions during the Company's quarterly DSM Roundtable meetings. In addition, Xcel Energy is a member of the Consortium for Energy Efficiency (CEE), and monitors its initiatives related to residential HVAC equipment.

G. Rebate Levels

The Heating System Rebate Product offers three different rebate levels, depending on the type and efficiency of the equipment purchased:

- Furnaces above 96% AFUE qualify for a rebate of \$120; and
- Boilers above 85% AFUE receive a rebate of \$100.

The proposed incentive amounts offer strong encouragement to move to the highest efficiency furnace, 96% AFUE.

➤ High Efficiency Air Conditioning Product

A. Description

The High Efficiency Air Conditioning (HEAC) Product comprehensively addresses energy efficiency opportunities related to central air conditioners and air source heat pumps. The Product is comprised of four measures, each meeting a different need in the cooling marketplace, including:

- **New Equipment Rebates** – Central air conditioners and air source heat pumps that meet certain energy efficiency standards as outlined in Section G below, are eligible for a rebate. The goal is to encourage consumers to purchase units that meet or exceed the ENERGY STAR efficiency standard of 14.5 SEER. Equipment must be Air Conditioning and Refrigeration Institute-certified at standard rating conditions and have a thermostatic expansion valve (TXV). The TXV improves the efficiency by matching the flow of liquid refrigerant to the cooling load of the home.
- **Quality Installation** – All new equipment rebates must also include a Quality Installation (QI). The QI process is based on standards developed by the Air Conditioning Contractors of America, which dictate the steps a contractor must take to ensure a true quality installation. The QI measure, which starts with a load calculation to determine the proper size of the equipment to be installed, helps ensure that the total energy savings potential of newly installed AC equipment is realized.
- **Trade-In Rebates** – This measure is intended to motivate homeowners to replace older, lower efficiency residential central air conditioning units that are still operable. These units may be working well now or may need some capital dollars for repair. To receive a rebate, customers must replace their existing unit with a high efficiency unit (14 SEER or higher) before the end of the unit's useful life. It is anticipated that some customers who are currently eligible to participate in the New Equipment Rebates will now choose to participate in the Trade-In Rebate measure. In addition, this measure is expected to bring in new incremental participation that would not have been realized otherwise.
- **Ground Source Heat Pumps** - The Ground Source Heat Pump (GSHP) measure serves a small niche market of consumers who seek out the most efficient technology. To be eligible to participate in the product, residential electric customers must purchase and install a unit that is ENERGY STAR-certified. The ENERGY STAR-certified GSHPs performance criteria are a minimum of 3.3 COP and 14.1 EER. Rebates will be available for GSHPs that are installed as closed-loop systems and are used for both heating and cooling. The rebates are only available for electrically heated homes where natural gas is not in use. This measure will require a similar Quality Installation standard as required in the Plan. The rebate and participation levels for this measure can be seen in Section G.

Although the HEAC product does not pass the MTRC Test, it is included in the portfolio to encourage the use of high efficiency air conditioners in the marketplace.

B. Goals, Participants & Budgets

Goals and Participants

The energy savings goals for 2014 are consistent with the targeted participants. Participation levels for this product are based primarily on past product performance in the Colorado marketplace. Approximately 90% of all participants are projected to qualify through the Trade-In measure.

Budgets

The 2014 budget was established primarily based on the costs per participant within the proposed goal. The desired participation level was determined largely on the performance of 2013 data obtained from current market conditions.

The high efficiency equipment rebate begins at the ENERGY STAR minimum of 14.5 SEER for New Equipment Rebates and 14 SEER for the Trade-In Equipment Rebate measure. Contractors are paid a quality installation incentive at all SEER levels, further encouraging their support of the product and a financial interest to continue quality installation practices. The budget also includes costs for verifying a percentage of the air conditioner installations in the field to ensure they meet ACCA quality installation standards and expected energy savings. Incentive levels for 2014 remain unchanged from those used in the 2013 product year.

C. Application Process

The application process requires that the customer use a registered NATE-certified contractor. These contractors have agreed to the terms of the product and meet the requirements related to quality installation practices. A list of registered contractors can be found on the Xcel Energy website.

The customer must select a new central air conditioning system with an overall efficiency of 14.5 SEER or higher for the New Equipment Rebate and 14.0 or higher for the Trade-In Equipment Rebate. All new equipment installed for this product *must* have a Quality Installation to receive an equipment rebate. Further, each system must meet the following requirements to be eligible:

- The equipment, components and/or system must be listed in the Air Conditioning Heating and Refrigeration Institute's (AHRI) Unitary Directory. This directory is used to identify product classification, determine efficiency ratings and confirm matched systems. Ductless mini-splits are not included in the product.
- Multi-stage air conditioning units are eligible for rebates if an earlier matching furnace was installed and is part of the high efficiency air conditioning system per AHRI listings. The homeowner or contractor must supply the furnace model number and serial number on the application.
- For single-stage systems, the use of a furnace's variable speed fan to increase the SEER rating above the nominal rating will be allowed for determining rebate eligibility, providing that the customer purchased and installed the furnace and air conditioner within two years. The overall furnace and air conditioning rating must be found in the AHRI directory.

In order to verify that the equipment has been properly installed, the contractor must bring the system to a steady state and perform QI tests as specified in the Xcel Energy quality installation guidelines. There is no separate application process for the contractor quality installation rebate.

Instead, there is a section within the customer application to indicate the quality installation process is being followed. Testing can only occur when the outside temp is 70 degrees or higher or 60 degrees or higher if the Field Diagnostic Services, Inc. diagnostic tool is used.

Public Service requires that a dated sales receipt/invoice with the following information accompany the rebate application:

- Purchase date;
- Equipment manufacturer;
- Condenser model and serial numbers;
- Evaporator coil model and serial numbers;
- Furnace model and serial numbers (if installed simultaneously with a central air system or multi-stage system);
- Size or Capacity; and
- Customer name and installation address

Additionally for the Trade-In Rebate measure, the following old (existing) equipment information must accompany the rebate application:

- Make, model and serial number of the condenser; and
- Unit SEER and/or EER rating as given by the manufacturer.

The equipment installation and quality installation testing must be completed before the rebate application is submitted for processing by Public Service. All information on the receipt/invoice must match the information on the rebate application exactly. In addition, the application form will require the name and signature of the NATE-certified technician, and the NATE ID number indicating that the NATE-certified technician has reviewed the high efficiency air conditioning unit installation on the application. The signature and identification number will be reviewed during the rebate application approval process. An AHRI certificate, printed in the same year as the installation, must accompany the rebate and invoice for approval.

D. Marketing Objectives, Goals, & Strategy

The High Efficiency Air Conditioning Product seeks to increase demand for and availability of high efficiency cooling equipment and to increase awareness and penetration of the quality installation process within Public Service's service area. The ultimate goal is to promote energy savings and demand reduction for the customer. To support this goal, Public Service plans to implement the following marketing strategies to increase product awareness:

- Use of the HVAC contractor community as the primary marketing channel. The Company's Channel Manager is responsible for conducting trade partner training, meetings, telephone calls, letters and newsletters with regular frequency to keep the trade informed and engaged in the product. In addition, a list of qualified contractors is available on the website and participating contractors are expected to assist in promoting the product. The Company provides brochures for contractors to distribute to customers as well.
- Advertising will include utilizing print, radio and interactive online strategies to increase awareness. Print advertising media plans include the larger print papers serving the metropolitan areas, and print papers in smaller cities and other parts of the state in which Public Service serves.

- Public Service bill inserts and newsletters will be used to create awareness with the entire customer base.
- Xcel Energy's website also includes information regarding the product and is updated as needed to more effectively reach customers. This includes information on proper air conditioner sizing and airflow, product details, and where to find qualified contractors. The site also provides information specifically for HVAC trade partners.
- Public Service may choose to motivate the HVAC industry to certify technicians in NATE service air conditioning by offering a promotion in which participating HVAC technicians receive a bonus check from Public Service for an amount up to \$100 for every approved application submitted during a trade promotion period. Only those who meet trade participant qualifications (stated above) will receive the promotion. Other criteria may apply.

E. Product-Specific Policies

Customers must purchase qualifying units in order to be eligible for a rebate. High efficiency equipment rebates will not be paid without a quality installation from an approved contractor. Contractors must be NATE-certified, attend any required company trainings, follow all program guidelines, and be approved by Public Service. Contractors who don't comply with the product requirements and guidelines are not allowed to participate further in the product, during the calendar year.

In order to be eligible for the Trade-In Equipment Rebate, the retired (existing) air conditioning equipment must have a SEER of 12 or lower to qualify. This will be determined by the contractor at the time of removal from the customer's premise. The retired equipment information will be included in the rebate application. If the SEER or EER cannot be determined by the contractor, the unit will not be eligible for the Trade-In Equipment Rebate, but may be eligible for the New Equipment Rebate.

F. Stakeholder Involvement

Public Service considers its stakeholders for the HEAC Rebate Product to be the HVAC contractors and distributors, the Colorado Energy Office (CEO), local municipalities within the service area, and environmental organizations. Stakeholders will be invited to share their product suggestions during the Company's quarterly DSM Roundtable meetings. In addition, Xcel Energy is a member of the Consortium for Energy Efficiency (CEE), and monitors its initiatives related to residential HVAC equipment.

G. Rebate Levels

Public Service will pay rebates for the purchase and quality installation of qualifying high efficiency air conditioning equipment. New and Trade-In Equipment Rebates are paid directly to the customer, while Quality Installation incentives are paid to the contractor. New Equipment Rebate levels were established to be consistent with the ENERGY STAR efficiency tiers. Trade-In Equipment Rebates include the same rebate levels as New Equipment, as well as an extra rebate for the trade-in of the existing equipment that is assumed to be functioning on in need of minor repairs. Equipment must meet both the SEER and EER standards to receive a rebate under either the New

Equipment or Trade-In Equipment Rebate options. The following tables describe the customer rebate and contractor incentive levels available.

New Equipment and Trade-In Equipment Rebate Levels with Quality Installation

Equipment Tier	SEER	EER	New Equipment Rebate*	Trade-In Equipment Rebate*	Total Customer Rebate*	Total Contractor QI Incentive
	13	below 12	\$0	\$0	\$0	\$100
	14	below 12	\$0	\$500	\$500	\$100
Tier 1	14.5	12	\$250	\$500	\$750	\$100
Tier 2	15	12.5	\$350	\$500	\$850	\$100
Tier 3	16	13	\$500	\$500	\$1,000	\$100

* Rebate is dependent on contractor participation/acceptance into the Public Service product and contractor following the Quality Installation guidelines

Homeowners may receive the equipment rebate directly or may provide written permission for the rebate to be paid directly to the contractor or to another designated alternate rebate recipient. Builders, as the original purchaser of equipment, are eligible to receive an equipment rebate; however, the rebate will only be issued once and so builders should negotiate with the homeowner as to who will receive the rebate. The quality installation rebate is paid to the contractor on submittal of completed application signed by customer.

Ground Source Heat Pump Rebate Levels and Participation

GSHP Application	Rebate/Ton	Average Tons	Participants	Total Rebates
Existing Homes	\$300	3.4	5	\$5,100
New Homes	\$300	6.0	5	\$9,000
Total			10	\$14,100

Customers who receive a rebate through another Public Service rebate product (e.g., Home Performance with ENERGY STAR or ENERGY STAR New Homes) for the same equipment are not eligible to receive a rebate through this product. By accepting a rebate, the customer or contractor agrees to reasonably accommodate measurement and verification consultants.

➤ **Home Lighting & Recycling Product**

A. Description

The Home Lighting & Recycling Product provides resources for customers to purchase energy efficient light bulbs and dispose of old bulbs in an environmentally friendly manner. Compact fluorescent light (CFL) and light-emitting diode (LED) bulbs are an easy way for customers to save electricity. Customers may purchase discounted energy efficient bulbs through local retailers. For recycling, customers can recycle CFLs free of charge through Ace Hardware.

Retail Discounts

Public Service motivates customers to purchase CFLs and LEDs by offering in-store retail discounts. The discounts are provided through a collaboration of the bulb manufacturer, retailer, and Public Service Company. The three entities combine resources to offer instant rebates enabling customers to purchase a variety of energy efficient models at a discounted price. Public Service partners with such retailers as Home Depot, Costco, Ace Hardware and King Soopers. Customers receive the discounted price at the register. There is no mail-in rebate form.

In 2014, Public Service will focus on increasing the sales LED bulbs, placing less emphasis on standard CFL spiral bulbs that have higher saturation rates in the market. The following changes have been made to the portfolio to bring forth this change:

- Increasing the number of models offered and available retailers of LED bulbs;
- Expanding and developing advertising specifically focused on LEDs;
- Decreasing the incentives available for standard CFL spiral bulbs; and
- Improving signage to help customers find discounted bulbs.

CFL Recycling

The CFL Recycling component provides an environmentally friendly method for customers to dispose of CFLs. Public Service maintains a partnership with Ace Hardware to serve as the retail arm for CFL recycling. Customers can bring spent CFLs to any Ace Hardware store throughout the state and recycle them free of charge. The retailer stores the bulbs in a covered bin until it is full. Then they ship the bulbs to the recycler in the postage paid bin. Public Service covers the cost to ship and recycle the bulbs in the service territory.

B. Goals, Participants & Budgets

Goals and Participants

The goal for this Product was heavily influenced by the new lighting standards taking effect in 2014 resulting from the Energy Independence and Security Act (EISA) of 2007. This legislation required manufacturers to increase the efficiency of these bulbs by 30% in phases over a three year period while maintaining current lumen levels. This transition period began on January 1, 2012 and will be completed in 2014. For 2014, the goal was derived by looking at market potential and analyzing the effects of the new lighting standards. This included reviewing historical sales data, retail channels and customer segments.

The new standards are shown in the chart below.

EISA-Influenced Lighting Standards

Current Wattage	New Maximum Rated Wattage	Lumen Range	Minimum Life	Effective Regulation Change Date
100W	72W	1490-2600	1,000 Hrs	1/1/2012
75W	53W	1050-1489	1,000 Hrs	1/1/2013
60W	43W	750-1049	1,000 Hrs	1/1/2014
40W	29W	310-749	1,000 Hrs	1/1/2014

Manufacturers are expected to increase the production of incandescent bulbs until the manufacturing deadline and sales of incandescent bulbs are expected to continue well beyond the start of the phase-out period. In response to the phase-out, consumers may increase their purchases of incandescent bulbs and demonstrate hoarding behavior for one to two years after production has ceased. Manufacturers are currently offering halogen alternatives to the incandescent bulbs that are roughly 30% more efficient than the incandescent bulbs.

Public Service has modified the Home Lighting Product technical assumptions to use a baseline and incremental cost that assume a blend of an incandescent and halogen incandescent bulb. Public Service has found that incandescent bulbs are still available well beyond the EISA legislation effective date. Xcel Energy also uses blended assumptions in the Minnesota service area.

Budgets

The Home Lighting & Recycling Product budget is based on the anticipated number of bulbs sold. Public Service developed the budget by combining the incentive cost, promotion and advertising, and the internal and external implementation labor costs. The average incentive cost is applied to the bulbs sold, and the implementation, promotion and labor costs are added. The Home Lighting budget has increased in 2014 over previous years because of higher incentive costs for LED bulbs and the increase in sales of LEDs. Public Service expects the Product’s costs to continue to increase as LED bulbs gain acceptance in the market and account for a higher percentage of bulbs sold.

C. Application Process

Customers do not need to apply to participate in the Home Lighting & Recycling Product. Public Service works with retailers and manufacturers to provide a discounted price on bulbs through upstream incentives. The incentive varies depending on the type of bulb and the manufacturer/retailer partner. The customer receives the discounted price at the cash register. Incentives are paid upstream and the discounts are passed on to the customer.

D. Marketing Objectives, Goals & Strategy

The objective of the Home Lighting & Recycling Product is to motivate customers to purchase energy efficient bulbs, persuade them to try using specialty CFLs and LEDs in different applications throughout their homes, and encourage them to recycle CFLs when they burn out. Public Service believes that it is important to encourage customers to go beyond purchasing the typical twist CFLs and thus offers a variety of discounted models and styles. The Company will promote the Product through various media channels including television, radio, in-store signage, publications, bill inserts, trade shows and on the Xcel Energy website. The peak sales period for CFLs is in the fall and winter, as such, promotions are focused during these peak time periods.

Public Service uses an RFP process to select participating retailers and endeavors to partner with a variety of retailers including big box, hardware and grocery outlets to ensure optimal pricing and help to reduce free-ridership.

CFL Recycling is marketed locally through the retail partner, Ace Hardware. The Company also markets the recycling through CFL and LED promotions and through the Xcel Energy website.

E. Product-Specific Policies

To ensure optimal performance of the discounted bulbs, Public Service requires all discounted bulbs to be ENERGY STAR-certified.

Public Service selects retailers within the Colorado service area and assumes that the customers purchasing the discounted bulbs live within the given area. Although there may be crossover sales with bordering utilities' territories, the Company assumes that the crossover coming in and out of the territories is equal.

Public Service currently uses Mercury Technologies as the third-party product implementation firm for CFL recycling. Mercury Technologies is known to be the best in industry because they separate the CFL components by hand to ensure that hazardous materials do not end up in the groundwater or soil. Mercury Technologies also provides bins made of recycled material and recycles the bins that the bulbs are shipped in. In addition, they provide certificates of proper recycling.

F. Stakeholder Involvement

Xcel Energy collaborates with several organizations to monitor and incorporate best practices into lighting product design. These activities include: serving on the lighting committee for Consortium for Energy Efficiency, participating annually in the national ENERGY STAR Lighting meeting, and interfacing and working with E-Source, American Council for an Energy Efficient Economy, Environmental Protection Agency, Department of Energy and ENERGY STAR.

G. Rebate Levels

Public Service provides an upstream markdown on eligible CFL and LED light bulbs. This discount reduces the incremental cost of these bulbs by 30% to 70%, depending on the bulb. These savings are ultimately passed on to the customer as an instant rebate.

➤ **Home Performance with ENERGY STAR Product**

A. Description

The Home Performance with ENERGY STAR (Home Performance) Product is targeted at existing single-family homes that are in need of multiple energy efficiency improvements. By providing these customers with rebate incentives, Public Service is able to incorporate a whole house approach to energy efficiency. In order to participate in the product, all qualified Public Service customers must receive either natural gas and electric service, or have electric service only with electric heat.

Public Service's Home Performance Product was developed using principles from the nationally recognized ENERGY STAR "Home Performance with ENERGY STAR" Product. The concept of the product is to provide the customer with one-stop for all of their home efficiency needs. In this comprehensive approach, the customer receives an energy audit; the audit is then used to generate a scope of work. The contractor, who may also be the auditor, reviews the recommended improvements, completes the work, and receives an independent verification of the improvements after completion.

This product complements the Home Energy Audit Product by requiring an advanced in-home blower door audit as the first step in the process for product participation. After the customer completes the audit and meets the product eligibility requirements, the customer may sign up to participate in the Home Performance Product. Customers must achieve at least a 20% energy reduction in their home energy consumption using a list of energy savings improvements that qualify for the product in order to earn rebates.

Trade contractors interested in performing installations within the product are required to hold current certifications in one of the following: BPI Building Analyst, BPI Envelope, BPI Heating, BPI Residential Building Envelope Whole House Air Leakage Control Installer or Crew Chief, and/or NATE certification with the exception of evaporative cooling and water heaters, which don't require a certified contractor. Trade contractors must also complete the Home Performance Contractor training. This training will take approximately five hours to complete. The primary focus of the training is to provide contractors with information on the product components, how the process works, and the diagnostic testing required as part of the efficient measure installations. Once contractors have completed this training, they will be included on the approved contractor list, which is included in the customer packets and on the Xcel Energy website. All participating contractors must complete the training and sign the contractor agreement before they may provide installs for participants in the product.

B. Goals, Participants & Budgets

Goals and Participants

The Home Performance Product goals were developed based on the Colorado 2013 year-to-date product results and knowledge of similar products in Xcel Energy's other jurisdictions. The product experienced significant challenges in 2009 through 2011 due to the poor economy, high costs to participate, and program complexity. In 2012, the product was redesigned to remove market

barriers and simplify the process for customers to participate and experienced rapid product growth. The Company has increased its participation and savings goals for 2014 to account for this growth.

Budgets

The budgets for this product are based on the 2012 and 2013 participant, third-party implementer, and software costs, including measurement and verification inspections, as well as the costs to promote the product through printed advertising and collateral. The electric budget was increased for 2014 to accommodate the forecasted increase in participation. The Company anticipates higher participation specifically in the cooling measure which will only increase the electric rebate budget. The rebate models for the air sealing and attic insulation gas measures have changed from a dollar per installation to a calculation based on 20% of the incremental cost of the measure, capped at certain level. In turn, the gas rebate budget decreased to adjust for the lower percent of incremental cost rebated.

C. Application Process

Customers interested in participating in the Home Performance product must begin by requesting a Home Energy Audit with blower door test. The auditor will provide information on the Home Performance Product as part of their in-home audit, tying specific product requirement information and recommendations into the audit. The customer may then sign up for the product the day of the audit or sign the product form and mail it in directly to Public Service for processing and product follow up.

Once a customer has submitted the sign up form to Public Service for processing and tracking, the customer has one year to complete the required and optional installs. The customer then completes the recommended improvements and works with their contractor to submit the rebate form. Participating contractors will be required to have their first five jobs inspected and verified by a third-party. Beyond the first five jobs, a random sample of 10% of the contractor's jobs will be inspected and verified.

The Home Performance Product information, product forms, and approved contractor list are available on Xcel Energy's website, as well as through the audit provider. Customers may also contact the customer call center to request product information.

D. Marketing Objectives, Goals, & Strategy

Public Service will implement a variety of marketing strategies to provide product information through the website, advertising, and local "green" community events. We will also provide incentives to the auditors in an effort to identify additional participants who are interested in energy efficiency, but may not be aware of this whole house option.

The Home Performance Product will be marketed through the Home Energy Audit Product promotions directly to customers, and approved Home Performance participating contractors. Public Service will monitor product participation on a monthly basis and implement additional marketing tactics if necessary to achieve the year-end goal.

In addition, Public Service will attempt to fully utilize the trade partners who have been trained and contracted to deliver this product to customers. This is viewed as the most important channel to work with to build awareness and participation in the product. As a result, Public Service is offering incentives to participating installation contractors that are designed to increase the number of projects performed. These incentives are designed provide contractors additional motivation to promote the Home Performance Product.

E. Product-Specific Policies

The Home Performance product requires that customers have either a Standard Home Energy Audit with blower door test, or an Infrared Audit performed in order to qualify for participation. The audit is required prior to starting the improvements. Customers are eligible for a Home Energy Audit every two years. Public Service will provide the customer a list of contractors participating in the product; however, the Company does not guarantee the contractor's expertise or warrant any of the products or services, nor is one contractor promoted over another. Public Service shall have no liability for contractor work or negligence.

To complete the product and be eligible for the rebates, customers must agree to achieve a 20% reduction in their home's energy consumption. The customer must complete air sealing, attic insulation, wall insulation, and CFL/LEDs as part of their improvements if they have not made these upgrades previously. The customer will receive rebates for improvements completed and verified by the auditor within one year of signing up under the Home Performance Product. The Company will not rebate pre-existing efficient equipment.

F. Stakeholder Involvement

Public Service has met with the Cities of Boulder, Fort Collins, Greeley, and Colorado Springs, the Center for Resource Conservation, the Platte River Valley Authority, the Colorado Energy Office, Environmental Protection Agency, Department of Energy, Electric & Gas Industries Association, and Energy Efficient Business Coalition for product feedback. The Company will continue to meet with these and other stakeholders for feedback to improve the product over time.

G. Rebate Levels

The Home Performance Product rebates are prescriptive and based on the specific measures installed. Rebate levels are enhanced when compared to rebates offered in the individual end-use programs to encourage customers in whole-house improvements instead of individual upgrades. The rebate levels are provided in the following table.

Home Performance Measures Rebate Amounts

Improvements	Prescriptive Rebate 2014
Attic Insulation*	20% of incremental costs, fixed cap at \$350
Air Sealing, Bypass Sealing & Weather-stripping*	25% air leakage reduction- \$100 33% air leakage reduction- \$160
High Efficiency Compact Fluorescent Lights or LED's*	\$2/per bulb up to \$40
Wall Insulation (above grade)	\$800
Evaporative Cooling- Standard System (1 st)	\$275
Evaporative Cooling- Standard System (Replace)	\$125
Evaporative Cooling- Premium System (1 st)	\$625
Evaporative Cooling- Premium System (Replace)	\$525
Evaporative Cooling- Whole House System	\$1,000
Central AC 14.5 SEER, EER 12	\$300
Central AC 15 SEER, EER 12.5	\$400
Central AC 16 SEER, EER 13	\$550
Central AC Trade-in, 12 SEER or lower	\$550
Ground Source Heat Pump	\$300 per ton up to \$1500
Electric Heat Pump	\$550
Programmable Set Back Thermostat	\$25
96% AFUE or higher High Efficiency Furnace	\$200
Electrically Commuted Motor	\$200
Tankless Water Heater .82 EF or higher	\$200
Water Heater .67 EF or higher	\$100
ENERGY STAR Refrigerator/Primary	\$15
ENERGY STAR Dishwasher	\$15
ENERGY STAR Clothes Washer	\$70

*If any of these three measures are a recommended improvement from the energy audit, they must be completed in order to successfully complete the program.

➤ **Insulation Rebate Product**

A. Description

The Insulation Rebate Product offers residential natural gas and electrically-heated customers rebates for installing insulation and air sealing measures in their existing single-family home or one-to-four unit property.

Public Service will rebate the following types of qualifying insulation installations:

- Attic insulation (where existing is R-19 or less) to an R-value of 40 or greater;
- Attic insulation (where existing is R-20 or more) to at least R-25 higher than existing;
- Wall insulation to an R-value of 13 (where existing is an empty wall cavity); and/or
- Air sealing, bypass sealing and weather stripping (required with insulation applications unless home is 0.45 NACH (Natural Air Changes per Hour) or better).

B. Goals, Participants & Budgets

Goals and Participants

Goals were derived using housing characteristics determined from a study performed by Populus on 349 homes. We expect that approximately 85% of homes will require air sealing. Public Service has split the air sealing measure into three tiers based on the percent of savings they provide. The savings for these air sealing measures are calculated using the same baseline home compared against the anticipated average savings within each tier:

Air Leak Measure Tiers	Minimum Percent Savings to Qualify	Percent of Expected Participation	Estimated Therm Savings Per Home
▪ Tier 1	▪ 10%	▪ 66%	▪ 4.20 therms
▪ Tier 2	▪ 25%	▪ 9%	▪ 7.39 therms
▪ Tier 3	▪ 33%	▪ 24%	▪ 10.32 therms

Budgets

Budgets were based on 2011, 2012, and 2013 year-to-date product performance. The Colorado heating market was also analyzed for typical insulation costs including materials, blower door testing costs and installation costs. The air sealing incremental costs include allocating the cost to the customer for bypass attic air sealing, weatherization and envelope, as well as additional cost of blower door testing. Budgets were then created using 20% of total insulation costs to frame the annual budget for rebates, in addition to promotions, labor and verification of a percentage of the insulation installations in the field to ensure they meet quality installation standards and achieved the expected energy savings.

Typically, this product is promoted through Xcel Energy’s website and newsletters, communications to local area insulation contractors, community events and home shows focused on the environment and energy efficiency. For that reason, historically it has required little budget for

promotion and marketing purposes. Additional budget has been added for contractor trainings and educational opportunities for the trade community.

C. Application Process

The application process requires that the customer use a registered BPI (Building Performance Institute, Inc.) certified contractor. Qualified insulation contractors must be fully licensed, bonded, insured and listed in our trade partner website with BPI Analyst, Envelope or Residential Whole House Air Leakage Control Installer or Crew Chief certifications. These contractors have agreed to the terms of Xcel Energy trade partner's agreement and meet the requirements related to quality installation practices per BPI. A list of registered contractors can be found on the Xcel Energy website.

Qualified customers must complete a rebate application, which is available on the Xcel Energy website or by contacting our customer call center or the customer's insulation contractor. Air sealing and weather-stripping are required in each insulation install, unless a 0.45 NACH is met within the home. Pre- and post-blower door results in CFM 50 are required for all projects, regardless if installing insulation or not. Customers must provide Public Service with a copy of their dated invoice reflecting the qualified installation performed by a listed BPI certified contractor along with the rebate application. Qualified installs will be processed accordingly by the rebate operations team and checks issued within six to eight weeks. Public Service will issue the rebate directly to the customer, but the rebate form may be submitted through the insulation contractor.

D. Marketing Objectives, Goals, & Strategy

The Insulation Rebate Product will be marketed through a variety of channels such as the Home Energy Audit Product, the Xcel Energy website, direct mailings to local area BPI-certified insulation contractors, and environmentally-focused community events and home shows. We will support this marketing strategy with seasonal bundled direct mail efforts and bundled winter bill inserts to targeted customers. Historically, this strategy has worked well when implemented during the key heating months of December, January and February.

Additionally, the Company will incorporate communications activities to local insulation contractors so they can educate qualified customers on how they can benefit from this rebate. By collaborating with Public Service on outreach to our customers, the local contractors may be able to drive more customers to commit to quality assured insulation installations.

Finally, we will initiate cross marketing efforts with our other natural gas rebate products. An example of this could be a winter bill insert that outlines existing rebate and energy efficiency products available to natural gas customers of Public Service. This strategy has proved successful in the past with this product.

E. Product-Specific Policies

To qualify, all projects must fall within the pre and post R-values set forth for both attic and wall insulation, as well as achieve a 10% minimum energy reduction through air sealing (unless the home meets a 0.45 NACH threshold). Qualified insulation contractors must be fully

licensed, bonded, insured and with BPI Analyst, Envelope or Residential Whole House Air Leakage Control Installer or Crew Chief certifications. A qualified list of contractors will be posted on our website. Self-installations, or installations done by contractors without BPI certifications listed above, do not qualify for rebates.

All projects are required to perform a pre- and post-blower door test following the current requirements:

- For a customer to be eligible for rebate, contractors must perform pre- and post-Blower door testing using CFM 50 on all projects, unless the pre-blower door test reaches our air tightness threshold of 0.45 NACH.
- Each specific insulation efficiency measure must have the corresponding building shell air sealed. Air sealing is required every time there is insulation installed, with exception when meeting our 0.45 NACH. Air sealing must be done first.
- If the home is already air sealed, it may receive insulation, only if the pre-blower door result is equal or better than 0.45 NACH.
- A minimum 10% building envelope air leakage reduction is required:
- Unless the building envelope is already air sealed or significantly air tight as described above.

All projects must be verified by a blower door test before and after insulation installation, regardless of whether it receives additional air sealing.

This product excludes new residential construction, new residential additions, insulation of doors, garages, sheds, workshops, below-ground basements, mobile homes, projects with pre R-values of 40 or greater, and properties with more than four units. To qualify for a rebate, all insulation must be installed to the manufacturer's specifications and meet all state and local codes and federal regulations. Air sealing and weather stripping must follow industry-accepted practices for mitigating air leakage. A combustion appliance zone or CAZ test check box will be included within the rebate application. Contractors are required to acknowledge that the testing was completed and/or note a recommendation for CAZ testing to be performed by an HVAC contractor. Public Service reserves the right to inspect installations before issuing a rebate. Rebates will not be issued if the same purchase has already been rebated through other Public Service rebate products, such as through the Home Performance with ENERGY STAR Product. Customers are eligible for one rebate per calendar year.

F. Stakeholder Involvement

The DSM Roundtable quarterly meetings provide a forum for stakeholder involvement and feedback regarding this product, as well as the full portfolio of Public Service's DSM Products. Public Service conducted meetings with interested Stakeholders per the Settlement Agreement to improve this product, particularly around the issues of quality assurance and air sealing requirements. Public Service also met with other local non-profits and utilities who offer additional rebates and conducts similar efforts with home insulation in Colorado. Public Service will continue to involve stakeholders for future program feedback.

G. Rebate Levels

The product will provide a rebate equal to 20% of the total cost of the insulation/air sealing and installation up to a maximum rebate of \$300 per customer per natural gas or electric meter. Rebates will be offered on a one-time only basis, per calendar year. Public Service will not provide additional rebates through this product for future insulation or air sealing installs at the same residence unless the owner implements additional qualified installs.

➤ **Pool Pumps Product**

A. Description

The Residential Pool Pumps Product provides a point-of-purchase rebate to the Company's residential electricity customers and incentives for trade partners to install and calibrate qualifying energy efficient variable speed swimming pool pumps. Ecova is the third-party product implementer responsible for the delivery of this product.

This product encourages customers to purchase qualifying variable speed pool pumps with electronically commutated motors that use rare earth or permanently fixed magnets. It also encourages quality installation by proper commissioning and calibration that sets the pump to run at lower speeds, capturing additional energy savings.

B. Goals, Participants and Budgets

Goals and Participants

We collaborated with Ecova to establish savings goals and the participant level for 2014. We are anticipating a 15% increase in participation and savings from 2013 to 2014.

Budgets

The forecasted spend for 2014 is based on projected participation levels and the funds needed to promote and administer the product. The majority of the product costs are for administration, vendor marketing/training, customer rebates and vendor incentives.

C. Application Process

The seller and/or installer of the pump will be required to fill out and complete a combined rebate application/pump calibration form with the customer. The customer will be required to sign the form.

The rebate process covers three key aspects of the sale and installation/calibration of the pump, as follows:

- **Variable-Speed Pool Pump Sale:** At the point of sale, the customer will provide a utility bill to verify he or she is a residential electric Xcel Energy customer. All verified customers will receive a line-item instant rebate of \$100 from the seller, with the rebate clearly identified on the sales invoice.
- **Pump Calibration:** The trade ally (most likely the seller of the qualifying pump) will manage the scheduling of a site visit and execution of the pump calibration according to Program protocol.
- **Rebate Documents Submittal.** For incentive payment, the seller of the pump will submit the necessary Program documentation to Ecova for processing. Required documents include a rebate form signed by the customer, an invoice for the sale of the pump with the line item indicating \$100 Public Service Company instant rebate, and a completed calibration report. The third-party consultant will then reimburse the seller of the pump the \$100 that was previously extended to the customer at the point of sale and an additional \$100 to support

the costs associated with pump calibration and administration of rebate submission, for a lump sum of \$200.

- Rebate Invoices: Ecova will submit monthly invoices to Public Service based on the number of processed rebates.

D. Marketing Objectives, Goals, & Strategy

Ecova has overall marketing responsibility for this product, which includes targeting customers and securing program partners. Partners include local retailers, distributors, pool installers and service companies. Although Ecova has recruited a solid base of program partners, they will continue to market this program to potential partners with the assistance of a local Field Coordinator. Marketing to customers involves developing cooperative marketing tactics that support the efforts of participating partners. This process allows us to leverage the resources and market experience of these partners. Customer facing materials are designed to create product awareness and explain in straightforward terms how a customer can participate. Some customer facing materials, such as the rebate application, are co-branded with the both the Ecova and Xcel Energy logos. Product information and details can be found online at xcelenergy.com.

E. Product Specific Policies

Only pool pumps included in the qualified pool pump list, meeting Consortium for Energy Efficiency Tier 2 specifications, will be eligible for a rebate. Ecova is responsible for maintaining and regularly updating the qualified pool pump list, which can be accessed online or by contacting a program partner. Additional policies include the following:

- Participants must be a Company residential electric customers;
- The efficient pump must be installed in a single family, in-ground pool.
- There is a limit of one pump rebate per household.
- Water features, slides, stand-alone spas, and booster pumps do not qualify.

F. Stakeholder Involvement

Ecova will continue to work with regional distributors, local pool retailers and service companies to identify potential partners while leveraging their relationships and expertise.

G. Rebate Levels

The customer will receive a \$100 point-of purchase rebate when they purchase a qualifying energy efficient variable speed swimming pool pump. The rebate is deducted from the final price and noted on the customer's invoice.

H. Evaluation, Measurement & Verification Plan

This product will be consistent with Company's current standard prescriptive product measurement and verification process for deemed savings.

➤ Refrigerator Recycling Product

A. Description

Public Service's Refrigerator Recycling Product strives to decrease the number of inefficient refrigerators and freezers in general use, and by doing so, deliver electric energy savings and peak demand reduction. The product is designed to reduce energy usage by allowing customers to dispose of their operable, inefficient primary refrigerators, secondary refrigerators, and freezer units in an environmentally safe and compliant manner. Eligible customers include residential electric customers in our Colorado service territory. Customers with qualifying units will receive an incentive for their participation with this product and will not be directly responsible for any costs associated with pick-up, transportation, disposal and proper recycling of their refrigerator. Public Service will use the services of a qualified vendor to perform the following:

- Refrigerator/Freezer collection, transportation and storage;
- Verifying eligibility of refrigerator/freezer at time of scheduled pick-up;
- Appliance processing and materials recycling;
- Issuing the customer incentive payment;
- All customer service aspects related to above activities;
- Product tracking and reporting; and
- Supporting Measurement & Verification requirements.

The vendor will be required to comply with all local, state and federal requirements. This includes maintaining all permits and licenses required for any facilities, equipment and personnel used for this product. The adherence to this process will ensure that recycled units will not re-enter the secondary or primary market and be placed back on Public Service's grid.

B. Goals, Participants & Budgets

Goals

Goals for this product were developed based on historical participation, as well as projections in the market using annual harvest rates and program modeling.

Budgets

The Refrigerator Recycling Product budget was developed based on our participation goals. Recycling-related expenditures for the refrigerator itself account for approximately 35% of the overall budget. The projected rebates account for nearly 25% of the budget. Marketing, measurement and verification, and labor expenses were then determined and added as administrative expenses.

C. Application Process

Customers will learn about this product through various marketing channels described in Marketing Objectives, Goals & Strategy. Customers will either call in via the toll-free number provided or schedule on-line for this service. Our vendor will ask qualifying questions in order to minimize costs and maximize customer satisfaction. The vendor will schedule an appointment and will be required to pick-up the refrigerator no later than 10 business days after taking the customer's requested date. Customers will be called one to two days prior to their scheduled pick-up date in order to confirm their appointment and remind them to turn on their refrigerator and make sure it is empty. Customers will receive their incentive check within six to eight weeks after their refrigerator has been picked-up by our vendor.

D. Marketing Objectives, Goals, & Strategy

The product will be available to customers year round; however, the marketing strategy will utilize spring and fall campaigns to promote the product.

The target market consists of customers who are disposing of their primary (usually located in the main kitchen) or second refrigerator (usually located in a garage or basement area), or freezer units (usually located in a garage or basement). Generally these customers have single-family homes with two or more individuals in the household. Customer interest in this type of product is seasonal, usually occurring in the spring, summer and early fall seasons (prior to the Thanksgiving holiday). Product demand often peaks in the summer months, which is associated with customer home improvement projects. Deployment of our promotional tactics will coincide with these seasonal time periods.

Public Service will utilize several marketing channels for this product, including bill inserts, our Company Update newsletter, radio, social media, and the Xcel Energy website. Similar marketing opportunities exist with other Public Service products such as the Home Performance with ENERGY STAR and some of the low-income weatherization products. Targeted direct mail and telemarketing tactics may also be used. Call Center agents will direct any customers inquiring about this product to contact our vendor using a toll free number or through use of the vendor's website.

E. Product-Specific Policies

All refrigerator and freezer units must meet the following requirements to qualify for this product:

- Must be an operational primary or secondary refrigerator unit or a standalone freezer. Operational is defined as in working order. Refrigerators must be capable of freezing water; freezers must be capable of freezing
- Appliances will be categorized as follows for program reporting:
 - Secondary: Used as a secondary unit for at least two months prior to pick up;
 - Primary: Used as the primary unit in the home at present time ;
 - Freezer: Used separately from primary refrigerator and is a standalone unit.

- Refrigerator/Freezer must be plugged in the night before the pick-up date (customer will receive a call from the vendor, reminding them to do this). This is to ensure full operation (cooling/freezing and the ability to make ice; freezing capability if a freezer) when inspected at the time of pick up;
- Appliances must be no smaller than 10 cubic feet or no larger than 30 cubic feet; and
- There will be a limit of two freezers and/or refrigerators per household. (The maximum rebate per household in a given program year is \$100.)

F. Stakeholder Involvement

We will work in cooperation with environmental organizations as opportunities arise.

G. Rebate Levels

Participants will receive a \$50 incentive to remove their inefficient primary and/or secondary refrigerators and freezers. The primary and secondary refrigerator or freezer will be removed and properly recycled at no cost to the customer. The \$50 incentive is on par with many similar programs in the U.S.

In addition to the \$50 incentive, customers will receive the benefit of energy savings, which on average is equal to about \$100 annually, and a responsible and environmentally friendly way to dispose of a freezer or refrigerator with limited remaining life.

➤ **School Education Kits Product**

A. Description

The School Education Kits Product offering is a turnkey product that combines a set of classroom activities with projects in the home to install energy efficiency and water conservation products. This product is targeted at sixth grade students in the Colorado service territory. Public Service will work with a third-party program administrator to implement this product. The third-party program administrator will fully implement the School Education Kits Product, including recruiting and training teachers, providing all materials, and tracking participation by the students and teachers.

Along with various classroom materials, each participant receives an Education Activity Kit containing:

- Three (3) Compact Fluorescent Bulbs (13 Watt - 60 Watt Equivalent)
- Three (3) Compact Fluorescent Bulbs (18 Watt - 75 Watt Equivalent)
- 1.5 gpm high efficiency showerhead
- 1.5 gpm kitchen faucet aerator
- 1.0 gpm bathroom faucet aerator
- LED Night Light
- FilterTone[®] Alarm
- Digital Water / Air Thermometer
- Parent Evaluation Card

An evaluation of the K-12 schools in Colorado indicates that there are roughly 64,000 sixth grade students. The sixth grade level was chosen to align with Colorado State learning requirements. Specifically, the topics covered in Science Standard 4, Earth Sciences, call for discussion of renewable/non-renewable natural resources, solar heat in the environment, and water circulation through the hydrologic cycle.

In Colorado, individual school districts have the ability to establish their own standards, which supersede state requirements, so there could be some local areas where the program might be moved to the appropriate grade level to accommodate these local preferences. The same content and kit measures would be provided, and the program would remain at that specific grade level in subsequent years.

This product has many advantages including: it enables an educational program to have direct-impact conservation; it helps build awareness of energy conservation to children, and can impact customers at all income levels. Xcel Energy offers similar products in its New Mexico and Minnesota service territories.

B. Goals, Participants & Budgets

Budgets

The product cost is all-inclusive, made up of not only the kits, but also the curriculum support materials for the teacher, the pre- and post-surveys, and website support. The product budget was developed based on participation goals and an approximate cost per kit. Labor, administration fees, and postage have been added to the budget as well. Measurement & Verification of the installation rates will be conducted by the third-party program administrator and those costs are included in the administration fees. This product does not require advertising. Different school districts throughout the state will be selected to participate.

Goals

School enrollment data was updated in 2013 and has identified approximately 50,000 students in the territory served by the Company. Historical data indicates that approximately 80% of teachers offered participation in the program choose to participate.

C. Application Process

The teachers may enroll through various means (i.e., fax, phone, email, mail and website). If teacher response is not sufficient, the program administrator will redesign the marketing materials and/or offer incentives to the teachers to participate. If the enrollment or data collection portions are not at a satisfactory level, incentives will be used to get numbers to the level desired by the program sponsor. Examples of incentives may be gift cards to select retailers.

Upon enrollment, the teachers dictate to the program administrator when in the school year they would like to use the program materials and provide accurate enrollment/participant numbers. The program administrator will send the teachers the School Education Kit materials close to the time when they indicated they would like to use the program. Program administrator staff will remain in contact with the teachers via fax, phone, email and mail at various times throughout the program to provide support for the teachers and to request the return of the audit forms. Participants are provided with a toll free number to call if they need help.

It can take an average of three months to receive the results from participating schools depending on when teachers decide to begin the activity.

D. Marketing Objectives, Goals, & Strategy

The program administrator will manage all aspects of marketing and outreach for the product, including:

- Identifying the schools that are within the Public Service territory and determining the approximate number of eligible teachers and students.
- Sending out customized marketing materials to help enroll the classrooms. These materials explain the program, and the fact that it's offered free of charge to their classroom thanks to the sponsoring agency (Public Service).
- The program administrator and Public Service will work together to determine the strategic approach for selecting schools.

E. Product-Specific Policies

Only those schools that are selected to participate in the product are able to distribute the School Education Kits. All kits must come from our selected contractor.

F. Stakeholder Involvement

The third party program administrator will take full responsibility for marketing and management of the product.

G. Rebate Levels

Public Service will fund 100% of the cost of the School Education Kits. There will be no rebate provided to participants.

➤ Water Heater Rebate Product

A. Description

The Water Heater Rebate Product is designed to encourage Colorado customers to purchase and install high efficiency natural gas or electric water heating equipment for residential use. In addition to providing a cash incentive and long-term operational savings to customers, this product also is intended to promote market transformation through increasing customer demand for high efficiency equipment in the marketplace. Participants receive a rebate for the purchase and installation of qualifying water heaters. Customers may choose their own independent residential water heating contractors or installers, or may install the unit themselves. Xcel Energy currently offers this product in Minnesota and North Dakota as well.

Eligibility requirements for participation include being either a residential natural gas or an electric Public Service customer. The product is applicable only for the purchase of qualifying new standard tank water heaters, tankless water heaters or electric heat pump water heaters installed in new or replacement applications. The tiered rebate schedule in Colorado requires a minimum efficiency of 0.67 EF for standard tanks. The additional tiers are tankless 0.90 EF and electric heat pump water heaters. The Company previously offered rebates for 0.62EF and 0.65EF standard tank water heaters, but these rebate tiers are being eliminated in 2014 because they are not cost-effective. Although the remaining tiers also do not pass the MTRC Test, they are included in the product to encourage the use of high efficiency units in the marketplace.

B. Goals, Participants & Budgets

Goals and Participants

The goal was developed based on historical participant data, current market conditions and projected sales of water heaters. Proposed savings were estimated on a per unit basis using the projected number of participants.

Budgets

Budgets for the Water Heater Rebate Product were developed based on the expected costs per participant, in addition to costs to engage the Heating, Ventilating and Air Conditioning (HVAC) installer base necessary to serve the territory. Specifically, this includes newsletters and direct mail in the form of informational letters to the contractor community. An internal channel manager will also reach out to the trade and develop key relationships to ensure product success.

The overall marketing budget for consumers was determined by the number of marketing communications necessary to continue awareness of the product and to encourage participation. This product is often cross-marketed with the Heating System Rebate Product as yet another way for customers to save on natural gas and electric costs in the home.

C. Application Process

The customer will learn about the Water Heater Rebate Product through bill messaging, the HVAC community, and large retailers that sell water heaters on site. The typical sales cycle includes a consumer hiring an HVAC technician to install the water heater, which could be purchased through

the contractor or through a retailer. Following installation, a completed application form and invoice are submitted to Public Service. Forms are mailed to the utility by either the contractor or the customer. Invoices must reflect the same information provided on the application form, specifically model number and purchase date. Other information gathered on the application form includes the unit's efficiency level, the customer's Public Service account number, mailing address if different from installation address, customer signature, and contractor signature, unless the equipment was self-installed.

Equipment eligibility is determined using the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) directory or ENERGY STAR website. Xcel Energy's Rebate Operations team reviews each application for accuracy and qualifications prior to mailing a rebate check. In the event of insufficient information, the application and the invoice are returned to the customer with a letter on company letterhead requesting the additional information.

Customers can expect to receive a rebate check in six to eight weeks after submitting the application. Rebates for new home construction are negotiated between the builder and resident or new homebuyer to determine who will receive the cash rebate.

D. Marketing Objectives, Goals, & Strategy

Marketing tactics are in place to assist the product meeting its goals, including the following marketing communications strategies: bill messaging, information provided on the Xcel Energy website, tradeshow and trade communications (letters and newsletters), HVAC relationship building, and point-of-purchase materials at larger retailers such as Home Depot, Lowe's and Sears.

Public Service's bill messages are timed according to appropriate seasons for the equipment. Since water heating is a year-round demand, this provides flexibility with marketing seasonality. To minimize bill messaging expenses, the Water Heating Rebate Product is often cross-marketed in bill messaging with the Heating System Rebates Product. Internet pages for water heating are available and the pages are updated according to equipment efficiency changes and available promotions. Public Service staff participate in appropriate tradeshow related to water heating. This participation includes the staffing of a tradeshow table to provide information about the product, and often can include presentation opportunities. The channel manager also presents product details, objectives and policies to the trade at various contractor meetings.

The product's primary promotions channel is the trade community. Training, meetings, telephone calls, letters and newsletters with quarterly frequency keep the trade informed about the product and help to increase awareness among new contractors. Contractors are encouraged to register as a Public Service product participant and obtain a contractor ID number. In addition, Public Service has partnered with larger retailers in the state to promote the product. Point of purchase materials, namely application forms and product details are made available and staff is trained on materials to give to customers.

Product performance is tracked weekly through an internal customer rebate processing system. Performance is reviewed weekly by the product manager and reviewed monthly by marketing management. Marketing strategies may change to meet the dynamic needs of the product depending on its performance throughout the year.

Best Practices

As a member and participating utility, Public Service supports the Consortium for Energy Efficiency's (CEE) High Efficiency Residential Gas Water Heating Initiative. The long-term goal of the initiative is to increase the market penetration of high efficiency water heaters. Public Service's Water Heater Rebate Product will help CEE achieve its goals by promoting high efficiency equipment to consumers and related trade. Other initiative objectives include increasing the number of high efficiency models available by increasing the demand by consumers.

Best practice efforts will include working closely with the HVAC community to ensure product guidelines, eligibility requirements, and processes are clearly communicated. This product relies heavily upon HVAC installers who are on the frontline with customers and are the trusted individual customers hire to perform expensive service installation projects in their homes. Another best practice channel includes retailers that sell high efficiency water heaters on site. Public Service will provide retailers with product information and the application forms for customers who purchase their water heaters at the stores.

E. Product-Specific Policies

The water heating equipment must be purchased and installed within the calendar year, and customers and installers must adhere to all product rules that are listed on the reverse side of the rebate application form. Equipment must meet the minimum efficiency requirement. An invoice for the equipment is required along with the application form. Customers are allowed to submit more than one water heater rebate at a time, as some larger homes do require more than one.

High efficiency water heating equipment installed must match the AHRI specifications or ENERGY STAR specifications and be certifiable via the online at the AHRI or ENERGY STAR websites before a rebate is provided to the customer. This product requirement is communicated to the customer on the reverse side of the rebate application form, through the installer, and on the Xcel Energy website.

F. Stakeholder Involvement

Public Service technical consulting, product development, and residential product management staff worked together to develop this product. Public Service staff also works with the CEE to include the most up-to-date water heating technologies and efficiencies, and follows ENERGY STAR policies on energy efficient products.

G. Rebate Levels

Water Heater Type	Rebate
Standard Tank Water Heater 0.67 EF	\$70
Tankless Water Heater 0.90 EF	\$100
Electric Heat Pump Water Heater	\$450

Rebate applications must be submitted by July 31 of the following year after purchase and installation to qualify for a rebate.

➤ Energy Efficient Showerhead Product

A. Description

The Energy Efficient Showerhead Product is designed to offer year-round natural gas and electric savings to Public Service customers. Residential natural gas and combination gas and electric customers are eligible to receive a free high-efficiency 1.5 gallon-per-minute (GPM) high-efficiency showerhead, 1.5 GPM kitchen aerator, and 1.0 GPM bathroom aerator to help reduce energy and water use costs.

Eligible customers are contacted and offered a free kit, which has an approximate \$30 retail value. The free energy efficiency kit is mailed to customers who make the active decision to request the energy efficiency measures within the promotional period. Kit contents include one showerhead, one kitchen and bath aerator, Teflon tape, and illustrated installation instructions.

The Company contracts with a third-party provider to manage all customer responses and distribute the energy efficient showerheads. The third-party provider is a recognized distributor of energy efficiency-related products in the United States. Customer responses will be tracked by the provider, given to us following the distribution, and kept in a tracking system to calculate savings.

B. Goals, Participants & Budgets

Goals and Participants

PSCo set the 2014 goals based on past performance of the product. Participants receive one kit per request.

Budgets

The product budget was developed based upon the participation level. Using Public Services' 2012 showerhead product performance as a guide, the cost of the showerheads, fulfillment charges, postage, and all necessary marketing efforts were included to develop the 2014 budgets. Since the third-party will manage all day-to-day activities, minimal internal labor is allocated to this product.

C. Application Process

Customers are notified of this product through a direct mail piece typically distributed in the spring and fall targeting different areas of the service territory in each mailing. The fall and spring were chosen because there is greater demand for water (lawn care, increased indoor hot water use, etc). Customers have a limited amount of time to return the business reply card to the third-party (approximately 45 to 60 days). Once the customer returns the card, they will be shipped one free energy efficient showerhead and two aerators.

In addition to the direct mail campaigns, PSCo will continue to seek out partnerships with other organizations or cities to distribute free energy efficient showerheads and/or aerators.

D. Marketing Objectives, Goals, & Strategy

An average of 12% of customers who received a direct mail brochure between 2010 and 2012 requested the product. Based on this data, PSCo has developed a marketing plan utilizing direct mail campaigns and partnerships to reach the participant goal. The direct mail reply card requests the customer indicate if their water heater runs on gas or electricity.

Customer responses will be tracked by the third-party provider and sent to PSCo following the distribution of the showerheads to participants. This information is kept in a tracking system to calculate savings.

E. Product-Specific Policies

Each participant is allowed one kit. Customers may participate in the program once every seven years. If a customer who did not receive the mailing becomes aware of the product and would like a free showerhead and aerators, they will receive one if budget allows.

F. Stakeholder Involvement

In past program years, Public Service has partnered with local cities and counties on their water efficiency initiatives. PSCo plans to continue its support of these types of programs in 2014. In addition, the DSM Roundtable quarterly meetings provide a forum for stakeholder involvement and feedback about this product as well as the full portfolio of PSCo's DSM products offered in Colorado.

G. Rebate Levels

The product provides free energy efficient equipment rather than a rebate to the customer.

➤ Saver's Switch Product

A. Description

Saver's Switch is a demand response product that offers residential participants a \$40 annual bill credit as an incentive for allowing Public Service to control operation of their central air conditioners on days when the system is approaching its peak. This product is generally utilized on hot summer days when Public Service's load is expected to reach near-peak capacity. Since the launch of Saver's Switch in 2000, Public Service has declared an average of eight control days per year. Saver's Switch helps reduce the impact of escalating demand and price for peak electricity.

When the Product is activated, a control signal is sent to interrupt the air conditioning load during peak periods, typically between the hours of 2 PM to 7 PM on weekdays. The product deploys switches with varying load control strategies. Switches installed prior to 2004 are cycled 15 minutes out of every 30 minutes (a 50% cycling strategy) during the control period. Switches installed after 2004 have utilized an "adaptive algorithm" cycling strategy. This strategy allows the switches to "learn" how a customer's air conditioning is being operated in order to achieve a 50% reduction in load. The newer switches generally provide greater load reduction per unit. Approximately 96% of the 167,000 switches in the field (as of December 31, 2012) use the adaptive algorithm strategy.

Customers may have their air conditioning controlled for up to four hours on a control day. The time period can be either 2 PM to 6 PM or 3 PM to 7 PM. Controlling over two different time periods provides Public Service the flexibility to better manage peak demands on the system.

B. Goals, Participants & Budgets

Goals and Participants

Prior to 2009, the annual participant goal for the Saver's Switch product has been 13,000 new switches installed per year. For 2009 and 2010 that was increased to 19,500 new switches. The increase was a result of the Fort St. Vrain Decision No. C08-0369 in Docket No. 07A-469E. In that proceeding, the Commission ordered Public Service to expand its demand response efforts to meet a resource need. Having promoted the program very heavily since 2009, Public Service believes that the program penetration rate among eligible customer now exceeds 50%. At this point, the Company is seeing diminishing response rates to promotional activities. Therefore, the 2014 Saver's Switch target is reduced to 12,000 new switches.

Budgets

The primary costs in operating the Saver's Switch Product are: the cost of switches, installation, rebates to participating customers and promotional expenses for recruiting participants.

C. Application Process

Customers may sign up for the product via a mail-in form, phone, or the Xcel Energy website. Applications are generally processed and switches installed within six to eight weeks. Due to variations in air conditioner age, code compliance, and where it is located next to the house, the installer will make the final onsite determination as to whether the customer qualifies for the product.

D. Marketing Objectives, Goals, & Strategy

The Saver's Switch Product is promoted to residential customers using a variety of channels including bill inserts, company newsletters, print and radio advertising, direct mail and telemarketing.

Based on an analysis of customer energy usage during the summer months, Public Service estimates that about 350,000 residential electric customers in Colorado have central air conditioning. Of those, about 159,000 were signed up for the product at the end of 2012. Where possible (i.e. in direct mail and telemarketing), the Company directs its promotional efforts to customers identified as likely to have central air conditioning.

In 2014, Public Service expects to continue an intense promotional effort with activities including:

- Direct mail, including up-front incentives to new participants
- Outbound telemarketing
- E-mail marketing
- Bill inserts
- Radio advertising
- Print advertising

E. Product-Specific Policies

The Saver's Switch Product has the following additional requirements:

- The product does not offer customers the choice of opting out of individual control days. The one exception is in the case of medical emergencies where customers can be removed from the product on very short notice.
- When a customer moves into a premise with a pre-existing switch, they are automatically enrolled in the product, but notified that they may opt-out.
- Customers enrolled as of August 1st of each year are eligible for the discount on their October bills.

F. Stakeholder Involvement

Public Service recognizes that the HVAC community and homebuilders are in a position to influence customer attitudes towards the product. The HVAC community may also have lingering misconceptions about Saver's Switch being harmful to customers' air conditioners. Public Service is planning to increase its efforts to educate the HVAC/builder community about the benefits of Saver's Switch to customers.

G. Rebate Levels

Product participants will receive a \$40 discount on their October energy bills following participation in the prior summer control season.

Low-Income Program

A. Description

The Low-Income Program includes Public Service’s energy efficiency and education products targeted at income-qualified customers. With the 2014 Plan, Public Service continues to make a substantial commitment to both low-income gas and electric energy efficiency. The Company recognizes that low-income products offer a unique opportunity to both substantially improve the efficiency with which customers use energy and to directly improve their quality of life. Energy efficiency products likely provide other non-energy related benefits to low-income customers in the form of health, safety, comfort, and other improvements. Reductions in low-income customers’ utility bills can have a disproportionately beneficial effect on household income as compared to non-low-income customers because a larger percentage of a low-income customer’s income is spent on energy.

With these factors in mind, Public Service will continue to offer the same four diverse products from 2013 intended to reach a large percent of the low-income community while leveraging resources already in place to serve this customer group. The Company continues to partner with Energy Outreach Colorado and the Colorado Energy Office who actively work with this customer segment.

The Low-Income Program consists of the following four products:

- Energy Savings Kit
- Multi-Family Weatherization
- Non-Profit Weatherization
- Single-Family Weatherization

Low-Income Product Rankings

Product Ranking was done for all products through the same process and the final prioritization for the entire Public Service portfolio²¹. As a result, the rankings below will not show the entire list, only low-income products. Criteria used to rank the products included: market segments, customer classes, natural gas energy savings, electric energy savings, number of participants, participant rate (% of the entire customer class), and Total Resource Cost Test results.

Table 11: Low-Income Program Product Rankings

Low-Income Program	Product Ranking	Type of Product	Fuel Market Segments Served
Energy Savings Kit	8	Prescriptive	Electric/Gas
Single Family Weatherization	21	Prescriptive	Electric/Gas
Non Profit Energy Efficiency	32	Custom	Electric/Gas
Multi-Family Weatherization	33	Custom	Electric/Gas

²¹ The entire DSM product ranking can be found in Appendix B of this Plan.

B. Overall Budgets & Goals

The Company developed budgets and goals for the Program based on historical experience (Multi-Family, Non-Profit, and Single-Family) and target participation levels (Energy Savings Kit). Participation rates were established in partnership with CEO, EOC, low-income agencies, and vendors to further refine the goals and budgets.

Budgets for the Low Income gas segment have remained steady from 2013, but is facing declining participation in its programs. Public Service relies on customers who request and qualify for energy assistance on their energy bills to determine Low Income eligibility and is rapidly exhausting this list of prospects to market these offerings to. The Company continues to seek new sources of information to expand its efforts into the Low Income segment. Budgets for the Low Income electric segment have remained fairly the same since 2013. The natural gas budget has decreased from 2013 based on historical participation in the programs showing a downward trend.

Table 12a: 2014 Electric Low-Income Program Budgets and Goals

2014	Electric Participants	Electric Budget	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
Low-Income Program					
Energy Savings Kit	15,000	\$332,475	174	1,932,191	3.33
Multi-Family Weatherization	14	\$387,505	111	1,266,863	1.48
Non-Profit Energy Efficiency	25	\$934,524	500	1,777,129	1.63
Single-Family Weatherization	2,478	\$1,287,086	244	3,193,407	1.32
Low-Income Program Total	17,517	\$2,941,590	1,029	8,169,590	1.65

Table 12b: 2014 Gas Low-Income Program Budgets and Goals

2014	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Low-Income Program						
Energy Savings Kit	15,000	\$221,692	12,472	56,258	1,692,004	6.93
Multi-Family Weatherization	12	\$376,747	6,788	18,017	448	1.00
Non-Profit Energy Efficiency	25	\$541,404	6,970	12,875	354	1.00
Single-Family Weatherization	2,478	\$2,167,578	60,042	27,700	2,925,771	1.74
Low-Income Program Total	17,515	\$3,307,421	86,272	26,084	4,618,578	1.79

C. Market Analysis

The market potential study provided useful insight because it distinguished between single-family and multi-family dwellings, allowing for distinctions between these two customer types. However, likely the best information regarding the Low-Income Program comes from the entities that have historically served that market. As such, the Company relied heavily on information provided by CEO, EOC, and other agencies and non-profit organizations to design its products.

D. Marketing/Advertising/Promotion

The Low-Income Program aims to educate low-income customers on the importance of and value provided by energy efficiency. The Company will work with low-income providers, cities/counties

and other community organizations to promote all available services. Marketing and promotion activities will occur primarily through partners with collateral material developed by Public Service. This tends to be the most effective way to target the low-income customers, as other targeting methods are limited. Xcel Energy's call center agents are also trained to provide useful information with which to direct potentially eligible customers to participate in the Program's products.

E. Program-Level Policies

Customers participating in the Energy Savings Kit and Single-Family Weatherization Products must purchase retail electricity or gas from Public Service on a residential tariff. Participants in the Multi-Family Weatherization Product must be a residential customer or own multi-family buildings whose rental units are a minimum 66% occupied by customers certified as low-income per product guidelines. Non-Profit Weatherization participants have business electric and gas accounts with Public Service since they are a business. Specific products within the Program may have different eligibility requirements depending on the services offered, funding partners or customers served.

F. Stakeholder Involvement

Public Service received significant input and assistance in originally developing and modifying products for the Low-Income Program and will rely heavily on stakeholders to deliver successful products. Perhaps more than any other Program, the Low-Income Program depends on outside expertise in the form of government agencies and non-profits to provide product benefits to customers. In this sense, Public Service is the facilitator that provides financial and energy efficiency resources to complement the services provided by state and local organizations.

The Company will continue to work with the CEO, EOC, vendors, outside consultants, Commission Staff, and local weatherization organizations to ensure that its Low-Income Program products are delivering promised benefits and producing effective results. These interactions will also guide mid-year performance adjustments that may be necessary to keep products on track.

G. Evaluation, Measurement and Verification

The specific product measurement and verification plans are included in the M&V section of the Indirect Products and Services in this Plan.

Products that will undergo comprehensive evaluations in 2014 are noted in the E,M&V section of the Indirect Products and Services, as well as in the respective product description.

➤ **Energy Savings Kit Product**

A. Description

The Energy Savings Kit Product will provide a bundle of home energy efficiency measures distributed to low-income customers through direct mail campaigns and partnerships. The kits offer electricity and natural gas saving measures, as well as customer education materials to help lower customer bills and improve the comfort and safety of their dwellings.

Income-qualified customers will receive an offer through the mail informing them of their eligibility to receive a free Energy Savings Kit, the contents of the kit, and how much they could save if they install all the measures provided. If the customer chooses to receive a kit, they will send the pre-paid postage business reply card to the third-party implementation vendor. Customers will receive a kit within six to eight weeks.

The Energy Savings Kits will include the following electric and natural gas efficiency measures:

- High Efficiency Showerhead (1.5 gpm)
- Kitchen Faucet Aerator (1.5 gpm)
- Bathroom Faucet Aerator (1.0 gpm)
- Four (4) Compact Fluorescent Bulbs - 14 Watt (60 Watt Equivalent)
- Four (4) Compact Fluorescent Bulbs - 19 Watt (75 Watt Equivalent)

B. Goals, Participants & Budgets

Goals and Participants

The Company set the participation goal of the number of kits to send out based on 2012 product performance and projections of possible participation in 2013.

Energy savings goals for 2014 were developed based on the installation rates of the kit measures that took place in the 2012 program-year.

Budgets

The 2014 Energy Savings Kit Product budgets are based on the number of participants and kits. The product budgets cover kit contents, education, production, distribution, and the fees from the third-party implementation vendor.

C. Application Process

Customers who have received LIHEAP funding, any energy assistance funding (including county assistance and fuel fund assistance), LEAP funding, or other state assistance programs and live in Public Service's territory will be sent an offer via mail to receive the product. The third-party implementation vendor will track customer participation so that customers do not receive more than one kit. This tracking information will also be provided to Public Service on a regular basis. Income-qualified customers are eligible to receive a kit once every ten years.

D. Marketing Objectives, Goals, & Strategy

The overall objective of the product is to increase and expand education among the low-income customers on the importance of energy efficiency and the value of taking action to improve efficiency in their homes. Public Service will work with state and local agencies to obtain customer mailing lists to reach more customers annually.

E. Product-Specific Policies

In order to participate, customers must receive LIHEAP, LEAP, or any energy assistance funding (including county assistance and fuel fund assistance) or other low-income state assistance programs. In the future, Public Service will explore a method for allowing customers to self identify their income and allow customers slightly above the federal poverty level to participate. This would greatly expand the number of eligible customers and help individuals who are still struggling despite not meeting the income guidelines.

F. Stakeholder Involvement

The Company will continue to work with local and state agencies to identify eligible customers and determine additional kit content needs.

G. Rebate Levels

Public Service will fund 100% of the cost of the Energy Savings Kit. There will be no rebate provided to customers.

➤ **Multi-Family Weatherization Product**

A. Description

The Multi-Family Weatherization Product is designed to provide funding on a wide variety of equipment and process improvements for natural gas and electric efficiency measures to low-income multi-family buildings. While similar to the Single-Family Weatherization Product, this offering differs in that these homes have common areas, greater overall square footage, and more appliances and potential measures.

The Multi-Family Weatherization Product will be run in partnership with Energy Outreach Colorado (EOC). Public Service funds will supplement federal weatherization grants to produce incremental, cost-effective gas and electric savings. The EOC works jointly with the Colorado Energy Office (CEO) to identify and qualify multi-family units for the product. Details of measures, rebates, reporting processes, and measurement and verification procedures will be evaluated on a per project basis using a detailed engineering analysis.

B. Goals, Participants & Budgets

Goals and Participants

Participation goals for the 2014 Multi-Family Weatherization Product were developed using the 2012 actual projects completed and information provided by EOC on anticipated product applicants. Participation can vary from building to building as many properties are master metered.

Budgets

Historical costs and participation information were tracked and analyzed to project the 2014 budgets. We have used a comparative spending analysis of past year activity as a guide, but not the determining factor, since other external variables like promotions, material costs and staffing may change over time.

C. Application Process

To participate in the Multi-Family Weatherization Product, customers must apply through the EOC. Applications are reviewed by EOC and must have a comprehensive audit performed on the building prior to submitting applications. Low-income households must comprise at least 66% of the building's total households for the building to be eligible to apply. EOC will determine who has the greatest need for weatherization services. In some cases, if the need is very high, the application may be approved for buildings that are occupied by 50% low-income.

D. Marketing Objectives, Goals, & Strategy

The overall marketing objective is to increase and expand education among the low-income customers and building owners on the importance of energy efficiency. Public Service will also work to educate customers on the value of taking further actions to improve efficiency in their homes.

Public Service will work with the low-income providers to encourage promotion of all services available. Information will be posted on the Xcel Energy website directing customers to their local agencies. The Company may also partner with other low-income groups to further educate the customers and building owners.

E. Product-Specific Policies

Eligible customers for this product are building owners of multi-family housing complexes with at least 66% of the rental units occupied by low-income customers whose income is below 80% of the local area median. Customers meeting the federal Department of Energy Weatherization Assistance Product funding guidelines, as determined by the CEO, local government, or their agencies, are automatically deemed income eligible.

F. Stakeholder Involvement

When designing the Multi-Family Weatherization Product, Public Service worked with external consultants to define which measures would ensure customer comfort while saving money on energy costs. Public Service will continue to evaluate historical projects with EOC to determine specific measure trends.

G. Rebate Levels

The Multi-Family Weatherization Product does not provide a rebate to customers, but rather provides project funding in the form of grants. The incentive amounts for the energy improvements can be found in the planning assumption section in this Plan.

Public Service will evaluate each project on a custom basis to determine funding levels using a detailed engineering analysis. Engineers review the project information to determine the projected energy savings, benefit/cost ratio (i.e. TRC) and payback. Projects will be bundled in order to pass the Modified Total Resource Cost Test for the product. Testing, engineering and project management fees may be included in the project costs.

➤ **Non-Profit Weatherization Product**

A. Description

The Non-Profit Weatherization Product is designed to provide funding on a wide variety of equipment and process improvements for natural gas and electric efficiency measures to qualified non-profit organizations within the Company's service territory. The product's focus is on helping organizations that serve low-income individuals, such as shelters, safe houses, and residential treatment centers.

The Non-Profit Weatherization Product will be run in partnership with Energy Outreach Colorado (EOC). EOC utilizes funds through their existing NEEP offering (Non-Profit Energy Efficiency Program) targeting non-profits. Public Service funds will supplement federal weatherization grants to produce incremental, cost-effective gas and electric savings. The EOC works to identify and qualify non-profit facilities for the product. Details of measures, rebates, reporting processes, and measurement and verification procedures will be evaluated on a per project basis using a detailed engineering analysis.

B. Goals, Participants & Budgets

Goals and Participants

Participation goals for the Non-Profit Weatherization Product were created using the 2012 actual projects completed and information provided by EOC on anticipated product applicants.

Budgets

Historical costs, donations and participation information were tracked and analyzed to project 2014 budgets. We have used a comparative spending analysis of past year activity as a guide, but not the determining factor, since other external variables like promotions, material costs and staffing may change over time.

C. Application Process

Customers can learn about the Non-Profit Weatherization Product in a report that is submitted annually by the EOC to all low-income facilities. The EOC reaches out to those customers who may not be aware of funding and educate them on the benefits of an energy efficient retrofit improvement. Customers who are interested in the Non-Profit Weatherization Product can apply online through the EOC website or through participating low-income providers. The online application must also be accompanied by a third-party comprehensive audit and proof that the building is registered with the Secretary of State. A committee made up of industry leaders then determines the applicant's needs and how the joint EOC and Public Service funding can help.

D. Marketing Objectives, Goals, & Strategy

The overall marketing objective is to increase and expand education among the low-income customers and building owners on the importance of energy efficiency. Public Service will also work to educate customers on the value of taking further actions to improve efficiency at the

facility. The EOC markets the product through various channels, including communications through non-profit association literature, community resource center announcements, and local low-income foundations.

E. Product-Specific Policies

To receive funding, the following customer and facility eligibility requirements must be met:

- Customers must receive electricity and/or natural gas from Public Service;
- Customer must operate the non-profit facility in a property they own and for which they pay energy bills or have a long-term lease that requires only non-profits to occupy the space with plans to be in current location for at least the next ten years; and
- The property to be upgraded must provide services to vulnerable populations including but not limited to: transitional housing, homeless shelters, affordable housing, domestic violence shelters and day shelters, organizations that provide services (substance abuse, health and mental health services, child care, education and/or emergency services) for special needs populations, including low-income families, the disabled, senior, and youth communities.

In addition, the following project requirements must be met:

- Be recommended by an independent energy auditor based on energy conservation calculations that are available for review; and
- Reduce the use of energy (natural gas or electricity or both) provided by Public Service to the facility.

Participating low income agencies must agree to the following:

- The installation of an energy use monitoring and reporting system;
- Have a comprehensive energy audit by a qualified entity;
- Set target energy use goals for each facility; (1,048 kWh/yr; 330 Therms/yr);
- Consider installation of all qualifying efficiency measures;
- Engage appropriate contractors and manage the installation and completion of efficiency measures;
- Provide a summary project report at the completion of the installations;
- Provide all insurance and legal protections requested by Public Service; and
- Annually review the energy use of the retrofitted facility and formulate a plan for further improvement using available and appropriate assistance.

F. Stakeholder Involvement

When designing the Non-Profit Weatherization Product, Public Service worked with external consultants to define which measures would ensure customer comfort while saving money on energy costs. In addition, Public Service will continue to evaluate historical projects with EOC to determine specific measure trends.

G. Rebate Levels

The Non-Profit Weatherization Product does not provide a rebate to customers, but rather provides project funding in the form of grants. The incentive amounts for the energy improvements can be found in the planning assumption section in this Plan.

Public Service will evaluate each project on a custom basis to determine funding levels using a detailed engineering analysis. Engineers review the project information to determine the projected energy savings, benefit/cost ratio (i.e. TRC) and payback. Projects will be bundled in order to pass the Modified Total Resource Cost Test for the product. Testing, engineering and project management fees may be included in the project costs.

➤ **Single-Family Weatherization Product**

A. Description

The Single-Family Weatherization Product will offer natural gas and electric efficiency measures to low-income single-family households. Depending on need, Public Service may provide any of the following services:

Natural Gas Measures

- Furnace efficiency upgrades
- Wall insulation
- Attic insulation
- Crawl space insulation
- Attic insulation for manufactured homes
- Water heaters
- Storm windows

Electric Measures

- Refrigerator replacements
- Compact fluorescent light bulbs (rebate is on a per CFL installment)

In addition to these measures, a major focus of this product will be customer education on ways to reduce energy use in the home. Low-income auditors will provide educational materials, historical energy usage information, and bill analysis to these customers during the weatherization process. Public Service will not claim any energy savings associated with the educational component of this product.

The Single-Family Weatherization Product is run in partnership with a third-party program implementer. The Company's funds will supplement federal weatherization grants to produce incremental, cost-effective gas and electric savings. The program implementer will develop annual contracts with the local weatherization agencies within the service territory. Details of measures, rebates, reporting processes, and measurement and verification procedures will be included and managed by the program implementer with the local contracts.

B. Goals, Participants & Budgets

Goals and Participants

Goals and participation rates were established in partnership with the program implementer and the low-income agencies using historical participation from the 2010 Single Family Weatherization Product as a guide, as well as recommendations from the program implementer on expected workflow.

Budgets

Budgets for the Single-Family Weatherization Product were developed based on the historical incremental cost of measures installed in homes.

C. Application Process

Public Service customers will be informed of the Single-Family Weatherization Product when they sign up for LIHEAP funding. In order to participate in the product, they must have applied for LIHEAP funding. Once it is determined that the customer meets the income guidelines and receives energy services from Public Service, they will be qualified by their local participating agency to receive weatherization services. Low-income agencies will actively seek out customers that qualify to participate in this product, and customers can inquire about it on their own as well.

D. Marketing Objectives, Goals, & Strategy

The overall marketing objective of this product is to increase and expand education among the low-income customers on the importance of energy efficiency and the value of taking action to improve efficiency in their homes. Public Service will work with the low-income providers to encourage promotion of all services available. Information will be posted on Xcel Energy's website directing customers to their local agencies. The Company may also partner with other low-income groups.

E. Product-Specific Policies

In order to participate, customers must purchase retail electricity or gas from Public Service on a residential tariff and have a household income below 80% of the area median income. Customers meeting the DOE Weatherization Assistance Program funding guidelines, as determined by the program implementer, local government, or their agencies, are automatically considered income eligible.

F. Stakeholder Involvement

When designing the Single-Family Weatherization Product, Public Service worked with external consultants to define which measures would ensure that the customer is comfortable in their home and will also save money on their energy costs. The third-party program implementer will contract with low-income weatherization agencies to perform weatherization measures. These contractors are funded through the third-party program implementer and other state funding and have agreed to weatherize homes following state regulations and guidelines.

G. Rebate Levels

Public Service will fund a pre-established amount for each low-income, single-family weatherization measure.

Indirect Products & Services

A. Description

The Indirect Products and Services support the direct products in the overall Plan. Most of these products and services are not independently evaluated for cost-effectiveness, with the exception of pilot products that are being evaluated to become direct impact products, and therefore do go through a cost-effective evaluation if savings impacts are measured. These pilots are fully described in the Product Development description of this Indirect Products and Services section. All of the Indirect Products and Services costs are included in the overall portfolio cost-effectiveness evaluations.

There are two main areas under the Indirect offering: Education/Market Transformation and Planning and Research. Within the Education/Market Transformation area, the Company will offer five customer-facing products, including: Business Energy Analysis, Consumer Education – Business, Consumer Education – Residential, Energy Efficiency Financing, and Residential Home Energy Audits. The definition of market transformation in the Public Service gas DSM Rulemaking is:

...a strategy for influencing the adoption of new techniques or technologies by consumers. The objective is to overcome barriers within a market through coordinating tactics such as education, training, product demonstration and marketing, often conducted in concert with rebates or other financial incentives.²²

Within the Planning and Research area, Public Service will operate four internal services: DSM Market Research, DSM Planning & Administration, DSM Product Development, and Evaluation, Measurement & Verification.

Public Service believes strongly that products and services within the Indirect offering play critical roles in ensuring that the overall DSM Plan is effectively researched, managed and operated. The Indirect products and services provide valuable information and support for the direct impact products and offer innovative approaches to effecting changes in the demand-side management marketplace. These innovative approaches, manifested in education and market transformation products, may not produce readily quantifiable energy and demand savings, but still play a very important role in shifting markets and attitudes to be more energy efficient and demand responsive.

However, because the majority of these products and services do not directly produce energy and demand savings and, therefore, may reduce the overall cost-effectiveness of the DSM portfolio, there is a natural tendency to limit activity and spending in this area to only the most essential elements. The Company will not limit its Indirect spending to a specific percentage of the overall portfolio, but will remain vigilant about limiting the Indirect products and services overall size.

²² 4 CCR 723-4-4751(n)

B. Overall Goals, Participants & Budgets

Indirect products and services have no savings goals, with the exception of two pilot products, under the Product Development section. The budget consists primarily of labor, educational material, and study costs. Most studies are conducted by outside experts, generally selected through a competitive bid process. Tables 13a through 13b provide the overall Indirect products and services goals, participants, and budgets if applicable, broken out by product and service.

Table 13a: 2014 Electric Indirect Products & Services Goals & Budgets

2014	Electric Participants	Electric Budget	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
Indirect Products & Services					
Education/Market Transformation					
Business Energy Analysis	400	\$980,880			
Community Energy Efficiency Planning Pilot		\$25,800			
Consumer Education - Business	1,385	\$153,765			
Consumer Education - Residential	34,000	\$1,232,674			
Energy Efficiency Financing	1,500	\$60,000			
Residential Home Energy Audit		\$610,664			
Education/Market Transformation Total	37,285	\$3,063,783			
Planning and Research					
DSM Planning & Administration		\$401,877			
Program Evaluations		\$247,080			
Measurement & Verification		\$13,175			
DSM Market Research		\$290,688			
DSM Product Development		\$1,197,238			
Energy Feedback Pilot	117,642	\$760,817	7,610	28,994,680	3.00
Energy Feedback Pilot - Business	11,422	\$255,754	579	5,484,685	1.18
In-Home Smart Device Pilot		\$50,698			
Electric Vehicle Charging Station Pilot		\$4,220			
DSM Product Development Total	129,064	\$2,268,727	8,189	34,479,365	1.14
Planning and Research Total	129,064	\$3,221,547	8,189	34,479,365	0.80
Indirect Products & Services Total	166,349	\$6,285,330	8,189	34,479,365	0.45

Table 13b: 2014 Gas Indirect Products & Services Goals & Budgets

2014	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Indirect Products & Services						
Education/Market Transformation						
Business Energy Analysis	100	\$138,316				
Community Energy Efficiency Planning Pilot		\$4,200				
Consumer Education - Business	593	\$50,002				
Consumer Education - Residential	34,000	\$250,557				
Energy Efficiency Financing	750	\$60,000				
Residential Home Energy Audit		\$520,099				
Education/Market Transformation Total	35,443	\$1,023,174				
Planning and Research						
DSM Planning & Administration		\$110,004				
Program Evaluations		\$204,580				
Measurement & Verification		\$3,188				
DSM Market Research		\$164,143				
DSM Product Development		\$203,979				
Energy Feedback Pilot	118,574	\$235,016	141,333	601,374	462,845	2.97
Energy Feedback Pilot - Business	11,422	\$80,765	23,408	289,828	34,658	1.43
In-Home Smart Device Pilot						
Electric Vehicle Charging Station Pilot						
DSM Product Development Total	129,996	\$519,760	164,741	316,955	293,524	1.56
Planning and Research Total	129,996	\$1,001,675	164,741	164,465	-188,391	0.81
Indirect Products & Services Total	165,439	\$2,024,849	164,741	81,359	-898,965	0.54

C. Market Analysis

Indirect serves all markets addressed by Public Service's direct impact products. During 2014, market research activities will be focused on customer and market characterization. Each process evaluation conducted by Market Research includes: the quantification of product penetration, provides segment and target market information, determines trends and barriers affecting participation, and investigates best practices observed by peer utility programs. This information provides a basis from which product and program decisions can be made.

Through membership in consultative organizations such as E Source, Market Research receives vendor-neutral and reliable market intelligence overall, and specific to a product/program or by targeted segments. Other general research provides demographic and firmographic data about the characteristics of our customer base, attitudinal and awareness information which informs market strategy, and levels of customer satisfaction which address program vitality.

D. Marketing/Advertising/Promotion

Marketing, advertising, and promotion activities under Indirect Products and Services are primarily focused on the Education/Market Transformation area. The very nature of these products suggests that they will use customer contacts in the form of newsletters, bill inserts, community events, energy efficiency workshops, direct mail and email campaigns, communications to new residents, and advertising through radio, television and print to educate customers and transform markets.

Promotional costs are also budgeted to create awareness and generate enrollments in the Residential Home Energy Audit and Business Energy Analysis.

E. Program-Level Policies

The Company will make every effort to focus its Education and Market Transformation messages and promotions on Public Service customers, yet there will likely be spillover benefits to non-Public Service customers particularly with those activities that convey information to general audiences (like the Company website, partnerships with regional agencies, and community-based events).

F. Stakeholder Involvement

The Indirect offerings rely heavily on input from internal and external stakeholders, and, as such, manage the Company's interaction with "official" stakeholder groups such as the DSM Roundtable. Market Research and Education/Market Transformation activities actively engage internal and external stakeholders including employees, customers, trade allies, and vendors to ensure that product objectives are met.

G. Evaluation, Measurement and Verification

The Indirect offering includes the Evaluation, Measurement and Verification (EM&V) Plan, which describes the evaluation, measurement and verification plan for all of the DSM products included in this DSM Plan. The majority of Planning and Research services themselves are not subject to EM&V, with the exception of pilot products under the Product Development service, which is fully described below under the Product Development description.

The DSM Planning & Administration group is responsible for developing the EM&V methodologies, while the DSM Market Research group will oversee the third-parties conducting the research. These efforts are described in more detail within the EM&V and DSM Market Research Product descriptions.

➤ ***Market Transformation – Indirect: Business Energy Analysis***

A. Description

The Energy Analysis Product is an indirect impact product that offers Colorado business customers analysis services to identify energy saving opportunities. The goals of this product are to provide a method and entry way for commercial and industrial customers to learn how their business uses energy today and to identify measures that will help them save energy and reduce operating costs in the future. This service focuses on a customer's building envelope and is a first step for customers to uncover energy saving opportunities with little capital investment and risk. Public Service representatives have and continue to use this as an initial selling point for energy efficiency programs. Participation is heavily dependent on promotion by internal Public Service representatives, as well as the trade partners and outside business customer assistance programs.

The Energy Analysis Product offers three different types of assessments: online assessments, onsite analysis and engineering assistance studies, which vary in customer involvement and capital investment. The reports in all three assessments provide detailed information about cost and paybacks, which will assist in creating a business case to make energy efficiency upgrades.

- **Online energy assessments:** An online energy assessment is a free online tool developed and operated by a third-party provider. This online assessment interviews the customer about their equipment and operating conditions to uncover areas where energy and cost savings opportunities may exist. Based on industry averages and trends, regional data, and customer knowledge of the facility, the online tool is a starting point for determining energy saving opportunities. This tool requires the customer to invest time, but no money in the analysis, making it virtually risk-free. For the purposes of the online assessment, the online tool uses an industry average facility based on a regional data derived from Energy Information Administration (EIA) data and ESource.
- **Onsite energy assessment:** Public Service sends an energy advisor to a customer's facility to conduct an onsite energy assessment, which is a comprehensive audit of the facility and its energy use. The customer receives a detailed report including energy conservation opportunities with the associated payback, savings, cost and available rebates. Qualified auditor(s) are selected through an RFP process to perform the onsite assessments.
- **Engineering assistance studies:** Provides guidance when the customer is seeking to replace or upgrade of a major process or system. The customer will hire a provider of his or her choice to analyze the facility and develop recommendations for the most energy efficient options for the equipment. The analysis targets customers who are focused on analyzing their refrigeration, cooling, custom or space and processing heating systems.

B. Goals, Participants & Budgets

Goals and Participants

The 2014 goals were developed using historical participation in Colorado, the present commercial and industrial customer market, and other Xcel Energy jurisdictional offerings.

Budgets

The Energy Analysis budget was developed based on the participation goal and historical data for the product. Public Service and third-party auditors established a pricing schedule based on the size and location of buildings. The product team used this information, combined with historical data, to estimate an average assessment cost.

For the Energy Analysis Product, labor, promotions and consulting drive most of the budget. The following was used to identify these specific drivers.

- Consulting: Developed using average auditor pricing and participation goal.
- Labor Charges: Determined by estimating the number of full-time employees needed to manage the program and execute the marketing strategy and rebate process.
- Promotions and Advertising: The estimated promotional budget anticipates several customer and trade communications during the year and a contribution to the general conservation advertising campaign.

C. Application Process

Customers may become aware of this product through their Account Manager or the Business Solutions Center, contracted trade allies, external customer assistance products such as the Denver Energy Challenge, and/or marketing efforts including mailings, newsletters and the Xcel Energy website. All avenues are essential for increasing product awareness in cooperation with the marketing efforts. If a customer is interested in an online assessment, pre-approval is not necessary. Customers will find the free online tool linked to the Xcel Energy website.

Onsite assessments and Engineering Assistance studies require pre-approval prior to project initiation. Customers may access the onsite assessment pre-approval application on the Xcel Energy website and work with their Public Service representative to complete the pre-approval process by collecting their billing history information. Once the application is complete with customer and building information an auditor will be assigned to assess the building. The customer will typically receive their final report from the engineer within three months from applying for preapproval. This time allows for internal processing, onsite engineer walkthrough of the facility, creation of the report, and a final review by Public Service internal engineering staff on a case-by-case basis. The pre-approval application for Engineering Assistance Studies can also be found on the Xcel Energy website or provided by the customer's representative. The customer must select an engineering firm prior to pre-approval, because a project proposal including the scope of work must be included with the pre-approval application to determine funding levels. Engineering studies typically take three to six months to complete and to be reviewed and approved by Public Service internal engineering staff.

D. Marketing Objectives, Goals, & Strategy

The main goal of the Energy Analysis Product is to raise awareness and knowledge of Public Service's energy efficiency products. The Company will rely heavily on the trade and related products, such as city and county driven products throughout Colorado, to increase awareness in the

Energy Analysis Product and partner in the audit process. Though the target markets will differ by assessment type, both online and onsite assessments are popular with small business customers. Methods used to reach and educate customers include:

- Xcel Energy website: Provides a description of the product offering, links product collateral and study brochures;
- Collateral available: Product brochure, case studies, applications, frequently asked questions and study templates so the customer has an idea of the information they will receive by participating, report examples and study brochure;
- Direct mailings: Informational piece to gain awareness and understanding of the product offerings;
- Email campaigns: Brief email available for Public Service representatives to gain interest in the product from their customers;
- Newsletters: Another medium to gain customer awareness and participation in the product; and
- Customer seminars: Educate customers about the product offering and benefits.

E. Product-Specific Policies

Indirect impact products are different from traditional products because there are no immediate savings attributed to the product. Energy Analysis is meant to open the door for customers to participate in Public Service's other energy efficiency offerings and rebates that have direct impacts that contribute to our goals. Once an onsite assessment or engineering report is complete, the customer will receive a summary of energy efficiency opportunities available in their facility. When the customer moves forward with implementation, they will have to follow the appropriate product guidelines, as Energy Analysis does not take credit for the opportunities found in the report.

F. Stakeholder Involvement

Public Service worked closely with the contracted audit trade allies to develop and streamline its assessment process. In the future, the product will look for recommendations from the DSM Roundtable to determine if product modifications are needed.

G. Rebate Levels

Customers do not receive a rebate for participation in the Energy Analysis Product, but they do receive study funding assistance for the onsite assessment and the engineering study. Energy Analysis offers two types of study funding based on whether an onsite assessment or engineering study was completed. Participants in an onsite assessment are responsible for paying \$200 or \$300 per assessment, depending on the building square footage, which is approximately 10-15% of the actual cost of the audit. Public Service will pay up to 75% of the engineering study cost, up to \$25,000; funding is based on the potential energy savings of the project and the cost of the study.

➤ ***Market Transformation – Indirect: Community Energy Efficiency Planning Pilot***

A. Description

Community Energy Efficiency Planning (CEEP) is an indirect impact pilot introduced via 60-Day Notice, effective January 20, 2013. The pilot's objective is to determine if providing strategic support in the development and implementation of a community-level energy plan leads to a lift in energy efficiency product participation and related activities. The pilot was established via Request for Proposal in 2012 to help the Company address an expected energy savings shortfall for 2013. PSCo is working with a third-party consultant in the implementation of the CEEP pilot.

The pilot targets communities that have not initiated a comprehensive energy planning process, or communities that have stalled in their implementation. CEEP pilot staff work with community leaders and stakeholders to help develop an individualized plan to engage their commercial and residential constituents in energy efficiency activities, and help identify project funding via rebates, financing and other sources.

Delivery of CEEP to a community includes:

- Establishing a baseline of community-specific energy information – including PSCo-provided commercial and residential data and decision-making tools – to profile existing energy use, benchmark against other communities, set goals and forecast potential energy-saving opportunities.
- Facilitating stakeholder workshops to assist community leaders in the identification and development of short-term and long-term energy reduction targets, and prioritization of energy conservation activities.
- Supporting the communities as they develop their plans, build consensus among community stakeholders, implement energy efficiency strategies, track progress and report results.

B. Goals, Participants & Budgets

In the 2014 DSM Plan, the Company plans to spend \$30,000 to evaluate 2014 CEEP implementation plans, and determine if the pilot is successful and should be continued and/or expanded to other communities.

C. Application Process

CEEP Pilot communities were selected in 2013 based on these minimum qualifications:

- Located in PSCo's Colorado service area;
- Population greater than 5,000 people; and
- Have not yet developed a community energy plan, or would benefit from implementation assistance.

Pilot communities submitted an application/agreement to participate in the product, and were accepted on a first come-first serve basis. The CEEP Pilot is not open to new communities during the 2014 DSM Plan.

D. Marketing Objectives, Goals, & Strategy

The pilot's objective is to determine if providing strategic support in the development and implementation of a community-level energy plan leads to a lift in conservation product participation and related activities.

E. Product-Specific Policies

CEEP is an indirect pilot. Success will ultimately be measured as an increase in direct impact product participation on the business and/or residential DSM side.

F. Stakeholder Involvement

The CEEP Pilot is being implemented by a third-party consultant. Community stakeholder workgroups are involved in the development of the city's plan, energy efficiency opportunity identification and follow through.

G. Rebate Levels

Rebates for projects resulting from the CEEP Pilot will be delivered through existing direct impact products using established savings and rebate calculations.

H. Evaluation of Product

The intent of the pilot is to determine if CEEP results in increased participation rates for the Company's existing Residential and Commercial DSM products. To accomplish this evaluation, the rate of DSM product participation prior to the pilot will be compared to participation rates after implementation. Attempts will be made to account for externalities which may drive participation. This may be accomplished by comparing product participation rates in similar jurisdictions not involved in the CEEP pilot to those within the pilot.

➤ ***Market Transformation – Indirect: Consumer Education***

A. Description

Market transformation strategies attempt to remove barriers to adoption of energy efficiency measures in order to achieve a permanent shift in a market. The definition of market transformation in the Public Service gas DSM Rulemaking is:

...a strategy for influencing the adoption of new techniques or technologies by consumers. The objective is to overcome barriers within a market through coordinating tactics such as education, training, product demonstration and marketing, often conducted in concert with rebates or other financial incentives.²³

The initial goal of the Consumer Education Product is to improve public knowledge concerning the benefits of energy efficiency and conservation. The Company views this as the initial phase in a long-term process of creating educated, engaged customers who are ready to act on energy efficiency opportunities. The following key messages will be incorporated into all of the product's marketing efforts:

- DSM is a more cost-effective resource than building new generation resources; and
- DSM costs incurred today are an investment that defers incurring higher costs for new generation equipment later.

Further, the purpose of the Consumer Education Product is to induce permanent behavioral changes in the energy usage of residential and business customers through long-term education and proactive customer interactions. A key to the success of market transformation is creating sophisticated consumers who have information that allows them to make more informed and effective decisions. Among the behavioral and attitudinal changes that will affect market transformation are shifts in conventional thinking, heightened awareness, and increased knowledge. Specifically, the Consumer Education Product will educate customers about how to use energy wisely, how to change energy usage behaviors, and how to buy energy efficient appliances, such as ENERGY STAR-rated appliances. Going beyond the initial education, the true intent of this product is to engage customers about energy conservation and efficiency and motivate them to reduce their energy usage.

Messages and themes of the Consumer Education Product will emphasize (1) the partnership between the customer and Public Service; (2) clear actions that can be taken by the customer; and (3) a results-oriented approach. A key to successful market transformation is being able to provide clear answers when stakeholders ask how they benefit from energy efficiency. The perceived benefits and expected outcomes for market transformation strategies will be clearly defined to receive a high degree of acceptance and support among customers. Specific messages and themes are outlined below in the respective business and residential overview sections.

The Consumer Education Product will emphasize:

²³ 4 CCR 723-4-4751(n)

- Introducing energy efficiency and conservation behavior changes into the marketplace;
- Advancing existing energy efficient technologies (ENERGY STAR), services, and behaviors so that they become more widespread; and
- Removing or decreasing the use of inefficient technologies, services, and behaviors.

Successful market transformation efforts are typically long-term in nature and utilize methods to understand customer acceptance and behavioral change. Therefore, the Consumer Education Product will use two measures to define our progress from year-to-year—a general participation goal and direct interaction goal. The general participation goal describes the number of customers the Company will reach out to via print, radio, and internet advertising. This is the general education and awareness portion of the product that intends to build awareness and familiarity amongst our business and residential customers about energy efficiency and conservation. The direct interaction goal describes the number of customers who have received the initial education and are now actively seeking and performing behavioral changes to reduce their energy usage. Direct interactions are defined as occurrences when customers actively engage with Public Service about general efficiency and conservation topics.

Consumer Education tactics will include efforts that require customers to contact the Company for more information. This will be tracked primarily through interactions at public events, e.g., community events and workshops, as well as requests for further information from advertising campaigns and internet inquiries. These direct customer activities comprise the primary metric that will be used to evaluate market transformation efforts over longer time periods. The following sections describe the specific intent of the Consumer Education Product by residential and business sectors.

Residential Consumer Education Overview

This product is targeted to all Colorado gas and electric residential customers. Through repeat communications and interactions with customers, Public Service will move from awareness strategies to behavior change strategies to help customers manage their energy usage. Market transformation activities in this product are about going beyond awareness and familiarity and motivating customers to take steps to reduce energy usage. Messages and themes through the residential portion of Consumer Education Product will specifically (1) reinforce simple, executable steps customers can take to reduce energy usage; (2) encourage purchase of ENERGY STAR-approved appliances; and (3) promote participants to actively encourage others to do the same.

Because the Residential Segment is demographically varied, Public Service employs a variety of resources and channels to communicate conservation and energy efficiency messages. The strategy deployed will initially encompass awareness messaging and activities. In the initial implementation of the product, primary emphasis will be placed on:

- Community-based events, such as home shows and conservation events;
- Partnerships with local, regional, and state government agencies where possible, as well as non-governmental agencies to reach target residential audience segments;
- Utilizing mass market advertising such as radio, print and internet to create awareness in energy efficiency;
- Online messaging through targeted websites;
- Sponsorship of local Earth Day events;

- Conservation messaging through Public Service's newsletters and bill inserts to residential customers; and
- Publication of reference education materials (in English and Spanish).

The Company has offered a similar product in its Minnesota service area for more than a decade. The Minnesota product provides years of experience and best practices that is reviewed to benefit the Consumer Education Product in Colorado.

Business Consumer Education Overview

This product is targeted to all Colorado natural gas and electric business customers, with stronger emphasis on small- to mid-sized customers. As a result of this product, Public Service hopes to create public awareness of energy efficiency and energy conservation while providing business customers with information on what they can do to reduce energy usage. Primary emphasis is placed on:

- Energy efficiency and conservation messaging through email and print newsletters;
- Focused customer segment events and sponsorships through business and trade associations;
- Utilizing mass market advertising such as radio, print and Internet to create awareness in energy efficiency;
- Customer outreach through energy efficiency workshops; and
- Customer employee behavior change campaign (BC Hydro Power Smart model).

ESource has identified the BC Hydro Power Smart model for the Business Segment as one of the more notable business behavioral change products in existence today. This model essentially creates an energy efficiency team comprised of a core group of employees within a company that implement an energy efficiency plan. First, a company is asked to send a select group of employees to an energy efficiency workshop. The employees are taught the basics of energy conservation and are asked to create a plan specific to their company. The group is then sent away with posters, stickers, and tip sheets to hand out and place at work. This model has worked particularly well – using a core group to deliver energy efficiency messages throughout the workplace. One of the reasons for this is that the company employees have an understanding of their roles upfront and there is an established group responsible for meeting goals.

B. Overall Goals, Participants & Budgets

Goals and Participants

Consumer Education is an indirect impact product. Therefore, the product goals are measured in the number of participants, instead of direct energy savings. The number of participants forecasted in 2014 reflects a continuance from efforts made in 2013.

Budgets

Public Service's budget for this product was determined through estimates of material, labor, and past activities in Colorado and other states. The majority of the budget is driven by customer education, conservation promotion and labor. Public Service anticipates that the budget for 2014 will remain about the same in order to get the word out about energy efficiency messaging to residential customers through a variety of channels.

The residential budget for Consumer Education is higher for natural gas than electric due to the number of opportunities for gas energy efficiency within the home compared to electric opportunities. Customers have more opportunities to reduce their gas usage through energy efficiency, such as heating, water heating, insulation, and appliances, compared to electric that is generally limited to lighting, cooling and appliances. In addition to the opportunities within the house, as prices for fossil fuels, including natural gas, are anticipated to increase, there will be a growing urgency for customers to manage their utility bills by addressing how they use gas within their homes. The business budget is higher for electric because most businesses have more equipment and process loads that use electricity compared to gas.

C. Application Process

No application or approval process is required for this product.

D. Marketing Objectives, Goals, and Strategies

The primary objective of the Consumer Education Product is to heighten residential and business customers' awareness about energy efficiency and conservation and then develop engaged customers who will proactively take steps to reduce energy consumption. The goal of the product is to get customers to conserve and upgrade to high efficiency measures when possible. Public Service will employ communications and provide behavior-altering strategies that customers can implement in their daily lives to conserve energy (move customers from awareness to action).

The residential portion of the product will target all residential customers in our Colorado service area. We plan to partner with the Colorado Energy Office (CEO), Electric and Gas Industries Association, the Center for Resource Conservation, and local government and non-governmental agencies to drive home the message so the customer is not just educated, but engaged and therefore ready to act.

The Company anticipates using a variety of communications channels including the internet, print, radio, and events for these communications efforts. Messaging will emphasize specific energy saving tips residential customers can implement in their daily lives to reduce their energy usage. Seasonal promotions are anticipated to help customers manage their usage during high-bill seasons, e.g., summer and winter.

The messaging will also support various energy conservation and energy management products the Company has available to residential customers. The product campaign will include financial and environmental benefits of energy conservation and will promote ease of implementation to lead the customer to action. The following are some of the proposed activities in support of the Residential Consumer Education Product.

Residential Consumer Education Communication Tactics

Residential Customer Communications Tactics	Description
Energy Update Newsletter/Conservation Tips	Energy efficiency messages delivered through newsletter on bi-monthly basis.
Neighborhood Sweeps	Partner with non-profit organizations to canvas neighborhoods with information about making homes more energy efficient.
Conservation-focused email	Targeted, personalized campaigns to key segments and promotions to capture customer info and give energy-saving tips.
Possible Community Events	National Western Stock Show Colorado Home/Garden Show Pueblo Home & Garden Show Earth Day Events Boulder Creek Festival TEVA Mountain Games Western Welcome Week Colorado Fall Home Show Fruita Fall Festival Trail of Lights
Enhanced Web (home page) Messaging	Enhance existing Web presence to promote conservation and tie to branding campaigns.
Speaker's Bureau	Increase community outreach with conservation presentations by energy raters. Energy saving tips and do it yourself.
Power Check Program	Supply public library systems with watt meters that can be checked out along with information about energy efficiency and conservation information.
Conservation Advertising-Radio, Print, and Web	Messaging to residential customers about efficiency and conservation through optimal channels. Anticipate seasonal schedule.
Gas and Electric Conservation Brochures	Distribute through event channels and with partners to promote conservation education.
ENERGYSMART Library and University	Utilize the existing online energy efficiency database as a tool for customers to learn about opportunities to make changes within their home and lower utility bills.

The business portion of the Consumer Education Product will focus primarily on creating awareness of energy conservation while providing business customers with information on what they can do to reduce energy use in their buildings. The product hopes to encourage customers to make Public Service their first contact when considering energy efficiency and conservation, and to engage customers to make changes that lower their energy use. It will focus on educating customers and their employees regarding impacts of their energy use and offering choices and information on how to take action to achieve long-term energy and environmental savings. Public Service will consider the following strategies to promote the business Consumer Education message:

Business Consumer Education Communication Tactics

Business Customer Communications Tactics	Description
Energy Solutions Newsletter	Energy efficiency and conservation messaging delivered through print and e-mail newsletter on a quarterly basis.
Focused customer segment events and sponsorships through business associations	<ul style="list-style-type: none"> • Government • Education • Hospitality • Nonprofit • Small Business Association • Chambers of Commerce • Building Owners and Managers Association • National Association of Industrial and Office Properties
Energy efficiency workshops	Utilize energy auditors to present energy efficiency workshops to customer groups.
Customer Employee Education Campaign	Engaging customer’s employees in energy conservation and changing workplace behavior to enhance efficiency and save costs. Resources and tools to assist organizations in developing creative and effective campaigns.

E. Product-Level Policies

This product has no specific policies.

F. Stakeholder Involvement

Recognizing that market transformation is best accomplished at a regional or national level, Public Service will create and leverage strategic partnerships and alliances with governmental, non-governmental, and trade partners to reach target business and residential customers. Public Service will collaborate on messaging with the CEO and other consumer organizations to deliver consistent energy efficiency education to our business and residential customers. The Company will meet with CEO regularly to discuss our initiatives and where possible, consider coordinating seasonal messaging to maximize the outreach effort. In, addition, Public Service will also partner with the other governmental organizations, chambers of commerce, and business/industry trade associations. Further, we will solicit feedback from customers through market research, as well as through the product metrics, to best target and tailor our messages.

G. Rebate Levels

Customers will not receive rebates, as this is an indirect product.

➤ ***Market Transformation – Indirect: Energy Efficiency Financing***

A. Description

Energy Efficiency Financing is an indirect impact product that will encourage our residential and small commercial customers to participate in existing direct impact products by augmenting existing rebate products with financing options. The Company facilitates the financing of projects through partnerships with existing financial institutions and by assisting in the creation of financing options in areas where such products don't exist. Public Service is not providing capital for these loans, offering a loss reserve, servicing loans, or offering on-bill financing in connection with this product.

Public Service has conducted extensive interviews with parties that currently offer energy efficiency loans in Colorado, including private sector lenders, non-profit lenders and government entities throughout the state. In all cases these parties have access to capital to fund loans or leases, a credit enhancement to provide a loan loss reserve, or both. The gap that these entities have identified to us is not a lack of capital, but a need for assistance in marketing to drive volume. Each of these existing lenders has appreciated the fact that Public Service will not confuse the marketplace by offering a competing loan product, but will, in fact, enhance the existing marketplace by leveraging Public Service Company's marketing efforts to drive business to these existing lenders, many of whom are in the early stages of launching new loan products.

- Public Service will actively market selected loan products to targeted DSM segments. We anticipate using many channels to market the financing products, including: contractor training, direct outreach and marketing, bill inserts, web links, And rebate integration.

There are four types of loan products that best match the financing needs of customers. These include:

1. Residential Unsecured Loans – These loans are for short term, reactive needs. The customer has an immediate need for a product and may be willing to upgrade the system if an attractive financing option were available. Participants in our Evaporative Cooling, Air Conditioning, or Insulation Products would be ideal for this product.
2. Residential Secured Loans (PowerSaver Loans) – These loans are for homeowners planning a major retrofit of their home. Participants in our Home Performance Product or other combined projects that need a larger sum of money may prefer this type of loan.
3. Business Loans or Leases – This type of financing requires a quick turn around from the lender. Having the loan or lease available may drive the customer to make the improvement immediately. Participants in our Lighting Efficiency, Small Business Lighting and Motor and Drive Efficiency Products could be interested in this product.
4. Small Business Administration (SBA) Loans – Loans that fall into this category are generally much larger than the other three types of loans and may be for longer terms. They generally range from \$100,000 to \$3,000,000 and the payback period is generally 20 years. These loans would be targeted to our participants in the Energy Management Systems, Custom Efficiency, or a combination of other retrofitProducts.

The Company launched this product in connection with our 2012/2013 DSM Plan. The Settlement Terms are:

“The Company agrees it will work with interested stakeholders between now and June 1, 2012 to develop a program to support financing of energy efficiency retrofits by residential and small business customers. If during this time, a cost effective model for such a program can be developed for Public Service’s territory and the Company receives interest from third-party entities to support implementation, the Company shall file an application for approval of such a program with the Commission with the objective of implementing it beginning January 1, 2013. The financing program would be implemented in partnership with other entities such as banks, state government or local governments. It is agreed to by the parties that the financing mechanism will not be an on-bill payment mechanism or include a lost loan pool supported by Xcel Energy ratepayers.”

B. Goals, Participants & Budgets

Goals and Participants

We propose Energy Efficiency Financing as an indirect impact product. The primary goal of this product is to drive incremental participation in existing direct impact energy efficiency products. As a result, the product goals are measured in the number of participants instead of direct energy savings. For planning purposes, we estimate that approximately 10% of these loans may be “incremental” in that the resulting energy savings would not have occurred had the Energy Efficiency Financing Product not been available. These goals have been developed through research of similar products, interviews with the PSCo Program Managers of the direct impact products, and discussion with industry experts.

Budgets

Public Service’s 2014 budget for this product was determined through estimates of material, labor and past activities in Colorado and other states. In addition, we have included in the budget funds for an independent evaluation of the product in 2014.

C. Application Process

No application or approval process is required for this product. Customers will be directed to one or more lending alliances suited to their needs. Loan applications will be completed by the customer and submitted directly to the participating lender. Billing and payment processing will also be between the customer and the participating lender without the Company’s involvement.

D. Marketing Objectives, Goals, & Strategy

Our marketing objectives include identification of customers that want to implement more energy efficiency but require financial assistance and linking these customers with the most appropriate rebates and loan products. Customers can be made aware of financing options at the same time they

become aware of rebates. Awareness may be driven by their Account Manager, the Business Solution Center, Energy Efficiency Specialists, trade allies, external customer assistance products, and/or marketing efforts including mailings, newsletters, and the Xcel Energy website.

Direct and indirect marketing strategies will be employed. Direct marketing will be done in partnership with the Product Managers for the direct impact products we anticipate driving customers towards. Indirect marketing involves broad communication that spans multiple (or all) direct impact products. The best example is contractor training and education. Understanding that many customers interact primarily or exclusively with a contractor – our marketing goal will be to ensure these contractors are armed with the knowledge, expertise, and collateral to assist customers in choosing the best option for their situation. Another example would include advertising in conjunction with a participating lender partner to raise awareness of that loan offering without targeting a specific end-use.

E. Product-Specific Policies

An Invitation for Alliance was sent in 2014 to select at least one existing lender for each of the four loan categories:

1. Residential unsecured
2. Residential secured (PowerSaver)
3. Business unsecured
4. Business secured (SBA)

This Invitation was intended to create transparency and an even playing field upon which Public Service can select existing lenders to deliver Energy Efficiency Financing to our customers.

F. Stakeholder Involvement

Public Service worked closely with stakeholders to develop this product. Channels for this involvement have included the following:

- Government Affairs – PSCo Government Affairs has been actively involved with this project, providing a liaison with legislative interests, as well as with the banking and realtor communities to make sure that their issues are represented in the development of this product.
- Stakeholder Meeting - A stakeholder meeting was held to gather input into the product design. Stakeholder feedback has been incorporated into this product development. Ongoing communication with many of the participants has helped shape this product.
- Discussion at Quarterly DSM Roundtable - Development updates have been presented at the DSM Roundtable.

H. Rebate Levels

No rebates will be provided through this product. Rebate levels in existing direct impact products are not impacted.

I. Evaluation of Product

Basic product operations will be monitored and reported regularly. Reported metrics include:

- Participation in number of product rebates funded by loans; and
- Product spend in dollars.

These operating measures are of interest and aligned with our reporting for other indirect product offerings, but will not fully characterize the achievements or shortcomings of this product.

A product evaluation will be performed by an independent third-party after the first full year of operation to obtain preliminary feedback on this product. This evaluation is expected to occur during the 2014 calendar year. Another product evaluation is planned after the second year of operation, expected in 2015. These third-party evaluations will involve surveying participants and stakeholders to:

- Measure incremental direct impact participation and resulting energy/demand savings;
- Determine how to attribute savings to this product;
- Suggest an allocation of product costs to the direct impact products;
- Evaluate customers' and lenders' experience with the product; and
- Estimate how much energy efficiency and other benefits the alliances created outside of existing direct impact products.

These third-party evaluation results will inform future product changes. These might include changes to the marketing plans, alliances, internal procedures, or the evaluation plan. We anticipate minor changes to the product based on the first evaluation and will reserve more significant changes pending feedback from the second evaluation. Any changes will be reported through the 60-Day Notice process or the next DSM Plan.

Cost-Effectiveness

As an indirect offering, this is not subject to (or easily measured by) traditional cost-effectiveness tests. The Company expects this product to be a cost-effective addition to our DSM portfolio and will measure this in two ways.

Primary method: We will multiply the net benefit intensity for each product by the incremental and attributable energy saved with this product. If the sum of all of these net benefits exceeds the costs incurred by the indirect product, we will consider Energy Efficiency Financing to be cost-effective.

Secondary method: We will also examine the cost-effectiveness of each direct impact product both with and without the costs and incremental achievements attributed to Financing. This secondary analysis will allow us to identify any product where Financing is not improving its cost-effectiveness and take action to ensure prudent expenditures going forward.

Our projections suggest that, using our primary method, Energy Efficiency Financing will be cost-effective. We intend to build out detailed marketing plans such that the Secondary method will also show improvement in cost-effectiveness across the direct impact products involved.

➤ ***Market Transformation – Indirect: Residential Home Energy Audit***

A. Description

The Home Energy Audit Product offers Public Service residential customers a rebate on three types of auditing services: the Standard Audit, the Standard Audit with Blower Door Test, and the Infrared Audit, which includes a blower door test and infrared imaging. The purpose of this product is to improve energy savings by influencing homeowners' and renters' behaviors through conservation education.

The essential elements of the in-home Standard Audit are:

- Customer energy bill analysis;
- Client assessment and education;
- Shell assessment;
- Mechanical and electrical equipment review; and
- Energy savings recommendations derived from energy modeling software.

The customer has the option to work with the auditor to add a blower door test, combustion safety test (CAZ), and/or an infrared test to the Standard Audit for more feedback on the current performance of their residence.

Typically, the audit begins with the auditor's review and analysis of the billing history since this is often an indication of what the customer may need to address first. The auditor also takes this opportunity to discuss any concerns or questions that the customer may have regarding their homes energy usage and related comfort. Once the areas of concern are identified, the auditor initiates the onsite inspection. This process begins with a shell assessment of the exterior of the home, identifying cracks or exterior signs of air leakage or maintenance needs. The auditor then begins the interior evaluation with inspection of the attic or crawl space to determine what insulation has been installed prior to the audit and upgrades the customer should consider, such as additional insulation and sealing bypass areas.

Next, the auditor reviews the home's heating and/or air conditioning systems for efficiency ratings and discusses monthly maintenance tips. The auditor will also show the customer how to implement suggested maintenance options like changing air filters on a regular basis. As the auditor moves through the home, they continue to educate the customer on how they can implement energy efficient measures. The auditor will inspect and provide information on the efficiency of their appliances, as well as on possible replacement options that are ENERGY STAR-qualified.

Finally, the Standard Audit ends with a review of the top three to five recommendations to the homeowner and a final review of the customer's questions and concerns. The auditor will email the completed report and scope of work to the customer and leave behind efficiency product collateral on relevant rebate products. The entire Standard Audit process takes about two hours to complete and can vary depending on size of home.

Blower door testing will be offered as part of the Standard Audit with Blower Door Test, and the Infrared Audit offerings. The blower door test is a diagnostic tool designed to measure the air tightness of a home and identify air leakage locations. A blower door consists of a calibrated fan for measuring the airflow rate and a pressure-sensing device to measure the pressure created by the fan's airflow. The combination of this pressure and fan's airflow measurements are used to determine a home's air tightness. Before the test is performed, customers must go through their home closing and locking all exterior windows. Once the fan is turned on a vacuum effect is created and customers can then check windows and interior bypasses by holding up their hands and feeling the airflow created. Because this test provides such a visual image for customers, they are often motivated to address air sealing opportunities that they may have overlooked prior to the testing. This tool can also identify potential venting issues around a home's heating system.

The Infrared Audit includes the Standard Audit elements listed above with the addition of infrared imaging and mandatory blower door testing. Benefits of infrared testing include identifying insulation needs, moisture problems, and air leakage paths within walls, attics, windows and doors, as well as providing a quality check for existing insulation. Infrared testing, along with the required blower door test, gives customers a visual understanding and detailed list of structural conservation improvements available to them through non-invasive testing, thus identifying additional savings potential. As with the Standard Audit product offerings, customers receive a cash rebate from Public Service and pay the auditor directly.

In the 2012/2013 DSM Plan, the Company redesigned this product to allow continued growth of auditors' businesses and home performance improvements completed by one stop shop contractors. The Company has transitioned the product to offer a customer rebate for a completed audit instead of the previous model of subsidizing the audit cost and utilizing one main auditing vendor. To maintain consistency, training, audit quality, and overall quality assurance between the auditors, we will require auditors to use a specific energy modeling software package.

Public Service plans to use this Audit Product to support and drive participation in our Home Performance with ENERGY STAR Product. A customer who participates in the Home Performance Product must begin the process with a home audit to identify areas for improvement. Our intent is to use the Home Energy Audit Product to educate participants as to whether or not their house is a good candidate to go through the Home Performance with ENERGY STAR offering; develop a scope of work; and encourage customers to complete the recommended improvements.

B. Goals, Participants & Budgets

Goals and Participants

The Home Energy Audit Product includes a participant goal, but no energy or demand savings goals since this product does not measure direct savings. Combination gas and electric customers will be counted in both the total gas and electric participant counts for the annual status report. Likewise, electric only and/or gas only customers will be counted as either gas only or electric only. Public Service took the new product model into consideration when determining the participation goal.

Budgets

The Home Energy Audit Product budget was developed based upon the desired participation level, associated product software, and administration costs. Using the products previous years' performance and marketing needs as a proxy, the cost of the rebate, product collateral, and all necessary marketing efforts are included.

C. Application Process

The customer will contact Public Service through the customer call center or our website to find a qualified and participating auditor. The customer calls the auditor to schedule the appointment. Once the audit is complete and the customer has received the audit report, the customer or the auditor submits the rebate paperwork with proof of purchase. A rebate takes at least six weeks to process once we receive the application. Customers are limited to one audit per three-year period, unless they move to a new address.

D. Marketing Objectives, Goals, & Strategy

Historically, Xcel Energy's Home Energy Audit Product has proven to be a popular offering. This product will be marketed primarily through seasonal bill inserts, trade allies, and media relations. The product team will work with Media Relations to contact local media television and print outlets with information and interviews around this product offering. This tactic can be extremely successful during both winter and summer months when customer utility bills tend to increase. Further, Public Service will market this product through general customer inquiries regarding their energy bill and cross-marketing efforts with other Public Service residential energy efficiency products. In addition, the Company will identify "green event" opportunities within the community and provide product collateral as part of the overall marketing plan. Product activity will be monitored on a monthly basis to quickly implement the above strategies, if warranted.

Completed audits and monthly totals are processed and reported in our customer database on a weekly and monthly basis. To confirm the continuing quality of the product, Public Service will implement a quarterly Customer Satisfaction Survey to gauge customer satisfaction with their experience with the Home Energy Audit Product, specifically focusing on the independent contractor's performance on certain roles and responsibilities around the audit experience. This will also be used as a tool to monitor auditor performance and to identify any significant changes or trends that may impact the product's success. This market research informs the marketing staff on how the product is delivered, on improvements that may be implemented to provide more information, and gives an indication of potential issues.

E. Product-Specific Policies

In order to qualify for the product, participants must be residential customers living in Public Services' Colorado service area. Infrared Audit customers must be residential customers that receive natural gas or electric only service with electric heat from Public Service to qualify for participation. Qualifying customers may receive an audit once every three years.

Qualified auditors have a minimum of BPI or RESNET certification and one year of audit experience, or comparable training/in-field experience to provide audit services for this product. Participating auditors will also be required to attend mandatory product training, which will include training on the product modeling software. There will be a \$150 per auditor membership fee which will be allocated to the associated costs with software and quality assurance provided by the third-party. This one-time fee will be paid directly to the software vendor.

Auditors will be required to utilize the scope of work tool within the software to deliver actionable recommendations to the customer. This is a critical part of the product as the program administrator will be tracking the conversion rate of audit to improvements completed.

F. Stakeholder Involvement

Public Service collaborates with trade allies such as Energy Efficiency Business Coalition (EEBC), Colorado Energy Office, local communities, and contractors. The product holds regularly scheduled monthly meetings with product partners, the City of Boulder, Boulder County, and the City of Denver. We also provide updates to interested parties at the DSM Roundtable.

G. Rebate Levels

To simplify product participation for homeowners and create more energy efficiency business in Colorado, the Company offers the below rebate schedule:

Audit type	% of cost
▪ Infrared Audit	▪ 60% up to \$200 rebate
▪ Blower Door Audit	▪ 60% up to \$160 rebate
▪ Standard Audit	▪ 60% up to \$100 rebate

*Rebate amounts determined by the average audit cost for the Colorado market.

The Company has moved to this rebate model for several reasons. First, the subsidized audit model constricted the way the product could be integrated in community programs and contractor business models, which slowed down the customer's actions and overall conversion rate of audit to action. With this new approach we will maintain quality through uniform use of audit software and working with a third-party to perform random inspections of auditor's reports.

The Company understands that the actual price for an in-home audit will vary based on the location and complexity of the residence, but the purpose of this product is to provide customers with a straight-forward process to improve their knowledge on energy efficiency and options they have within their home.

In addition to the in-home audits, a free online audit is available on the Xcel Energy website. Instead of paying for an audit that consists of an auditor providing an in-home analysis of the home, customers can use the online Home Analysis tool free-of-charge. The free online audit will not be

counted as product participation, but rather a value-added service to the customer that can help increase lead generation for the in-home audit. The online audit requests customers to enter information on their home: square footage, type of cooling and heating, age of home and family size. This audit takes approximately 10 minutes and offers customers suggestions on how to reduce their energy bill such as adding insulation, replacing old inefficient appliances, maintaining their heating systems, replacing old heating systems, as well as purchasing energy efficient products such as showerheads and compact fluorescent lights. Information on Xcel Energy's energy efficiency products are listed at the end of the online audit.

➤ **DSM Planning & Administration**

A. Description

DSM Planning & Administration is an indirect service with internal staff that manages all energy efficiency-related compliance filings, including this Plan, the annual DSM Status Report, and other regulatory filings. This group performs the benefit-cost analyses of all of the energy efficiency and load management products, provides tracking of the energy and demand savings achievements, and collaborates with the Resource Planning group to develop inputs for the resource plans. The DSM Planning and Administration group also provides management and oversight of all evaluation, measurement, and verification planning and internal policy guidance, hosts the quarterly DSM Roundtable meetings and correspondence with the Roundtable members, and works with outside consultants, when needed, to bring additional expertise to our product planning. These functions are needed to ensure a cohesive and high quality DSM portfolio that meets all legal requirements as well as the expectations of Public Service's customers, regulators, and staff.

This service is administrative in nature and is not open to customer participation. However, because this group operates in all of the states where Xcel Energy offers energy efficiency products, we are able to lend consistency and share best practices across all of the jurisdictions.

B. Goals, Participants & Budgets

Goals and Participants

As an indirect service, DSM Planning & Administration does not have savings or participation goals.

Budgets

The DSM Planning and Administration budget is made up primarily of internal labor required to manage DSM filings, regulatory proceedings, stakeholder meetings, and cost-effectiveness analysis. Employee expenses, consulting and contracting services are a very small portion of the total budget. 2012 actual expenditures were used as a guide for 2014 budget.

C. Application Process

DSM Planning & Administration is not customer-facing, and therefore, has no associated application.

D. Marketing Objectives, Goals, & Strategy

The DSM Planning and Administration services are not customer-facing, and therefore, have no associated marketing objectives or strategy.

E. Product-Specific Policies

This product has no specific policies.

F. Stakeholder Involvement

Public Service considers its stakeholders for DSM Planning and Administration to be both the internal groups who manage the DSM products and require DSM data, as well as the external governmental agencies, environmental and customer groups who express interest in the design of and strategy for the Company's future DSM products. The DSM Planning and Administration group meets with its external stakeholders regularly through the DSM Roundtable, but also meets with parties at other times as needed.

G. Rebate Levels

There are no customer rebates associated with this service.

➤ **DSM Market Research**

A. Description

Xcel Energy's Market Research group oversees a variety of research efforts that are used to inform the Company's decision-making concerning DSM. These functions are needed to provide overall support for clarifying DSM issues and for thoroughly understanding current and potential customers. Often, similar information is collected over multiple service territories so that comparisons are possible.

In the 2014 Plan, the Market Research group plans to conduct several projects and studies as listed below.

- *Business DSM Awareness, Attitude & Usage (AAU) Studies* – Quantitative research to gauge the energy awareness and energy efficient behaviors of Business Public Service customers; (\$44,240).
- *Dun & Bradstreet Business List Purchase* – Quarterly update of firmographic information for existing customer business customers lists to use for understanding, profiling, and targeting marketing efforts; (\$54,584).
- *Colorado Home Use Study* – Quantitative research with Public Service residential customers to gauge appliance saturation; (\$21,000)
- *E Source Membership-Colorado Portion* – Robust repository of secondary and syndicated research resources for national marketing studies, research services, and consulting services; (\$82,950).
- *Home Energy Audit Customer Satisfaction Tracker* – Gauge satisfaction with the Home Energy Audit Product; (\$30,613)
- *Low-Income Energy Savings Program Tracker* – Identify and quantify those specific aspects of the customer's relationship with the Company that are critical to Program continuity and satisfaction; (\$34,100)
- *Custom Segment Research* – Qualitative and/or quantitative research with selected segments to gauge pressing energy efficiency and load management research questions at that point; (2 studies at \$50,000 each)
- *Ad Tracking* – Quantitative research with customers to determine the awareness, likeability and impact of advertising with energy efficiency; (\$62,218)

B. Goals, Participants & Budgets

This is an indirect product and as such, has no estimated energy or demand savings.

C. Application Process

DSM Market Research is an internal function for the Company. As such, it has no customer application process. However, where appropriate, providers of the larger, more expensive projects will be selected through a competitive bid process. Representatives of the energy efficiency

industry will be engaged in this process. Projects will be awarded to vendors who qualify to handle the scope of the project and prove to provide a strong value. The project list will be reviewed at the beginning of each year and may be adjusted to align with current information needs.

D. Marketing Objectives, Goals, & Strategy

As an internal function, DSM Market Research does not have marketing objectives or goals.

E. Product-Specific Policies

This program does not have any specific policies.

F. Stakeholder Involvement

Public Service will rely heavily on the active participation of employees, customers, trade allies, and vendors to successfully execute this research at a high level of integrity, timeliness and cost effectiveness.

G. Rebate Levels

This program does not provide customer rebates.

➤ **Product Development**

A. Description

The Product Development team identifies, assesses, and develops new conservation and load management products and services for addition to the DSM portfolio. The Product Development process begins when customers, regulators, vendors, or energy professionals submit ideas through the DSM Roundtable Product Development Ideation Form or when Public Service staff submits ideas to Product Development. The Product Development team screens, researches, and evaluates these ideas for inclusion in the portfolio. These products may be added to the portfolio as new measures within an existing product, as a pilot product in need of further testing, or as a stand-alone new product. This work enables Public Service to periodically update its portfolio with promising new energy saving opportunities for its customers.

The Product Development team works on both energy efficiency and load management. Each of these DSM areas is discussed in further detail below:

Product Development for Energy Efficiency

For 2014 and beyond Product Development will be a major contributor in the Company's efforts to achieve its increasing energy efficiency goals. Measures or products are selected for development based on a variety of criteria, including: savings potential, cost of savings, ability to be developed quickly, longevity of the offering (i.e. how long until a technology being rebated becomes the standard), level of market barriers and risk. In addition to researching new product offerings and emerging technologies, the Product Development also explores and investigates new energy efficiency concepts, market transformation opportunities and market approaches as part of our long term DSM strategy.

Product Development for Load Management

Product Development is exploring many new load management products and technologies. Some examples of these new load management technologies and rate designs are:

Residential:

- Review and develop advances in air conditioning control strategies software and hardware.
- Identify and develop options for advanced appliance controls and new plug controls.
- Identify new load management communication control systems.

Business:

- Monitor and implement advanced load management control technologies.
- Identify new load management communication control systems.
- Evaluate customer and load aggregation strategies and options.
- Identify energy storage technologies for load management.

B. Goals, Participants & Budgets

Goals and Participants

This is an indirect product and as such, has no estimated energy or demand savings or participants.

Budgets

The Product Development budget was estimated based on actual 2011 and 2012 costs as well as from historical costs of similar work in other service areas. The Product Development budget also includes funding to research emerging technologies that was added in the 2009/10 DSM Plan Stipulation and Settlement Agreement. Internal labor for administering and managing these projects is also included in the Administration & Product Delivery category of the budget.

C. Application Process

Product Development is an internal function for the Company. As such, it has no customer application process.

D. Marketing Objectives, Goals, & Strategy

As an internal function, the Product Development Product does not have marketing objectives or goals.

E. Product-Specific Policies

This product does not have any specific policies.

F. Stakeholder Involvement

Public Service will rely heavily on the active participation of employees, customers, trade allies, and vendors to successfully identify and develop new products at a high level of integrity, timeliness and cost effectiveness. Representatives of the energy efficiency industry and other stakeholder groups are engaged in the development process through such channels as the DSM Roundtable.

G. Rebate Levels

This product does not provide customer rebates.

➤ **Pilot Products**

Pilot products, whether direct or indirect, are used to test a new market, technology, or delivery approach using a defined population (usually a specific class or group of customers).²⁴ They are employed when a new measure or approach is unproven, in order to help inform the decision on whether or not a full-scale product is likely to be cost-effective and desirable. Pilot products must meet the basic product requirements, as applicable for the type of product and implementation state. Additionally, to be considered a pilot product, the product must meet all of the following requirements:

- Temporary in nature;
- Offered to a limited subset of customers;
- Limited in cost;
- Intended to test an unproven technology, delivery approach or market; and
- Designed to answer the research questions necessary to evaluate possible full-scale launch and incorporation into DSM portfolio.

Typically, pilot products are developed through the DSM product development process. This process helps ensure that the proposed pilot will fill an identified need and has the potential to become an effective part of the DSM portfolio. Additionally this process ensures that the appropriate internal approvals have been received.

Pilots must include all the information required for a product in a DSM Plan, including:

- Pilot concept, description, and components;
- Specific study objectives, methods, and plan for answering each study question;
- Pilot deliverables;
- Pilot duration including start and end date;
- Target population and participant selection method;
- Number of participants and explanation of how participants fit into a larger target population;
- Detailed evaluation, measurement, and verification plan including methodologies and budget;
- Qualifications of contractors or vendors as applicable; and
- Address whether pilot will claim savings, and if so, include the savings and technical assumptions

²⁴ Pilots are defined in Docket No.07A-420E, Decision No. C08-0560 pp. 39, 44.

➤ **Market Transformation – Direct: Energy Feedback Pilot**

A. Description

Residential customer behavior-based energy conservation is a large and untapped source of energy savings for both utilities and their customers. Behavior is a key determinant of residential energy use. Past studies have shown that energy use may vary by a ratio of 3:1 in physically identical homes. Both well-designed feedback on energy use and related strategies designed to influence behavior have been found to reduce energy consumption in small research projects over the past 30 years. This pilot will test promising feedback methods on a large scale to measure their effectiveness in reducing residential electricity and natural gas use, including:

- Periodic feedback coupled with sophisticated communications designed to influence behavior delivered via print and/or email distribution; and
- An online energy-feedback portal accessible through a single-sign on to Xcel Energy’s online account management tools.

Public Service offers this Market Transformation: Energy Feedback Pilot to quantify how various feedback methods affect residential customer energy usage by providing these customers with different forms of feedback regarding their energy consumption. The feedback communication strategies and associated tips and tools are intended to result in a decrease in energy usage by inducing changes in the behavior of the end-user and an increased or earlier adoption of energy efficient technologies and energy efficient practices that remain even after the feedback stimulus is removed. The Energy Feedback Pilot will determine when, how, and why customers may change their consumption behavior when provided with information by utilizing energy use feedback modalities and frequencies, as well as how consumption behavior varies due to method of feedback delivery.

The figure below illustrates the three feedback methods to be used.

Feedback Methods

	Frequency of feedback	Participants	Electricity, natural gas or both	Provision of behaviorally optimized information	Additional hardware needed	Applicability to other utilities	Ability to accommodate various rate structures
Print	Approx. every two months	80,000	Both	Yes	No	Any	Yes
Email	Periodic & e-mail	20,000	Both	Yes	No	Any	Yes
Online	Ongoing	44,500	Both	Yes	No	Any	Yes

The print and email portion of the pilot is proposed as a continuation of an ongoing pilot. The original Energy Feedback Pilot began in mid-2011 with 40,000 print and 10,000 email participants. An expanded pilot began at the beginning of 2013 with an additional 50,000 print participants who also receive an email overlay. The 2014 pilot will continue both groupings. The online portion is a new proposed addition to the pilot.

Print: Home Energy Reports

Home Energy Reports comprise carefully crafted components designed to work together to drive efficiency gains and maximize engagement. The reports provide customers with contextualized energy use, data-driven insights, and targeted action steps, all leading to a sustainable drop in electricity use. In order to develop targeted messages, the third-party service provider will analyze a vast array of data streams to derive insights about customer segments and individual customers. This data includes historical and meter data, rebate and purchase information, and third-party data, such as housing, demographics (e.g. age, wealth, number of residents in a household), customer usage patterns, past product participation, weather, geography, and more. Customers will be selected to receive reports on a varying frequency with the average customer receiving over six reports in the first year of the product.

On a monthly basis, the third-party implementer will compile the usage data that has been provided by Xcel Energy and will generate the appropriate analysis to create personalized reports for all 80,000 individuals enrolled in this method. After the personalized Home Energy Reports have been created, they will be printed and mailed in an Xcel Energy-branded envelope to customers.

Following the receipt of the Home Energy Report, customers may choose to call into the call center and talk to customer service representatives about questions regarding their energy usage or to inquire about participation in other products. The representatives are trained to handle these inquiries and have access to a special help system that specifically provides support for this energy feedback product. For customers who can benefit, their enrollment in other products or participation in rebates will be handled through the usual Xcel Energy channels.

Email: Electronic Delivery of Energy Feedback

The Electronic Delivery method will employ the same Home Energy Report at the beginning of the pilot to engage the customers and to set their expectations about the pilot product. An initial Home Energy Report will be mailed to the 20,000 participants in this method with special information indicating that they have been enrolled in an electronically delivered product. The report will also indicate the email address to which future notifications will be sent. This first report will contain all of the same analysis and recommendations as are found in the print reports.

Following the initial printed report, the customers assigned to email delivery will receive a monthly email notification when new data, comparisons, insights, and recommendations have been generated and posted to the online system. This email will contain a link to the online system so customers can log on and view all of the relevant information. Customers will also have the option to log on to adjust their profiles or to view energy data and analysis at any time during the month.

The monthly feedback from third-party implementer to be tested requires no new hardware. The feedback report is relatively low cost and incorporates many proven behavior change techniques. The savings achievable by this feedback have been quantified in a number of other utility pilots and

products and are consistently measured to deliver 1.5% to 3.5% savings on electricity and 0.5% to 1.5% on annual natural gas usage. Results over the first year and a half of the original Energy Feedback Pilot confirm these results, delivering preliminary electric savings of 1.1% to 2.0% and natural gas savings of 0.6% to 2.0%.

Online

Online Energy Feedback is proposed as a new option within the Energy Feedback Pilot. As print and email energy feedback reports have grown, industry leaders have also created online tools that provide customers instant access to online energy feedback information, along with the ability to perform a home energy audit, assess the energy use for different components in their home, commit to energy-saving activities, customize household information, set goals and get more information about ways they can compare and save energy. We intend to roll out this information, toolset and service to our customers via our popular MyAccount service in 2014. The online technology means every customer *could* access this feedback mechanism, but we will target and test our marketing efforts on a subset of our customer base as we answer questions necessary prior to rolling out a larger scale online program.

Research Questions to be Answered by Pilot

Key research questions addressed by the print and email portions of this pilot are:

- How much will residential electricity and natural gas use be reduced by providing monthly feedback coupled with access to an online portal featuring behavior change techniques such as social norming, goal setting, public commitment, reinforcement of successes, and motivation and recommendations targeted by market segment?
- How much additional savings can be achieved by providing supplemental feedback through e-mail?
- How do achieved savings change over time as participants continue to receive feedback reports?
- Is customer feedback of this type cost-effective?

Key research questions to be addressed by the new online portion of the pilot are:

- What level of electricity and natural gas savings can be attributed to an online energy feedback portal within MyAccount?
- What level of electricity and natural gas savings from low income customers can be attributed to an online energy feedback portal within MyAccount?
- What percentage of a targeted subset of customers not receiving other energy feedback reports will opt-in to an online energy feedback portal?
- How frequently and for how long will customers participate in an online energy portal?
- Does participation in the online portal lead to increased participation in other direct-impact DSM products?
- What M&V methodology most successfully captures the energy savings associated with a universally available opt-in service and do enough customers opt in to offer the statistical significance necessary to measure change?

If likely high-potential savers can be identified in advance, targeting them can almost certainly increase cost-effectiveness and further research on this would be helpful for all delivery methods.

Test results for all delivery methods (print, email and/or online) will be monitored and quantified after each test year. If evidence is strong that the feedback is working, a permanent product may be started to take advantage of the opportunity for significant savings. Public Service will look at opportunities to discuss partnering with other utilities with overlapping service areas if the test is successful.

B. Goals, Participants & Budgets

Goals and Participants

The goal of this project is to quantify the impact of three different types of feedback on residential electricity and natural gas use. Feedback and associated behavior change techniques have been shown to reduce energy use in a number of small, short-term research projects over the past 30 years. This project will test promising feedback approaches on a large scale over several years.

An estimated 85,500 participants will remain in the print and email portion of the Energy Feedback Pilot from the previous year at the start of 2014, down from an initial 100,000 participants due to attrition. Those continuing participants will remain in the pilot, and 14,500 new participants will be randomly selected to replace those lost to attrition.

The estimates of participation and associated energy savings for the online portion of the Energy Feedback Pilot are for predictive purposes, but actual savings will be measured and reported using the approach outlined in the M&V section. The universe from which we'll select control and test groups for the online portion of the Energy Feedback Pilot is all customers for whom Xcel Energy has a valid e-mail address, excluding email or print energy feedback pilot participant and control group customers. From this target audience of an estimated 960,000 customers, we will randomly divide customers into a smaller test and control group. While we will test various marketing channels, methods and strategies within the test group, the control group also will have access to the Online Energy Feedback information and tools due to its prominence within the MyAccount page. This creates unique attribution challenges that are addressed in the M&V section.

The online portion of the Energy Feedback Pilot follows an opt-in model where customers must actively choose to participate. This varies significantly from the original Energy Feedback Pilot, where customers were selected to receive reports unless they opted-out of future reports. For this portion of the pilot, some participants might be single fuel while others receive both natural gas and electricity from Public Service Colorado. Therefore, each fuel counts as a participant, meaning a multi-fuel customer will count as two participants.

Public Service will take direct impact energy and demand savings credit for this pilot using the actual results following our M&V evaluation. Based on research and currently active pilot projects, we expect to measure ongoing reductions of approximately 1.9% for electricity use and 1.0% for natural gas consumption. If these savings persist, they can make a significant contribution toward Public Service's goals for energy savings in the residential sector.

Budget

The budget for the online portion of the pilot is largely fixed due to the information technology and delivery method. Most of the costs will not change regardless of participation levels or savings achieved. A share of the multi-state online portal license fees are apportioned to Colorado based on customer counts for each state and fuel. In addition, 27% of the online license fees were allocated to the print and email portion of the Energy Feedback Pilot based on expected participation in the portal from customers within those groups. We have included third-party M&V for the online portion due to the complexity and unique challenges of measuring behavior savings from an opt-in service. Marketing costs will cover the testing of various channels and messages for impact and response in anticipation of a larger-scale future rollout.

C. Application Process

Participants for the print and email portion of the pilot were selected through random selection of 50,000 participants in the original pilot (40,000 print feedback recipients and 10,000 email feedback recipients), 50,000 print participants in the expanded pilot and a statistically significant and homogeneous non-contact control group. Customers were informed of their selection at the beginning of the pilot product and were offered the opportunity to withdraw from the participant group. The control group customers will never be contacted or influenced by any contact with this study. Our goal is to estimate the impact of large-scale feedback products, so participants will be selected from the general population and recruited in a manner that minimizes self-selection bias. Selected participants were provided an “opt out” opportunity if they choose not to participate in the pilot project. Appropriate control and comparison groups will allow us to isolate effects attributable to each strategy.

D. Marketing Objectives & Strategy

Participants in the print and email portions of this product will continue from the original pilot, and thus, no marketing is needed to attract those customers.

The online services will be available to all Colorado residential customers who engage in the Online Energy Feedback portal. We plan to actively engage customers through:

- Customer visits to the MyAccount portion of Xcel Energy’s website, which will feature customized energy feedback results and a prominent button for customers to opt-in to see more details and use the portal tools. MyAccount customers receive periodic reminders to visit MyAccount to view their bill, make payments, or track energy use.
- Outbound marketing efforts to targeted groups within the test group to test response rates for various messages and media channels, likely to include but not limited to email, on-bill messaging and promotion, social marketing, outreach event demos, special offers and direct mail.

E. Product-Specific Policies

Some of the policies for the product are defined while others will be determined as needed. These policies will likely be related to:

- Customer confidentiality and data privacy practices will be stringently applied in accordance with Xcel Energy's Privacy Policy, available by searching "Privacy Policy" at xcelenergy.com.
- Customer assistance will be provided in the same manner to pilot participants as non-pilot participants. Any questions associated with the online Energy Feedback portal will be answered as clearly and completely as possible.
- Test/control group selection for the online portion of the pilot will be randomized based on a universe of customers with e-mail addresses.
- Since there are no financial rewards or rebates at this time, these questions will be minimized. We may consider various incentives and rebates in the future to enhance the product performance and/or endurance.

F. Stakeholder Involvement

Public Service is studying energy feedback products as a result of recommendations from the DSM Roundtable.

G. Rebate Levels

Rebates are not offered as part of the Energy Feedback Pilot.

H. Evaluation, Measurement & Verification

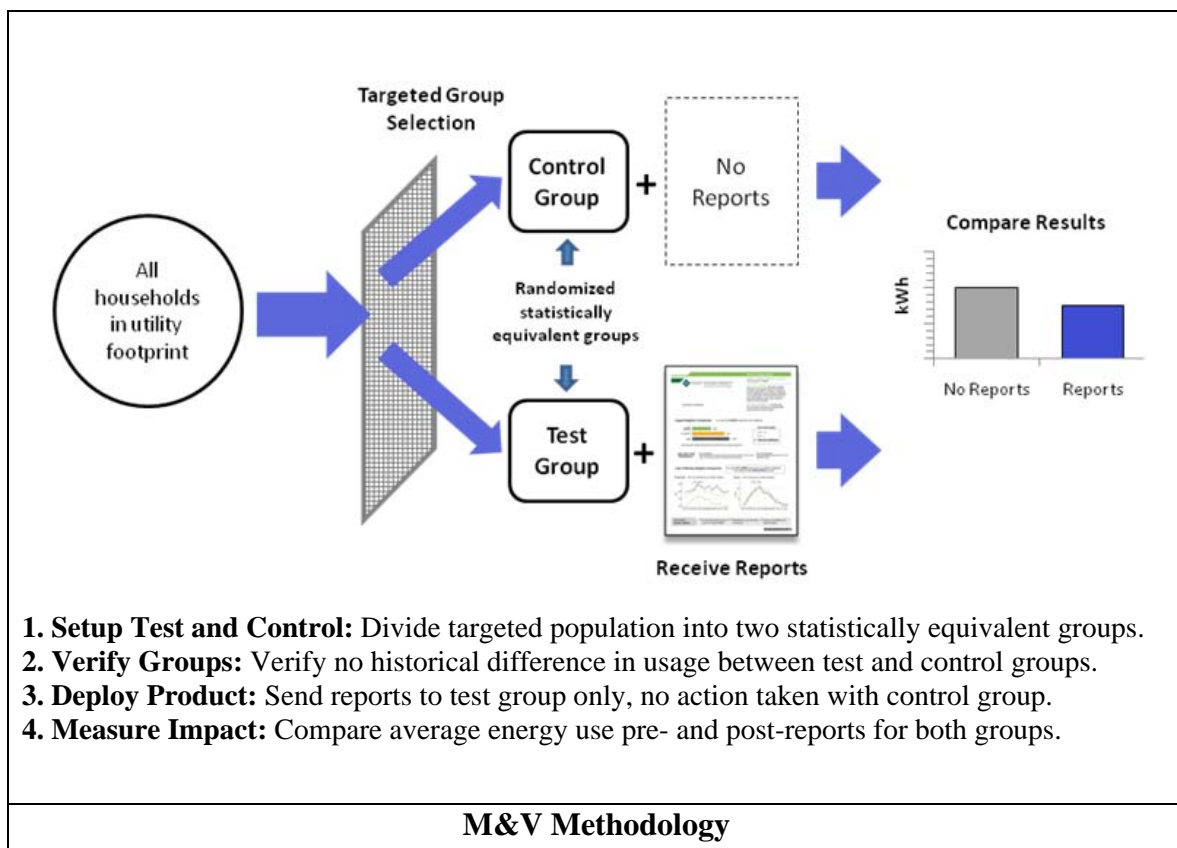
Evaluation, Measurement, and Verification of energy performance is critical for understanding the savings delivered by this product. Meter data for all participants, comparison homes and control homes will be file-transferred to the third-party implementer via secure FTP for continuous analysis and performance reporting. We anticipate seeing sensitivity to our product efforts from this and other promotions reflected in the data from the product. Data will be summarized and reported at least annually. Rigorous measurement and verification will help us assess and fine-tune the product's effectiveness, and help ensure that Public Service can accurately document energy efficiency savings for credit.

Savings for the print/email product will be measured compared to a Control Group of approximately 100,000 non-participant customers that are uninformed by any direct action of this pilot. The third-party implementer will use the same M&V approach that has already provided Xcel Energy in Minnesota and numerous other utilities with reliable performance metrics. This is a low-risk approach because the results are proven and predictable, but also because they are measured ex-post, so the credit is given for results actually achieved. This is better than some products, which have expected values but no means by which to measure and account after the fact for actual savings achieved.

This M&V approach sets up a test group that receives energy feedback and a separate control group which does not, enabling us to gather information on how consumers are affected by:

- Energy usage in kWh and kW or therms; and
- Incremental participation in other energy efficiency products.

This M&V methodology is consistent with the enhanced level of rigor required for direct impact evaluation by the California Public Utility Commission’s (CPUC’s) Energy Efficiency Evaluation Impact Evaluation Protocols, the National Action Plan for Energy Efficiency, and the American Council for an Energy Efficient Economy. We follow industry-accepted testing methodologies, detailed below, to minimize statistical anomalies. Independent studies by Yale University, ACEEE, and by Summit Blue (now Navigant Consulting) have verified the methodology and results. The following figure depicts the M&V methodology.



- 1. Setup Test and Control:** Divide targeted population into two statistically equivalent groups.
- 2. Verify Groups:** Verify no historical difference in usage between test and control groups.
- 3. Deploy Product:** Send reports to test group only, no action taken with control group.
- 4. Measure Impact:** Compare average energy use pre- and post-reports for both groups.

More simply put, the rough calculation represented in the Compare Results step will be as follows:

- Electric: kWh saved (participant group) = (kWh used post-treatment_participant group – kWh used pre-treatment_participant group) – (kWh used post-treatment_control group – kWh used pre-treatment_control group) – kWh saved by rebated equipment for the same time period and same customers.
- kW demand reduction will be determined by apportioning monthly energy savings into average hourly demand savings by applying a representative residential load shape.
- Gas: Dth saved (participant group) = (Dth used post-treatment_participant group – Dth used pre-treatment_participant group) – (Dth used post-treatment_control group – Dth used pre-treatment_control group) – Dth saved by rebated equipment for the same time period and same customers.

Customers in the print or email pilot who opt-in to participate in the Online Energy Feedback tools will remain in the original pilot group and their savings will be included in the calculation for the original pilot group. Due to the nature of the opt-in online offering, we plan to explore different M&V methods other than the Randomized Control Trial with Opt-Out Enrollment used by the print and email components of the Energy Feedback Pilot. We propose investigating two alternative approaches and evaluating if one or both are best able to measure the energy savings and participation attributable to the Online Energy Feedback portal.

Option 1: Randomized Control Trial with Random Encouragement

This EM&V option offers robust statistical significance and an unbiased approach, but is potentially limited in its applicability for our Online Energy Feedback portal due to the portal’s prominent integration into our popular MyAccount service. That service has already attracted more than 500,000 residential customers in Colorado and is still growing which makes it difficult to fully isolate the control group from the tools and information within the portal. While this methodology attempts to isolate the control group from encouragement or marketing outreach, this is more difficult when the portal is closely tied to a popular service such as MyAccount.

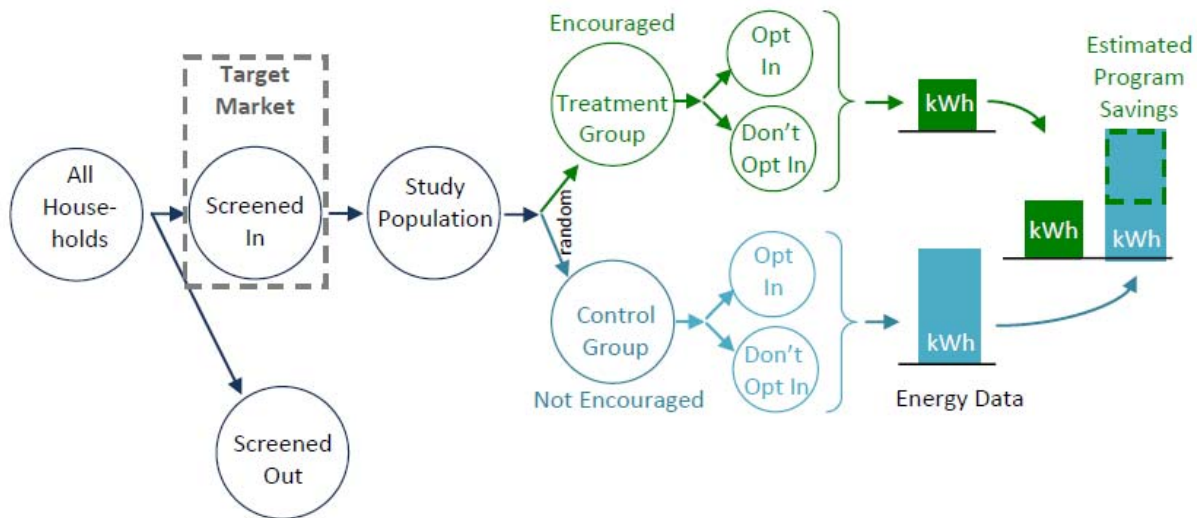


Figure 2: Random Test Control with Encouragement Design (Source: Evaluation, Measurement, and Verification (EM&V) of Residential Behavior-Based Energy Efficiency Programs: Issues and Recommendations, SEEACTION, May 2012)

This methodology relies on a statistically significant increase in opt-ins due to outbound marketing efforts in order to establish a comparison in energy use between the test and control groups. While we believe this may be possible, we acknowledge the challenge, along with some of the shortcomings of this methodology:

- Screened out participants who opt in via new MyAccount exposure will have their savings extrapolated from the test/control group variations to determine a per-participant savings number that is then applied to all opt-in customers. We will determine and report on the appropriateness of this technique based on demographic, usage and/or lifestage matching results, and the extent of this group’s engagement during the trial period.
- The difference in energy usage between the test and control groups must be statistically significant. This requires extensive targeted marketing outreach to the test group

participants, and limited engagement through MyAccount by control group customers. Because the control group engagement is outside of the control of this test, we will employ a parallel measurement method to ensure we are able to measure savings in a statistically significant manner.

Option 2: Variation in Adoption (With a Test of Assumptions)

This methodology allows for the comparison of the energy usage of households that opt in to the energy usage of households that have not yet opted in but will opt in at a later point.

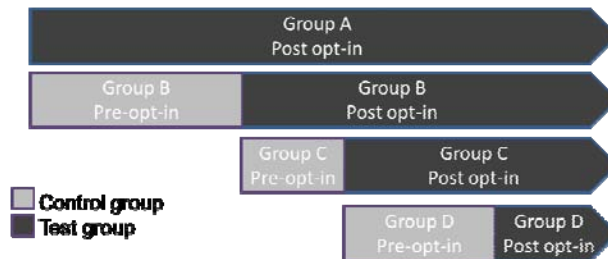


Figure 4: Variation in Adoption (With a Test of Assumptions) uses a rolling control group against which energy savings are measured. This approach relies on the assumption that in any given month, households that have already opted in and households that will opt in soon are the same types of households.

The benefits of this method include:

- Calculation of savings from all opt-in participants, regardless of marketing outreach efforts or whether we have electronic contact information for them at the start of the pilot. This makes this measurement methodology a potentially more accurate representation of the impacts of offering an Online Energy Feedback portal.
- The ability to universally market the Online Energy Feedback portal to all customers using less expensive marketing methods such as on-bill messaging and cross-promotion with other communication and marketing materials. Because this methodology does not require a significantly sized control group be isolated for the duration of the product, it increases the potential of the product to encourage significant energy savings to a larger population, thus increasing the portal's potential energy savings.

The drawback to using this methodology is that the longer the product runs, the more likely it is that early participants will differ in demographics, energy use or life stages than much later participants. Because of the complexity of normalizing for these factors, we intend to work with an independent EM&V firm with experience in this area to calculate energy savings using this methodology in a statistically acceptable manner.

Upon completion of the EM&V, we will report on the results before recommending a methodology to use for calculating the savings from this pilot and any potential future Online Energy Feedback offerings. Energy savings will be counted each year as new savings for an additional one-year life. This is different than the standard conservation product, where a measure gets installed and credit is taken for the multi-year life of that installed measure. The third-party implementer will calculate savings throughout the one-year pilot test period using a comparison of the participant group and the control group as savings occur and only if they occur.

Public Service will track rebates by customer and account and will subtract the energy saved through these product participations from the Energy Feedback results to prevent double counting. We will also explore use of an online participant survey to gather feedback regarding actions taken, especially those related to equipment installation with or without rebates or CFL installations. These savings, if measured to be statistically significant and claimed elsewhere, will also be subtracted from the Pilot total to prevent double counting.

➤ ***Market Transformation – Direct: Energy Feedback Pilot – Business***

A. Description

Business customer behavior-based energy conservation is a large and untapped source of energy savings for both utilities and their customers. Public Service offers this Market Transformation: Business Energy Feedback Pilot to quantify how various feedback methods affect small business customer energy usage by providing these customers with different forms of feedback regarding their energy consumption. The feedback communication strategies are intended to result in a permanent decrease in energy usage by inducing changes in the behavior of the end-user and an increased or earlier adoption of energy efficient technologies and energy efficient practices that remain even after the feedback stimulus is removed. The Business Energy Feedback Pilot will determine when, how and why customers may change their consumption behavior when provided with information by utilizing energy use feedback modalities and frequencies.

This pilot will test feedback methods on a statistically significant scale to measure effectiveness in reducing electricity and natural gas use with small business customers including periodic feedback coupled with sophisticated communications designed to influence behavior and using the same periodic feedback supplemented with monthly and bi-monthly e-mailed feedback based on data acquired through Xcel Energy's meter data.

Key research questions addressed by this pilot are:

- How much will electricity and natural gas use be reduced by providing monthly or bi-monthly feedback coupled with behavior change techniques such as social norming, goal setting, public commitment, reinforcement of successes, and motivation and recommendations targeted by market segment?
- Is there a difference in energy savings with a small business customer who receives a paper report vs. accessing their report electronically?
- Do the reductions in energy use achieved by providing feedback persist over time?
- Can likely high savers be identified and targeted in advance to maximize product cost-effectiveness?
- How do customers perceive the types of feedback, and what actions (behavioral, low-cost, capital investment) account for the savings achieved?
- Is customer feedback of this type cost-effective?

To assess persistence, this project will provide feedback and monitor results for a minimum of 12 months.

Based on previous research and currently active pilot projects throughout the country, we expect to measure first year reductions of 1.0% for electricity use and 1.0% for natural gas consumption. If these savings persist, they can make a significant contribution toward Public Service's goals for energy savings in the business sector.

Test results will be monitored and quantified after a minimum of twelve months of report delivery. If evidence is strong that the feedback is working, a permanent DSM product may be developed to take advantage of the opportunity for significant savings.

B. Goals, Participants & Budgets

Goals and Participants

The goal of this project is to quantify the impact of two different types of feedback on small business electricity and natural gas use including the persistence of savings over time. Feedback and associated behavior change techniques have been shown to reduce energy use in a number of small, short-term research projects over the past 30 years. This project will test promising feedback approaches on a large scale over a minimum of twelve months.

10,000 participants will be randomly selected from Public Service’s small business customer segment (customers with < 250 kW in average annual usage). Approximately 42,000 customers will utilize e-mail access as a part of the test of feedback types. Energy savings goals are calculated based on the 10,000 participants receiving the print reports and an estimated 1,422 customers accessing their report electronically.

Goals

Year	# Customers	Status	kWh Goal	Dth Goal
2014	11,422	Start-up & Operational	5,484,685	23,408

Budget

	2014	2014
	Elec \$	Gas \$
Vendor	\$ 221,513	\$ 69,952
XE Data Set-up	\$ 6,947	\$ 2,194
EM&V	\$ 5,095	\$ 1,609
XE Labor	\$ 22,199	\$ 7,010
Totals	\$ 255,754	\$ 80,765

C. Application Process

Customer engagement will occur through random selection of 52,000 participants (10,000 in print reports and 42,000 in electronic reports) and a statistically significant and homogeneous non-contact control group. Customers will be informed of their selection at the beginning of the pilot product and will be offered the opportunity to withdraw from the participant group. The control group customers will never be contacted or influenced by any contact with this pilot. In order to study behavior-based energy savings at the small business segment level in a statistically significant way, it will be necessary to meet a minimum threshold of participation. PSCo will work with the pilot vendor to determine minimum participation and high-value segments to target. Appropriate control groups will allow us to isolate effects attributable to delivery of print reports for several small

business segments, but because of the expected opt-in for the electronic reports, there may not be enough participation to be able to break up into segments and maintain statistical significance.

The feedback methods to be used in the pilot are described here.

Print: Business Energy Feedback Reports

Business Energy Feedback Reports comprise carefully crafted components designed to work together to drive efficiency gains and maximize engagement. The reports provide customers with contextualized energy use, data-driven insights and targeted action steps all leading to a sustainable drop in electricity use. In order to develop targeted messages the pilot vendor will analyze a vast array of data streams to derive insights about customer segments and individual customers. This data includes historical and meter data, rebate and purchase information and third-party data such as building demographics (e.g. square footage, building age, SIC code), customer usage patterns, past product participation, weather, geography and more. Customers will be selected to receive reports each month for the first 6 months and bi-monthly thereafter for the duration of the pilot.

On a monthly basis the pilot vendor will compile the usage data that has been provided by PSCo and will generate the appropriate analysis to create personalized reports for all 10,000 customers enrolled in this method. After the personalized Business Energy Reports have been created, they will be printed and mailed in an Xcel Energy-branded envelope to customers.

Following the receipt of the Business Energy Feedback Report, customers may choose to phone our Business Solutions Center and talk to Energy Efficiency Specialists about questions regarding their energy usage or to inquire about participation in other products. The representatives will be trained to handle these inquiries and will have access to a special help system that specifically provides support for this energy feedback product. For customers who can benefit, their enrollment in other products or participation in rebates will be handled through the usual Xcel Energy channels.

Email: Electronic Delivery of Energy Feedback

The Electronic Delivery method will employ the same Business Energy Feedback Report at the beginning of the pilot to engage the customers and to set their expectations about the pilot product. An initial email will be sent to all small business customers (with whom we have an email address) with a sample Energy Feedback Report. Participants in this method will be invited to access their personalized report and will have to opt-in by clicking on a link. This first report will contain all of the same analysis and recommendations as are found in the print report.

Following the initial report, the customers assigned to electronic delivery will receive a monthly e-mail for the first six months and bi-monthly thereafter with notification of when new data, comparisons, insights and recommendations have been generated and posted to the online system. This e-mail will contain a link to the online system so customers can log on and view all of the relevant information. Customers will also have the option to log on to adjust their profiles or to view energy data and analysis at any time during the month.

D. Marketing Objectives & Strategy

The objectives of any marketing for the pilot will be to get as many customers as possible to not only read the reports, but complete energy efficiency actions that lower their energy usage. The

specific strategies to do this will be fun, easy to comprehend print reports, engaging emails and a web portal experience that keeps customers coming back. Specific details will be determined once we contract with a pilot vendor.

Public Service will track rebates by customer and account and will subtract the energy saved through these product participations from the energy feedback results to prevent double counting. We will also survey participants to see if they have purchased any rebated energy efficient equipment that may contribute to the savings. These savings will also be subtracted from the pilot total to prevent double counting.

E. Product-Specific Policies

Many of the policies for the product are under development and will be determined as needed. These policies will likely be related to:

- Customer selection, volunteers, removal, moving, changes in lifestyle etc.;
- Customer confidentiality;
- Inquiries about data analytics, methodologies, comparison to history, etc.;
- Customer requests for help to improve energy use;

Since there are no financial rewards or rebates at this time, questions around incentives will be minimized. We may consider various incentives and rebates in the future to enhance the product performance and/or endurance but we are not proposing them in the pilot.

F. Stakeholder Involvement

Public Service is studying energy feedback products as a result of recommendations from the Colorado DSM Roundtable.

G. Rebate Levels

Rebates are not offered as part of this market transformation pilot project.

H. Evaluation, Measurement & Verification

Evaluation, Measurement, and Verification of energy performance is one of the key outcomes for this product. Meter data for all participants, comparison businesses and control businesses will be file-transferred to the pilot vendor via secure FTP for continuous analysis and performance reporting. We anticipate seeing sensitivity to our product efforts from this and other promotions reflected in the data from the product. Data will be summarized at least annually and reported.

Savings for the product will be measured compared to a Control Group of approximately 11,422 non-participant customers that are uninformed by any direct action of this pilot. The pilot vendor will use the same measurement and verification (M&V) approach that has already provided Xcel Energy as well as numerous other utilities, reliable performance metrics. Rigorous measurement

and verification will help us assess and fine-tune the product's effectiveness, and help ensure that we can accurately document and take credit for energy efficiency savings.

The pilot vendor will calculate and report savings quarterly using a comparison of the Participant Group and the Control Group as it occurs and only if it occurs. This is a low-risk approach because the results are proven and predictable, but also because they are measured ex-post, so the credit is given for results actually achieved. This is better than some products, which have expected values but no means by which to measure and account after the fact for actual savings achieved. The number of customers tracked will remain consistent for the entire test period. Energy savings will have a 1-year lifetime.

The M&V approach for this pilot sets up a Participant Group that receives energy feedback and a separate Control Group which does not, enabling us to gather information on how businesses are affected by energy usage in kWh and kW or Dth as well as incremental participation in other energy efficiency products.

If this pilot does become a product in future DSM Plans, then it will follow the guidelines for market transformation evaluation as set forth in the California Evaluation Framework, as market transformation products do not lend themselves to evaluation, measurement and verification in the same manner as a traditional resource acquisition product.

The energy savings calculation will be as follows:

- Electric - kWh saved (participant group) = kWh used (control group) – kWh used (participant group) – kWh saved by rebated equipment (product participation) for the same time period and same customers. kW demand reduction will also be determined.
- Gas - Dth saved (participant group) = Dth used (control group) – Dth used (participant group) – Dth saved by rebated equipment (product participation) for the same time period and same customers.

➤ **Market Transformation: In-Home Smart Devices Pilot**

A. Description

The In-Home Smart Device Pilot is designed to test how residential customers respond to various control strategies and energy consumption information delivered to their homes through in-home energy management devices. Participants are expected to lower their energy consumption when provided with the tools to monitor and track their energy usage. The following devices are installed in the home of each participant:

- EnergyHub Home Base, a smart controller with in home display;
- Honeywell Wireless Thermostat, controllable by Public Service Company;
- Two Sockets (15 amp smart plugs), controllable by Public Service Company; and
- Wireless CT Sensor, which sends whole home electricity use to Home Base.

Participants must first qualify for the product, with the primary criteria being they must have a functioning central air conditioning unit installed in their home and a working wireless internet connection. For their participation, customers receive the in-home device system and installation at no cost and are free to keep the devices after the pilot concludes. Participants are required to remain active in the pilot for a minimum of one year.

This pilot will end in 2013 and the only remaining activity is the final evaluation and report which will be completed in 2014.

B. Goals, Participants and Budgets

Goals and Participants

There are no new participants or goals for this pilot, as it ended in 2013.

Budgets

The expected budget requirements for 2014 are primarily related to costs associated with completing the final evaluation and report. These expenses which will also include some internal labor were planned and booked in the 2013 budget and will be paid once the final evaluation is delivered by our M&V vendor in 2014.

C. Application Process

Not applicable.

D. Marketing Objectives, Goals, & Strategy

Not applicable.

E. Product Specific Policies

Not applicable.

F. Stakeholder Involvement

Not applicable.

G. Rebate Levels

Not applicable.

H. Evaluation, Measurement & Verification Plan

EnerNoc will be responsible for the analysis and impact estimation for the final evaluation. Using data from both 2012 and 2013, EnerNoc will refine the estimates for summer 2012 from the preliminary evaluation, and will estimate the impacts for fall/winter 2012/2013 and summer 2013. This task consists of the following subtasks:

- Complete a regression analysis on both years of the pilot, including the year before installation in the analysis
- Estimate the load impacts during events for the second year of the pilot using participant customer load data, as described above. This will again include requesting and validating the interval data, then estimating the incremental savings using a direct comparison and combining those savings with the kWh savings.
- Combine the results from the first summer and the results from the second summer together into a final impact evaluation report.

➤ **Electric Vehicle Charging Station Pilot**

A. Description

The Electric Vehicle Charging Station (EVSE) Pilot is a continuation of the pilot approved in the 2012/2013 DSM Plan. The goal of this pilot is to provide insights into customer electric vehicle charging patterns and behaviors, coincidence of charging load with Public Service's system peak and how vehicle charging may impact the distribution system. This pilot will determine when customers are charging, the typical duration of the charge and whether this load is available for Demand Response (DR).

Key research questions being addressed by this pilot are:

- Determine residential charging characteristics and behaviors;
- Identify if the vehicle charging overlaps with the system peak; and
- Distinguish a potential strategy for controlling vehicle charging that will minimize the impact to the distribution system.

At the completion of the 2014 control season, data collected from the 2013 and 2014 control seasons will be analyzed to determine if control of electric vehicle charging could be leveraged as an additional DR resource.

One of the primary pilot objectives was to analyze the demand savings establishing technical assumptions and cost effectiveness. This, along with customer acceptance, will determine whether the pilot is proposed in a broader, more permanent DSM product.

Trial installations of the originally scoped solution were completed in 2012. These uncovered concerns which would negatively impact to the pilot's budget and its objectives. First, the costs of the initial solution were higher than anticipated due to higher than quoted hardware and communications costs. Additionally the usefulness and reliability of the data was not suitable for the needs of the pilot. Finally, the physical installation of the devices proved to be cumbersome and unacceptable to participants. Our investigations and the issues uncovered lead us to adopt a three phased approach:

Phase I

Deploy a small number of market tested electric vehicle charging stations. Although this solution goes beyond what could be deployed in a product, the units have all the capabilities desired from a load control device plus were available for immediate deployment. A third-party reseller was engaged to manage the end-to-end deployment, from customer recruiting, device procurement, and post-sale support. These systems included a robust reporting system with an appealing design and user interface. The pilot participant purchases these systems directly from the reseller at a reduced price subsidized by Public Service.

Phase II

This phase involved deploying a load control device similar to what was originally envisioned and deployed in trial for the pilot. This device provides the functionality originally desired at a price

point in line with original budget estimates. Unfortunately, the device was not available from the manufacturer until the second quarter of 2013 delaying customer deployment and installation.

Phase III

Our work in re-scoping the pilot drove us to the conclusion that the ultimate load control solution for electric vehicles will involve direct interaction with the vehicles themselves. To this end, we have undertaken a third phase of the pilot to engage vehicle manufacturers and determine how Public Service could leverage their on-board technology. The goal is to validate the ability to leverage this technology in lieu of deploying separate load control devices to control/interrupt the charging.

B. Goals, Participants & Budgets

Goals and Participants

The goal of this project is to identify the coincidence factor associated with residential electric vehicle charging and system peak, allowing us to quantify the impact of a DR product on an indeterminate electric vehicle charging load.

Eligible participants for the pilot include all residential customers within Public Service Company’s service territory who own or lease an electric vehicle and have Level II charging capability at their home. Total participation was reduced from 40 originally scoped in the 2012 DSM plan to 21 so as not to exceed the pilot’s budget while still being able to address pertinent research questions.

Budget

Sample Costs	2014
Develop & Test	\$0
ChargePoint	\$0
Consert	\$0
M&V	\$2,120
Annual Credits	\$2,100
Total	\$4,220

C. Application Process

Participants in Phase I were acquired by the marketing efforts of the third-party reseller managing the end-to-end deployment. Participants were individuals owning/leasing electric vehicles and in the market for a Level II charging station. Charging stations were provided participants on a first come – first served basis.

Phase II participants were recruited via e-mail and direct mail targeting Public Service customers who had purchased/leased a qualifying electric vehicle according to the Electric Vehicle Information Exchange (EVIX) listings. Participation was awarded to eligible customers on a first come – first served basis.

D. Marketing Objectives & Strategy

The primary Marketing objective was to understand customer likelihood to participate in a DR product controlling their Level II charging units. It is believed that EV customers will be reluctant to allow the utility to interrupt vehicle charging. Similar to the messaging for Saver's Switch, marketing materials will highlight participation as doing the responsible thing and being a responsible neighbor.

E. Product-Specific Policies

The policies for the product are as follows:

- Participants must be an electricity customer of Xcel Energy within its Colorado service territory (within the Front Range).
- Participant must currently own or lease an electric vehicle, plug-in hybrid vehicle or electric vehicle with extended range.
- Participant must have an operating Level II charging station specifically designed to charge vehicles using a J1772 plug and requiring 240V electrical service.
- Participant will allow Xcel Energy to install an electric vehicle charging station control module in series with their Level II charger.
- Xcel Energy will communicate wirelessly with the control module to interrupt power during "control events".
- Control events will occur on weekdays between the hours of 2:00 p.m. – 6:00 p.m. a maximum of 12 times per year. Control events will predominantly, but not exclusively, occur during the summer months of June – September.

Customers will be notified of control events at least one hour prior to event initiation.

F. Stakeholder Involvement

Stakeholder involvement in the Electric Vehicle Pilot has come through the Colorado Electric Vehicle Strategy Group. This group was formed as a collaborative effort between several key professionals and Company representatives. The objective of the group is to support the success of the electric vehicle market in Colorado.

G. Credit Levels

Customers were able to earn a \$100 annual bill credit for each year they participated in the Electric Vehicle Charging Pilot.

H. Evaluation, Measurement & Verification

Evaluation, measurement and verification of available DR is one of the key outcomes for this pilot. Charging data for all participants will be analyzed to understand what a "typical" charging curve

looks like for given participants and vehicles. This will then be used to identify the coincidence factor associated with controlling a Level II residential vehicle charger.

All participants have been controlled and monitored via a two-way communication capable demand response control device. These devices are capable of controlling load and recording 15 minute interval data.

In order to simulate a demand response event, 12, 4-hour duration controls events during the summer peaking season are being dispatched to determine:

1. Charging / charging demand (kW) curves
2. Coincidence factor to system peak
3. Duration of charging periods
4. Modeling of localized electric distribution system impacts
5. Customer likelihood to participate in future EV charging related pilots

➤ **Evaluation, Measurement & Verification Plan**

A. Description

Public Service's Evaluation, Measurement & Verification (EM&V) Plan was developed to evaluate, measure, and verify direct savings for electric and natural gas DSM products. The Company's EM&V approach is separated into performance year and post-performance year activities. Performance year activities are ongoing during the reporting year, as products are in operation, and include rebate application validation and ongoing measurement and verification. The purpose of performance year EM&V is to ensure that the reported savings are as accurate as possible. The following sections describe our performance year EM&V activities in greater detail. The Company will report any modifications to this EM&V Plan in a 60-Day Notice posted to the Xcel Energy website. All new products will include a detailed EM&V process consistent with this Plan.

I. Performance Year Measurement and Verification (M&V)

M&V is conducted on an ongoing basis on measures implemented throughout the product performance year. These ongoing M&V activities ensure that rebate application forms contain complete and correct information, the specified equipment is installed, and the claimed gross energy savings are accurate. These performance year activities include:

a. Rebate Application Validation

This validation procedure applies to all electric and gas residential and business products offered in Colorado. The procedure is comprised of the following two steps, both performed by Rebate Operations.

- *Step 1: Front-End Validation* -- Rebate Operations reviews all prescriptive business and residential product rebate applications and vendor invoices, including those for indirect impact products. They check the customer information, equipment eligibility and proper rebate amounts. If information is missing or incorrect, the application is sent back to the account representative or customer. For custom products, the staff reviews the project documentation to verify customer information, equipment eligibility, and proper rebate amounts, and then delivers final numbers to Rebate Operations.
- *Step 2: Daily Audit* -- Rebate Operations audits all business and residential applications to verify that the information was correctly entered. This is the final review prior to issuing the rebate. If errors or issues are found, they are corrected. The daily audit report is re-run after the problems are corrected and filed for permanent storage.

b. Ongoing Measurement and Verification of Savings

Ongoing measurement and verification of savings differs for prescriptive, custom and pilot products. For direct impact prescriptive products, Public Service contracts with third-party verification contractors and product implementers to perform M&V. Custom projects are either verified through engineering reviews of savings or through pre- and post-metering, depending on the size of the savings. The following two sections describe the general M&V methods that will be used for prescriptive and custom products. In addition, products that have characteristics requiring an individual and unique M&V plan will be detailed within these two sections.

1. Prescriptive Products

Prescriptive products use stipulated or deemed technical assumptions assigned to each measure in order to calculate gross energy and demand savings. The verification activities for prescriptive products will follow a Deemed Savings approach, where the primary goal is to conduct field inspections for a sample of projects to determine that the measures are properly installed and have the potential to generate savings. This approach corresponds to the basic rigor method outlined in the International Performance Measurement and Verification Protocol -- Option A: Retrofit Isolation: Key Parameter Measurement.

Onsite verification activities will confirm energy efficiency measure installation and will allow the inspector to gather enough information to recalculate the energy savings as reported by Public Service for each selected project. Inspection parameters gathered onsite will vary based on the product and sector, but will generally confirm that the installed equipment matches equipment listed on rebate application. For example, as applicable, the contractor may confirm the manufacturer, model number, efficiency rating, Equipment size, capacity or output, application of measure (e.g. motors that run fans versus pumps versus other mechanical systems), business sector (e.g. restaurant versus college versus office building), quantity (e.g. number of light bulbs), or any concerns regarding the operation of the fixtures or deviations from the customer application.

For most prescriptive products, the contractor will select a statistically valid number of projects to verify through field inspections or phone surveys. The sample size is designed to achieve accuracy levels of between 10% and 20% given a confidence level of 90% around the “realization rate” and is weighted to select larger projects. The number of randomly selected participants in the sample may increase or decrease during the year in order to ensure that the realization rate accuracy approximates the precision goals for the product. Sampling bias caused by poor response rates and deliberate exclusion of sample projects will be reduced through a quality control process. Rebate forms notify all customers that their respective premises and measures are subject to verification inspections.

The “realization rate” for a project is the ratio of the verified savings to the savings reported on the rebate application. The realization rate for the product as a whole is the ratio of the product’s total verified savings to the total rebate reported savings. The product realization rate is applied to gross savings to determine gross product impacts. The net-to-gross factor is then applied to the verified gross savings to yield net product impacts.

The following products and/or components adhere to the prescriptive process:

- | | |
|---------------------------------------|-------------------------------|
| ▪ Business Products | ▪ Residential Products |
| ▪ Commercial Refrigeration Efficiency | ▪ Evaporative Cooling Rebate |
| ▪ Compressed Air Efficiency | ▪ Heating System Rebate |
| ▪ Cooling Efficiency | ▪ Insulation Rebate |
| ▪ Heating Efficiency | ▪ Water Heater Rebate |
| ▪ Lighting Efficiency | ▪ |

- Motor & Drive Efficiency ▪
- Process Efficiency ▪
- Segment Efficiency ▪
- Small Business Lighting Efficiency ▪

The general M&V process for the following prescriptive products or prescriptive components of products is outlined below.

a. General Prescriptive Project Process

1. Customer submits rebate application and required documentation to Public Service after measure is installed.
2. Rebate Operations reviews each business and residential product rebate application and associated vendor invoices, checking for the customer information, equipment eligibility and proper rebate amounts. If information is missing or incorrect, the application is sent back to the account representative or customer to make changes.
3. If project qualifies for rebate, Rebate Operations enters rebate application form data into SalesForce (customer relationship management system) and authorizes rebate payment. Prior to authorizing rebates, all applications are verified in a daily audit.
4. Public Service sends the Verification Contractor (VC) a list of all of the projects completed in that period on an agreed to schedule.
5. The VC selects a statistically valid sample of projects to inspect. The sample size is designed to achieve 90% confidence with 10-20% precision.
6. VC contacts customer to schedule the inspection or complete the phone survey.
7. VC visits site and verifies the savings factors or checkpoints for that measure.
8. VC inputs the verified savings factors into the calculator spreadsheets to calculate the project’s verified energy savings.
9. VC calculates the project’s realization rate, which is calculated by dividing the recalculated or verified savings by the reported or rebated savings. At 1.0 or 100%, the verified and rebated savings are equal.
10. VC calculates the product’s realization rate, which is the average realization rate of all projects in the product sample.
11. The product’s realization rate is applied to the rebate application savings captured in SalesForce to determine gross verified savings.
12. Net-to-gross factors will be applied to the gross verified savings to determine net savings.

b. Prescriptive Product Exceptions

Products with special design elements are verified using processes unique to the particular product. The unique M&V process for these products is described below.

ENERGY STAR New Homes

The ENERGY STAR New Homes Product is implemented by a third-party contractor in partnership with HERS raters. Each project is verified by a HERS rater prior to issuing a rebate to the builder using the following process:

1. Builder contacts HERS rater to express interest in building an energy efficient home and participating in the ENERGY STAR New Homes product.
2. HERS rater works with builder to construct the home to meet or exceed the ENERGY STAR New Homes product requirements. The HERS rater will visit the home during construction to inspect the building method used and the equipment installed.
3. When the home is completed, the HERS rater will perform a blower doo test on the house and then calculate the final HERS Index. The HERS rater models the home by entering the individual characteristics into REM/Rate, a software product approved by RESNET. When the rating of the home is completed, the electronic model for the house is submitted to the rater's HERS provider. RESNET requires that each house be submitted to a HERS provider for quality assurance. The HERS rater may be employed by the provider but must not be the same individual performing the qualify assurance duties for the provider. The provider shall not be the same person that rated the home. The HERS provider will review the file for accuracy and errors. RESNET requires that HERS providers perform quality assurance on 10% of each rater's building files and fully replicate 1% of the home ratings annually.
4. The rater submits the specific REM/Rate reports and the final HERS Index to Public Service's product implementer. The builder will receive a rebate based on the HERS Index achieved, which has a direct correlation to gas and electric savings. There is no rebate application for this product because the final HERS Index and supporting information submitted to the product implementer includes the data used to determine each individual home's rebate amount. The product implementer will ensure that all the information entered by the HERS rater into their software system is correctly entered and tracked. The product implementer will then enter the required information into Salesforce, including the key REM/Rate input data. The REM/Rate input data will be used by the Company to calculate the energy savings achieved for each home.
5. Public Service will track and store key parameters such as the home address, square footage, builder name and address, HERS Index, blower door test score, gas and electric energy saved, date tested and rebate amount paid.

High Efficiency Air Conditioning

The High Efficiency Air Conditioning (HEAC) Product has three energy saving components that are calculated and rebated separately, including:

- New Equipment – Purchase of high efficiency equipment.
- Quality Installation – The proper installation of new standard or high efficiency residential air-conditioning equipment.
- Trade-Ins – Replacement of low efficiency units with high efficiency units

The M&V process for the New Equipment and Trade-In components will follow the standard prescriptive product M&V process above, except that the air conditioners will be field inspected between October 1 and September 30 of each year and realization rates will be applied to the calendar year that corresponds to the September 30 date. For instance, the realization rate established for equipment verified between October 1, 2013 and September 30, 2014 will be applied to the calendar year savings for 2014.

The nature of the Quality Installation product component results in slight variations to the verification process. To verify a quality installation, the VC must verify that a Public Service approved load calculation was performed and sized properly and that refrigeration charge, airflow

and duct leakage are within acceptable ranges. Each component of the savings calculation for the Quality Installation component will be verified independently. The process for the Quality Installation component has the following steps:

1. Public Service sends the VC a list of all projects completed in a given time frame and on an agreed to schedule.
2. The VC selects a statistically valid sample of projects to inspect. The sample size is designed to achieve 90% confidence with 10-20% precision.
3. VC contacts customer to schedule the inspection.
4. VC verifies that a PSCo approved load calculation was used to size the equipment.
5. VC visits site and tests the loaded, equilibrium performance of installed air conditioning equipment for proper refrigerant charge and air flows.
6. VC verifies duct sealing by observation of sealing mastic or other ACCA-approved sealing means on accessible joints.
7. VC compares airflow, refrigerant charge, and duct leakage results to the range of values deemed acceptable for the specified equipment.
8. If the actual values are within the acceptable range, the verified savings are considered to be 100% of the rebated values. If the actual values are outside of the acceptable range, the savings will be reduced according to the deviation from the acceptable range. Details on the savings reductions are provided in the Deemed Technical Assumptions sheets.
9. VC inputs the verified savings factors into the calculator spreadsheets to calculate the project's verified energy savings.
10. VC calculates the project's realization rate, which is calculated by dividing the recalculated or verified savings by the reported or rebated savings. At one or 100%, the verified and rebated savings are equal.
11. VC calculates the product's realization rate, which is the average realization rate of all projects in the product sample. The product's realization rate is applied to the rebate application savings captured in Salesforce to determine gross verified savings. For purposes of determining and applying the realization rate, the M&V calendar year will run from October 1 to September 30 of each product year. The realization rate determined for this 12 month period will be applied to the product values for the calendar year corresponding to the September 30th date.
12. Net-to-gross factors are applied to the gross verified savings to determine net savings.

Home Lighting & Recycling

To deliver the Home Lighting & Recycling Product, Public Service partners with manufacturers and retailers to reduce the retail price of qualifying bulbs and promote them to the retailers' customers. Public Service tracks the manufacturer, model number, quantity, wattage and type of the bulbs sold through a third-party administrator and pays incentives to the manufacturer. The M&V process for the Home Lighting component is as follows:

1. Participating retailers will provide weekly or monthly sales reports listing the model, wattage, type and number of bulbs sold.
2. A third-party administrator will enter the information into a tracking system. The administrator will submit monthly reports containing the data tracked in addition to calculating the demand and energy savings based on assumptions provided by Public Service.

3. The third-party validation contractor will audit the database output by examining and comparing against the Retailer sales reports. The validation contractor will adjust Watts/Bulbs if errors are found and provide the final verified total kW for all bulbs for year-end.

Home Performance with ENERGY STAR

The Home Performance with ENERGY STAR Product is designed to take a whole house approach to improving the energy efficiency of existing single-family homes. Contractors will have their first five completed projects inspected and then 10% of their completed projects thereafter. The project must be successfully completed prior to issuing a rebate to the customer.

1. Customer completes a Public Service Home Energy Audit with blower door test.
2. Customer submits product application form.
3. Within one year of enrollment in the product, the customer installs the required measures. Depending on the number of the contractor's completed projects, the contractor either tests out or contacts the Home Performance provider to schedule a final verification inspection.
4. During the verification inspection the Home Performance provider or contractor performs a blower door and a Combustion Appliance Zone (CAZ) test after verifying the homeowner has performed all of their planned energy efficiency improvements.
5. When the inspection is completed, the Home Performance provider or contractor will submit a rebate form to the Xcel Energy processing team along with copies of invoices for all of the completed improvements. The rebate is then processed and the check is issued within four to six weeks.

Low-Income Energy Savings Kit

The Energy Savings Kit Product provides a bundle of home energy efficiency measures and educational items in a kit that can be distributed to low-income customers. A third-party product partner manages the kit fulfillment and another third-party partner will complete follow-up phone surveys to a sample of participants to confirm whether the kit items were installed. Through the survey results the third-party determines the installation rate, which is then applied to the gross savings for the calendar year.

Low-Income Single-Family Weatherization

The Single-Family Weatherization Product offers standard payments to the product implementer for the installation of specific, predetermined prescriptive energy efficiency measures. Verification is built into the product design, as the contracted weatherization agency actually installs the measures. The specific product process, including verification, is outlined below.

1. Program implementer guides income-qualified customer to sign up for weatherization services through contracted weatherization agency.
2. Weatherization agency arranges for a weatherization crew to visit the customer's home to identify savings opportunities.
3. The crew returns to the home within 14 days to implement the identified measures.
4. The contractor submits documentation of the measures that were installed to the implementer.

5. The implementer submits this documentation to Public Service along with a request for payment for the installed measures.
6. Public Services issues payment for the installed measures.

Low-Income Multi-Family Weatherization

The Multi-Family Weatherization Product offers payments to the product implementer for the installation of custom energy efficiency measures. Verification is built into the product design, as the contracted weatherization agency actually installs the measures. The specific product process, including verification, is outlined below.

1. Income-qualified customer (multi-family building owner) signs up for weatherization services through product implementer.
2. Product implementer arranges for the contracted consultant to visit the building and identify savings opportunities.
3. Consultant produces an audit report outlining savings opportunities and potential savings.
4. Public Service engineer reviews project and has 10 days to approve or deny the report.
5. Product implementer arranges for the weatherization crew to install measures approved by Public Service.
6. Product implementer arranges for the contracted consultant to visit the building to verify measure installation and calculate final savings.
7. Contracted consultant submits completed audit report with final savings to the implementer.
8. The implementer submits this documentation to Public Service along with a request for payment for the installed measures.
9. Public Services issues payment for the installed measures.

Low-Income Non-Profit Energy Efficiency

The Non-Profit Energy Efficiency Product provides funding for energy efficiency retrofit improvements to qualified non-profit organizations within the Company's service territory. Verification is built into the product design, as the contracted weatherization agency actually installs the measures. The specific product process, including verification, is outlined below.

1. Income-qualified customer signs up for weatherization services through product implementer.
2. Product implementer arranges for the contracted consultant to visit the building and identify savings opportunities.
3. Consultant produces an audit report outlining savings opportunities and potential savings.
4. Public Service engineer reviews project and has 10 days to approve or deny the report.
5. Product implementer arranges for the weatherization crew to install measures approved by Public Service.
6. Product implementer arranges for the contracted consultant to visit the building to verify measure installation and calculate final savings.
7. Contracted consultant submits completed audit report with final savings to the implementer.
8. The implementer submits this documentation to Public Service along with a request for payment for the installed measures.
9. Public Services issues payment for the installed measures.

Computer Efficiency - Upstream Incentives

The Computer Efficiency Product offers incentives to desktop personal computer (PC) manufacturers and low-end server manufacturers that produce and sell PCs with high efficiency power supplies to Public Service electric business customers. Public Service tracks the quantity and model number of the computers sold through a third-party administrator and pays incentives to the manufacturer. The specific product process, including verification, is outlined below.

1. Participating manufacturers will provide weekly or monthly sales reports, listing the model, quantity, ship to zip and number of computers sold to the third-party administrator.
2. Participating manufacturers will provide weekly or monthly reports listing customer returns to be credited to the third-party administrator.
3. To determine the efficiency and rebate level, each model will be assigned to one of four groups based on the efficiency of the model's power supply by the third-party administrator.
4. The third-party administrator will enter the information into a tracking system. The administrator will submit monthly reports containing the data tracked to Public Service.
5. Public Service will verify quantity sold, zip codes, efficiency levels, incentive levels and calculate energy savings from the monthly reports provided.
6. Installation rate is assumed to be 100% because computers are purchased to be put into service and are not inventoried for long periods due to their high cost and short shelf-life.

For rebates to customers who install virtual desktop infrastructure (VDI) or PC Power Management a third-party verifier will conduct field inspections for a sample of projects to determine that the measures are properly installed and have the potential to generate savings. This will follow the standard M&V process of prescriptive products.

Saver's Switch

Saver's Switch is a demand response product that offers bill credits as an incentive for residential customers to allow Public Service to control operation of their central air conditioners on days when the system is approaching its peak. Public Service's load research organization leads an annual research project to evaluate the load relief achieved from installed Saver's Switch units. The team contracts the data gathering and most of the analysis to a third-party consultant that specializes in load research projects. A sample of each type of switch is included in the annual research project. This is done with a data logger installed onsite to monitor the air conditioner's energy use and how that use changes on a control day. The results are used to document the extent of load relief achieved during a control day.

School Education Kits

School Education Kits is a turnkey product designed to provide households with information and equipment to realize immediate energy savings. The third-party product implementers issue the kits and complete follow-up surveys to a sample of the participants to confirm if the equipment was installed. An installation rate is applied to the gross savings for the calendar year.

Showerheads

The Energy Efficient Showerhead Product is designed to offer year-round natural gas and electric savings to customers. Residential natural gas and combination gas and electric customers are eligible to receive a free high-efficiency showerhead, kitchen and bathroom aerator to help reduce utility costs. The third-party implementer will report on the quantity of showerheads distributed. The third-party survey company will report on installation rates.

Refrigerator Recycling

The Refrigerator Recycling product is designed to reduce energy usage by allowing customers to dispose of their operable, inefficient primary or secondary refrigerators or freezers in an environmentally safe and compliant manner. On a monthly basis, our recycling vendor is sent an updated customer database, which includes all qualifying customers and their information for verification. Customers call the vendor directly to sign up for the product, schedule an appointment, and are verified with the customer database. The vendor sends monthly reports to Public Service of all customers who participated in the product, which are uploaded into the internal customer database. The VC periodically receives a report of participating customers. The VC conducts a phone survey to verify removal of refrigerator and that the refrigerator/freezer was operable at time of removal.

Pool Pumps

The Pool Pump Product, operated by our third-party product implementer, provides a rebate for the purchase, installation and calibration of an efficient. The M&V for this product will follow the General Prescriptive Project Process steps previously noted except for steps 1-3, which are replaced with the following:

1. Product partner completes the rebate application which is reviewed and signed by the customer at the time of installation. Product partner submits rebate application and required documentation to Public Service's third-party program implementer after the pump is installed.
2. The program implementer reviews all submitted information including rebate application and product partner invoice. The implementer verifies customer information, pump eligibility, calibration documentation, and that the proper rebate amount was applied to the customer's invoice. If any information is missing or incorrect the product partner is contacted and asked to remedy this situation.
3. If the pump qualifies, the product implementer provides \$200 to the product partner and this same amount is later reimbursed by Public Service. Once a month, the implementer will submit a detailed report to the Company along with an invoice for all completed rebates. The report will include all required information for each rebate, including customer information and key parameters as described in the Prescriptive Process. This information will be reviewed by the Company and then uploaded into Salesforce.

2. Custom Products

Custom products use technical assumptions that are specific to the project in order to calculate the energy and demand savings. For all Custom projects, an energy efficiency engineer determines the demand and energy savings at the pre-approval stage. Senior and managing engineers will audit the pre-approval calculations for all projects, as outlined in Step 4 of the General Custom Project Process below. In addition, a random sample of all pre-approved projects completed by Public Service associate engineers will be sent to an outside engineering firm for review, as shown in Step 5.

All projects with measure savings greater than or equal to one GWh or 20,000 Dth require a detailed M&V Plan, outlining the scope and methods of the M&V activities at the specific facility. The methods, such as pre- and post-metering, will be aligned with the appropriate IPMVP options. The duration of the metering will vary depending upon the load variability or project complexity, but at a minimum, these projects will be metered for two weeks pre- and post-installation. If

metering is too costly or physically impossible, engineering modeling or building simulation modeling may be substituted.

Metering may also be used to verify savings of smaller projects depending on the engineer's assessment of the uncertainty around the savings.

The general Custom project approval process is described below and applies to the following products which have a custom component:

▪ **Custom Products**

- Compressed Air Efficiency
- Cooling Efficiency
- Custom Efficiency
- Data Center Efficiency
- Energy Management Systems
- Heating Efficiency
- Lighting Efficiency
- Motor and Drive Efficiency
- Process Efficiency
- Segment Efficiency

a. General Custom Project Process

Pre-approval Steps

1. Customer submits custom application describing the proposed project, purpose, and potential for energy savings.
2. Public Service energy efficiency engineer, or outside engineering firm, reviews the application and calculates the energy and demand savings based on the technical assumptions specific to that measure and the potential rebate.
3. Public Service energy efficiency engineers review the calculations, regardless of whether internal or external engineers completed Step 1.
4. Public Service selects a random sample of committed projects and sends this list to an outside engineering firm (if Public Service associate engineer performed Step 3) to review the calculations.
5. If the outside engineering firm disagrees with the Public Service engineer's analysis, they discuss the project and reach consensus on the calculations.
6. Public Service sends out a pre-approval or rejection letter stating the pre-approved demand and energy savings along with the rebate amount.

Monitoring & Site Verification

7. If monitoring is required, a Public Service energy efficiency engineer or outside engineering firm drafts an M&V Plan. The plan is finalized and sent out for customer review and signature.
8. If the customer does not have the appropriate meter structure, an outside engineering firm will install metering equipment and collect the pre-data as set forth in the monitoring agreement and forward to Public Service.

9. After the designated pre-monitoring period, the customer completes the project installation and submits all required documents.
10. Outside engineering firm collects post-installation monitoring data and sends post data to Public Service.
11. For managed accounts, the customer's account manager confirms project installation, which may include visiting the site and reviewing invoices and other project documentation. The project documentation is then submitted to Public Service DSM Marketing staff.
12. For non-managed customers completing custom projects, the Business Solutions Center and Public Service DSM staff will review project documentation.

Approval & Rebate Payment

13. For non-metered projects, final documents are reviewed for compliance with the initial pre-approval. If the project costs vary by $\pm 10\%$ or the scope of the project changed, the project will be reevaluated.
14. For metered projects, Public Service energy efficiency engineer (or outside engineering firm) determines actual savings based on metering results.
15. All metered projects previously reviewed only by internal engineers will be sent to an outside engineering firm for review.
16. If the outside engineering firm disagrees with the Public Service engineer's analysis, they will discuss the project and reach consensus on the calculations.
17. Rebate is issued to the customer based on final savings as determined by post-M&V results.

b. Custom Product Exceptions

Products with special design elements are verified using processes unique to the product. The M&V process for each of these products is described below.

New Construction- Energy Design Assistance & Energy Efficient Buildings

The Energy Design Assistance component of the New Construction Product provides design assistance to the architects and engineers designing new buildings. Public Service contracts with a third-party product implementer to complete the energy modeling and measurement and verification. The rebate is not paid until the savings are verified. The specific product process, including verification, is outlined below.

1. Customer submits an application describing the proposed project and purpose.
2. Program implementer conducts an introductory meeting with design team.
3. Implementer completes energy modeling to identify efficiency opportunities.
4. Construction documents are reviewed for measures identified through the energy model. The design team and customer are notified whether or not these measures were found within these documents.
5. Implementer provides Public Service with a verification plan per project.
6. Implementer visits site and verifies that specified measures were installed. Equipment and systems are monitored for a two-week timeframe, as appropriate, to evaluate performance variables against modeling assumptions.
7. For projects with individual measures that have savings greater than or equal to 1.0 GWh or 20,000 Dth per year, data logging is required for a time period of four weeks.
8. The actual results are compared to the estimated savings to determine the final rebate.
9. If the actual results are not within 15% of the energy savings identified within the previous model, the consultant completes an as-built model to determine final energy savings.

10. Rebate is issued to customer based on final savings.

The Energy Efficient Buildings component of the New Construction Product provides an opportunity for customers to review their new construction, major renovation or additions measures before the building is built. Since each building is unique and includes various conservation opportunities, each building will receive:

1. Review of construction documents compared to application submitted.
2. Implementer visits site and verifies that specified measures were installed.
3. For projects with individual measures that have savings greater than or equal to 1.0 GWh or 20,000 Dth per year, data logging is required for a time period of four weeks.
4. Final results are determined based on data logging and verification.
5. Rebates are issued to customer based on final savings.

Recommissioning

The Recommissioning Product identifies existing functional systems that can be “tuned up” to run as efficiently as possible through low- or no-cost improvements. Metering Recommissioning projects may be very difficult. In these cases, a combination of metering and calculations may be used. The specific product process, including verification, is outlined below.

Study Pre-Approval

1. Customer hires an engineering firm (Recommissioning provider) to draft proposal to conduct a study.
2. Customer submits application and proposal from Recommissioning provider to Public Service for study pre-approval.
3. After pre-approval, Recommissioning provider or customer can begin study of the building to identify savings opportunities and determine energy savings for each measure. Approved customers may perform their own measure analysis and/or use our Recommissioning calculator tool with standard savings calculations.

Study Approval

4. Completed study is submitted to Public Service for review.
5. Public Service engineer reviews all savings calculations and identifies if any individual measures will require metering (measure savings > 1 GWh or 20,000 Dth).
6. If metering is needed, Public Service will send out a letter alerting customer that one or more measures will require metering.
7. Public Service follows up (generally within seven business days) with a detailed M&V plan that the customer must sign.
8. If study is approved, the provider will present study to customer and Public Service issues study rebate.
9. If study is not approved, Public Service will follow up with provider or customer to reconcile issues.

Implementation

10. Customer notifies Public Service of measures to be improved. For those measures > 1 GWh or 20,000 Dth, Public Service will notify verification contractor that pre-installation metering is needed. Pre-metering must be completed prior to measure Recommissioning in accordance with the M&V plan.

11. Customer implements selected measures and notifies their Public Service account manager of their completion. For measure savings > 1 GWh or 20,000 Dth, Public Service will notify the verification contractor that the customer is ready for post-metering.
12. Post-monitoring data is submitted to Public Service engineer for analysis and determination of final savings and rebate amount.

Approval & Rebate Payment

13. Account manager collects invoices and signed form identifying which measures were installed.
14. The invoices are reviewed and if the invoice details match what was submitted on the rebate form, then the pre-approved rebate is awarded. If there are discrepancies, the account manager works with the customer to provide additional detail and reconcile differences.
15. Rebate is issued to the customer based on final savings.

Self-Directed Custom Efficiency

The Self-Direct Product will provide rebates to customers who identify, scope and verify the energy savings for qualifying projects will receive rebates to offset their costs to implement efficient projects. The specific product process, including verification, is outlined below.

1. Public Service pre-qualifies customers who are eligible for participation in the Self-Direct Product.
2. Once pre-qualified, a customer identifies the opportunity, then develops and submits a project application. The customer will be required to develop an evaluation, measurement, and verification plan and submit it with their application. Specific components of the plan will be determined by the customer, and agreed upon by Public Service. At a minimum, the plan should employ sound engineering judgment and follow standard industry practices such as the International Performance Measurement & Verification Protocol.
3. Public Service provides confirmation of application receipt, reviews the application, and asks for additional information if necessary. Public Service notifies the customer of approval or denial of the application, expected rebate, and mutually agreed on M&V plan.
4. If the customer chooses to implement the pre-approved project, they must follow the requirements detailed in their M&V plan and conduct all necessary steps in order to verify energy savings. Any data required for pre-installation monitoring detailed in their M&V plan should be submitted to the Company and approved before the customer implements the efficiency measures. Upon acceptance of the data the customer can then implement the measures and perform any follow-up monitoring as described in their M&V plan.
5. The customer then submits a project completion report. Public Service will review the report, request any additional data, and calculate the final rebate. The rebate will be paid upon completion of project and Public Service's approval of project completion report.
6. A random sample of all pre-approved projects will be selected by the Company and sent to an outside engineering firm for metering and verification.

Standard Offer

The Standard Offer Product will not be accepting new projects in 2014. Projects committed in previous years will continue to fulfill the annual M&V true-up requirement as detailed below for a period of three years.

The Standard Offer Product will offer funding for customers to receive a technical energy audit and provide rebates to help offset the cost of implementation. The audit is typically performed by an Energy Service Company (ESCO), but also may be performed by the customer. It will provide the customer with a final report detailing the energy conservation opportunities, financial analysis, and potential funding mechanisms. The specific product process, including verification, is outlined below.

1. The customer fills out an application to initiate the process and to receive pre-approval for the project. As part of the application process, the customer either selects an ESCO to perform the technical energy audit or decides to perform the audit internally.
2. If the customer is using an ESCO to perform the technical energy audit, a contract to perform the audit is signed by the ESCO and the customer.
3. The draft technical energy audit, including identified energy efficiency measures is submitted to Public Service, reviewed by all applicable parties, and discussed to determine which measures will be implemented.
4. The technical energy audit is revised to reflect measures to be implemented, finalized, and submitted to Public Service. Public Service determines the project implementation rebate.
5. If the customer is using an ESCO to implement the measures, a construction contract is executed between the ESCO and the customer. If the customer is not using an ESCO to implement the measures, a letter of intent to implement the measures is signed by the customer and Public Service.
6. Public Service issues technical energy audit study rebate.
7. Initial M&V activities are performed, the measures are implemented, follow-up M&V activities are performed, and the customer sends their rebate application (including M&V data and calculations) to Public Service.
8. Public Service verifies the implementation, determines actual savings from normalized data, and issues the measure implementation rebate based on the M&V results.
9. Annually, the ESCO or a third-party performs M&V and submits data and results to the customer, Public Service, and CEO. Public Service reviews the M&V report to confirm the annual savings and verifies that savings are appropriate to rebate paid. Additional rebates are paid for performance above the rebated conservation; alternately, the customer refunds rebates if the actual savings are below the originally rebated savings.

3. Pilot Products

EM&V for pilot products can differ from the EM&V for prescriptive and custom products since the pilots are being evaluated for market viability. Therefore, additional testing may be necessary, and, in some cases, specifically designed for a particular pilot. For these reasons, the detailed EM&V Plan for each pilot is included in the pilot's product description, which can be found in the Indirect Products and Services section, Product Development product description. These pilots include the Community Energy Efficiency Planning Pilot, the Energy Feedback Pilot, the Energy Feedback Pilot – Business, the In-Home Device Pilot, and the Electric Vehicles Charging Station Pilot.

II. Post-Performance Year Product EM&V

Post-performance year activities take place in the years following the performance year and include comprehensive product evaluations and a portfolio-wide technical assumptions evaluation. Comprehensive product evaluations are conducted on a staggered schedule so that all products receive comprehensive evaluations at least once every eight years. The portfolio-wide technical

assumptions evaluations are scheduled every other year; the next one will occur during this Plan. The purpose of the post-performance year EM&V is to ensure that all technical assumptions, including the net-to-gross ratios, are accurate and that the product is operating as effectively as possible. Table 14 at the end of this product description summarizes each product's EM&V Plan.

a) Comprehensive Product Evaluations

In addition to the ongoing measurement and verification described in the plan, Public Service will hire independent third-party consultants to complete comprehensive evaluations for specific products each year. The comprehensive product evaluations will be staggered over a number of years. The principal objectives of comprehensive product evaluations are to assess customer satisfaction with the DSM product being evaluated and to assess changes that should be made to net-to-gross (NTG) ratios and product processes based on the evaluator's own research, as well as a thorough review of industry-wide and the Company's current processes and NTG ratios. When considering the evaluation recommendations, Public Service will follow the guidance from Decision No. C11-0465, which gives Public Service the discretion to make changes to its DSM products that are reasonable, cost-effective, and timely; as well as to reject suggested changes that are flawed.²⁵

Factors that are taken into consideration in determining the priority and schedule of product evaluations include, but are not limited to: product tenure in Colorado, amount of savings relative to total goals and per participant, product budgets compared to total, uncertainty and/or risk associated with savings or technical assumptions, and availability of other studies regarding the particular measures. Discussions with portfolio managers, product developers, and technical consultants are used to finalize the priority and schedule of evaluations.

For 2014, the Company plans to conduct comprehensive evaluations of the Energy Management Systems and Low-Income Multi-Family Weatherization Products. This schedule will be reviewed at the beginning of each year and may be adjusted based on costs, scope and need.

b) Portfolio-Wide Technical Assumption Evaluations

In lieu of evaluating product-specific technical assumptions in each comprehensive product evaluation, Public Service has initiated a bi-annual portfolio-wide review of its technical assumptions. This process will ensure that the Company is using the latest, best information available in every product offered.

In June 2013, a third-party contractor conducted an evaluation of the Company's net-to-gross (NTG) ratios that are used to determine energy savings in the 2012-13 DSM Plan. The evaluation found that most of the NTG ratios were in line with the Company's recent evaluation findings, but made recommendations for changes to NTG ratios of some measures in five program areas: Business Heating, Motors and Drives, Residential Evaporative Cooling, Residential High Efficiency Air Conditioning, and Residential Lighting. The Company's responses to the NTG recommendations are included in Appendix F, along with the full report.

III. EM&V Best Practices

²⁵ Order addressing application for rehearing, reargument, or reconsideration and motion for extension of time to file 2012-2013 DSM Plan. Docket No. 10A-554EG, Order No. C11-0465, Pages 6 – 7.

Public Service's ongoing M&V procedures are aligned with utility industry best practices for measuring product results. The Company requires that its contractors follow standard protocols, such as the International Performance Measurement and Verification Protocol ("IPMVP") and the California Evaluation Framework. The following links to some of the common reference materials describe these protocols in more detail:

California Evaluation Framework:

http://www.calmac.org/publications/California_Evaluation_Framework_June_2004.pdf

National Action Plan:

<http://www.epa.gov/cleanenergy/energy-programs/suca/resources.html>

The IPMVP can be found in the Products & Services section of the Efficiency Valuation Organization's website at <http://www.evo-world.org>.

B. Goals, Participants & Budgets

Goals and Participants

This is an indirect product and as such, has no estimated participants or energy or demand savings.

Budgets

The robustness of Public Service's EM&V Plan is balanced against its costs; we continue to be mindful of the objectives of ensuring accurate savings while keeping expenditures prudent and maintaining the cost-effectiveness of products. EM&V is budgeted in the following ways:

- 1) Rebate validation: Internal labor is charged to the individual product's Administration and Product Delivery costs.
- 2) Ongoing M&V: Most outside contractor costs will be charged to the individual product's M&V costs and are not included in the general budget of Measurement & Verification under the Indirect Products and Services section. Budgets for these activities were forecasted based upon historical experience or followed a more general budgeting plan at between 3 to 5% of the respective product total budgets. Ongoing M&V costs that are budgeted in the "Measurement & Verification" category are general charges from the third-party contractors for database development, data tracking, and reporting.
- 3) Comprehensive Product Evaluation studies: Outside Consultant costs are budgeted in the "Program Evaluations" category of the budget under the Indirect Products and Services section. These costs were developed based on proposals from current Evaluation contractors and past study costs.
- 4) Internal Xcel Energy labor that is used to oversee and administer the ongoing M&V products and the comprehensive product evaluations are charged to the respective Measurement & Verification budget or the Program Evaluation budget.

C. Application Process

There is no application process associated with this product.

D. Marketing Objectives, Goals, & Strategy

Evaluation, Measurement & Verification does not have marketing objectives or goals.

E. Product-Specific Policies

This product does not have specific policies.

F. Stakeholder Involvement

There are no stakeholders associated with this product.

G. Rebate Levels

The Evaluation, Measurement & Verification does not pay rebates.

Table 14: Measurement and Verification Summary by Product

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Business Electric:				
Commercial Refrigeration Efficiency		Direct/Prescriptive	Verification Contractor selects random sample & performs field inspections of deemed savings factors from direct installed and implemented measures.	
Compressed Air Efficiency	Compressed Air Efficiency - Custom	Direct/Custom	Projects < 1 GWh savings: Company engineers or an outside engineering firm calculate savings for pre-approval; calculations reviewed by higher levels of engineering staff depending on size. At time of pre-approval, random sample of projects sent to outside engineering firm for verification of PSCo engineers' analysis. Account Manager or Business Solutions Center verifies project installation and collects equipment invoices. Project ≥ 1 GWh savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
	Compressed Air Efficiency - Prescriptive	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors -- e.g. size of compressor and number of drains.	
Computer Efficiency	Rebates	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors -- e.g. equipment type, model of equipment, building type. Information gathered for a sample of VDI devices and extrapolated to total population.	
	Upstream Incentives	Direct/Prescriptive	Participating manufacturers will provide weekly or monthly sales reports listing the model, quantity, ship to zip code, and number of computers sold to the third-party administrator. The third-party administrator will enter the information into a tracking system. The administrator will submit monthly reports containing the data tracked to Public Service. Public Service will verify quantity sold, zip codes, efficiency levels, and incentive levels, and calculate energy savings from the monthly reports.	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Cooling Efficiency	Cooling Efficiency - Custom	Direct/Custom	Projects < 1 GWh savings: Company engineers or outside engineering firm calculate savings for pre-approval; calculations reviewed by higher levels of engineering staff depending on size. At the time of pre-approval, random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager or Business Solutions Center verifies project installation and collects equipment invoices. Project ≥ 1 GWh savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
	Cooling Efficiency - Prescriptive	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors; e.g. equipment type, size, efficiency, climate zone, and building type.	
Custom Efficiency	N/A	Direct/Custom	Projects < 1 GWh savings: Company engineers or outside engineering firm calculate savings for pre-approval, calculations reviewed by higher levels of engineering staff depending on size. At time of pre-approval, random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager or Business Solutions Center verifies project installation and collects equipment invoices. Project ≥ 1 GWh savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
Data Center Efficiency	N/A	Direct/Custom	Projects < 1 GWh savings: Company engineers or outside engineering firm calculate savings for pre-approval, calculations reviewed by higher levels of engineering staff depending on size. At time of pre-approval, random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager or Business Solutions Center verifies project installation and collects equipment invoices. Project ≥ 1 GWh savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Lighting Efficiency	Lighting Efficiency - Custom	Direct/Custom	Projects < 1 GWh savings: Company engineers or outside engineering firm calculate savings for pre-approval, calculations reviewed by higher levels of engineering staff depending on size. At time of pre-approval, random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager or Business Solutions Center verifies project installation and collects equipment invoices. Project ≥ 1 GWh savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
	Lighting Efficiency - Prescriptive	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors -- e.g. number of fixtures, equipment type, building type, existence of air conditioning. Information gathered for a sample of lamps/fixtures and extrapolated to total population.	
Motor & Drive Efficiency	Motor & Drive Efficiency - Custom	Direct/Custom	Projects < 1 GWh savings: Company engineers or outside engineering firm calculate savings for pre-approval, calculations reviewed by higher levels of engineering staff depending on size. At time of pre-approval, random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager or Business Solutions Center verifies project installation and collects equipment invoices. Project ≥ 1 GWh savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
	Motor & Drive Efficiency - Prescriptive	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors -- e.g. horsepower, efficiency, type, speed, application, building type, and use of motor. For VFDs, size, speed, type, application and use of motor drive, and building type. If more than 10 motors, information will be gathered for a sample.	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
New Construction	Energy Efficient Buildings	Direct/Custom	Consultant visits site and verifies that specified measures were installed. For projects with individual measure savings \geq 1 GWh , four weeks of data logging verifies savings.	
	Energy Design Assistance	Direct/Custom	Consultant visits site and verifies that specified measures were installed. Equipment and systems are monitored for a two-week timeframe, as appropriate, to evaluate performance variables against modeling assumptions. For projects with individual measure savings \geq 1 GWh , four weeks of data logging verifies savings. All projects verified with actual results not within 15% of the energy savings identified in the original model will have an as-built model completed for rebate calculations.	
Process Efficiency	Process Efficiency - Custom	Direct/Custom	Includes Custom Compressed Air, Cooling, Custom, EMS, Lighting, and Motors/Drives. Projects <1 GWh savings: Company engineers or outside engineering firm calculate savings for pre-approval, calculations reviewed by higher levels of engineering staff depending on size. At time of pre-approval, random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager or Business Solutions Center verifies project installation and collects equipment invoices. Project \geq 1 GWh savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
	Process Efficiency - Prescriptive	Direct/Prescriptive	Includes Prescriptive Compressed Air, Cooling, EMS, Lighting, Motors/Drives, and Refrigeration. Verification Contractor selects random sample and performs field inspections of deemed savings factors specified for applicable end-use product.	
Recommissioning	N/A	Direct/Custom	Customer hires an engineering firm to conduct study of building and to determine energy savings for each measure. Internal energy efficiency engineer reviews and verifies that savings calculations are accurate for 100% of projects. For measures over 1 GWh of savings, pre- and post-metering are required to verify savings, if feasible. For projects that are very difficult to meter, a combination of metering and calculation may be used.	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Segment Efficiency	Segment Efficiency - Prescriptive	Direct/Prescriptive	Includes Prescriptive Compressed Air, Cooling, EMS, Lighting, Motors/Drives, and Refrigeration. Verification Contractor selects random sample and performs field inspections of deemed savings factors specified for applicable end-use product.	
	Segment Efficiency - Custom	Direct/Custom	Includes Custom Compressed Air, Cooling, Custom, EMS, Lighting, and Motors/Drives. Projects < 1 GWh savings: Company engineers or outside engineering firm calculate savings for pre-approval, calculations reviewed by higher levels of engineering staff depending on size. At time of pre-approval, random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager or Business Solutions Center verifies project installation and collects equipment invoices. Project ≥ 1 GWh savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
Self-Direct	N/A	Direct/Custom	Customer will calculate savings and Company will verify calculations. Customer will develop and implement M&V plan specific to project. Company will review M&V plan and results. Additionally, a random sample of all pre-approved projects will be selected by the Company and sent to an outside engineering firm for metering and verification.	
Small Business Lighting Efficiency	Small Business Lighting - Custom	Direct/Custom	Projects < 1 GWh savings: Company engineers or outside engineering firm calculate savings for pre-approval, calculations reviewed by higher levels of engineering staff depending on size. At time of pre-approval, random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager or Business Solutions Center verifies project installation and collects equipment invoices. Project ≥ 1 GWh savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
	Small Business Lighting - Prescriptive	Direct/Prescriptive	Verification Contractor selects random sample & performs field inspections of deemed savings factors -- e.g. number of fixtures, equipment type, building type, existence of air conditioning. Information gathered for a sample lamp/fixtures.	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Standard Offer	N/A	Direct/Custom	The Standard Offer product will not be accepting new projects in 2014. Projects committed in previous years will continue to fulfill the annual M&V true-up requirement as detailed below for a period of three years. The customer or customer's agent (such as ESCO) will calculate savings and the Company will verify calculations. The customer or customer's agent will develop and implement an M&V plan specific to the project and will submit it as a part of the project description in the initial audit phase of the product. The Company will review M&V plan and results. Additionally, a random sample of all pre-approved projects will be selected by the Company and sent to an outside engineering firm for metering and verification.	
Interruptible Service Option Credit	N/A	Direct/ Demand Response	Program manager will monitor program goals monthly to ensure that we are on track with our budget forecast. In addition to this on-going monitoring, our plans call for periodic meetings throughout the year with key ISOC players to evaluate our program strategy, and to measure and verify our progress against our program plan numbers.	
Peak Savings Program (EnerNOC)	N/A	Direct/ Demand Response	Peak Savings customers have monitoring equipment installed as part of their enrollment. This data is accessible by the customer through the PowerTrak web based monitoring system.	
Business Gas:				
Commercial Refrigeration Efficiency	N/A	Direct/Prescriptive	Verification Contractor selects random sample & performs field inspections of deemed savings factors from direct installed measures and implemented measures.	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Heating Efficiency	Heating Efficiency Custom	Direct/Custom	Projects < 20,000 Dth savings: Company engineers or outside engineering firm calculate savings for pre-approval; calculations reviewed by higher levels of engineering staff depending on size. At the time of pre-approval, random samples of projects sent to outside engineering firm for verification. Account Manager or Business Solutions Center verifies project installation, collects equipment invoices. Project ≥ 20,000 Dth savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
	Heating Efficiency Prescriptive	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors. For boilers -- size and efficiency. For steam traps -- high or low pressure. For all other -- size and implemented measure.	
Custom Efficiency	N/A	Direct/Custom	Projects < 20,000 Dth savings: Company engineers or outside engineering firm calculate savings for pre-approval; calculations reviewed by higher levels of engineering staff depending on size. At the time of pre-approval, random samples of projects sent to outside engineering firm for verification. Account Manager or Business Solutions Center verifies project installation, collects equipment invoices. Project ≥ 20,000 Dth savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
Energy Management Systems	N/A	Direct/Custom	Projects < 20,000 Dth savings: Company engineers or outside engineering firm calculate savings for pre-approval; calculations reviewed by higher levels of engineering staff depending on size. At the time of pre-approval, random samples of projects sent to outside engineering firm for verification. Account Manager or Business Solutions Center verifies project installation, collects equipment invoices. Project ≥ 20,000 Dth savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	Planned for 2014

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
New Construction	Energy Efficiency Buildings	Direct/Custom	Consultant visits site and verifies that specified measures were installed. For projects with individual measure savings \geq 20,000 Dth savings, four weeks of data logging verifies savings.	
	Energy Design Assistance	Direct/Custom	Consultant visits site and verifies that specified measures were installed. Equipment and systems are monitored for a two week timeframe, as appropriate, to evaluate performance variables against modeling assumptions. Projects with individual measure savings \geq 20,000 Dth savings: Four weeks of data logging verifies savings. All projects verified with actual results not within 15% of the energy savings identified in the original model, will have an as-built model completed for rebate calculations.	
Recommissioning	Recommissioning Studies	Indirect	N/A	
	Recommissioning Study credit	Direct/Custom	Customer hires an engineering firm to conduct study of building and to determine energy savings for each measure. Internal engineer reviews and verifies that savings calculations are accurate for 100% of projects. For measures over 20,000 Dth of savings, pre and post metering is required to verify savings, if feasible. For projects that are very difficult to meter, a combination of metering and calculation may be used.	
	Recommissioning over 1 year projects	Direct/Custom	Customer hires an engineering firm to conduct study of building and to determine energy savings for each measure. Internal engineer reviews and verifies that savings calculations are accurate for 100% of projects. For measures over 20,000 Dth of savings, pre- and post-metering is required to verify savings, if feasible. For projects that are very difficult to meter, a combination of metering and calculation may be used.	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Segment Efficiency	Segment Efficiency - Prescriptive	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors. For boilers -- size and efficiency. For steam traps -- high or low pressure. For all other -- size and implemented measure.	
	Segment Efficiency - Custom	Direct/Custom	Projects < 20,000 Dth savings: Company engineers or outside engineering firm calculate savings for pre-approval; calculations reviewed by higher levels of engineering staff depending on size. At the time of pre-approval, random samples of projects sent to outside engineering firm for verification. Account Manager or Business Solutions Center verifies project installation, collects equipment invoices. Project ≥ 20,000 Dth savings: Pre- and post-metering verifies savings. (Projects of any size may be metered depending on certainty assessment of savings).	
Standard Offer	N/A	Direct/Custom	The Standard Offer product will not be accepting new projects in 2014. Projects committed in previous years will continue to fulfill the annual M&V true-up requirement as detailed below for a period of three years. Customer or customers agent (such as ESCO) will calculate savings and Company will verify calculations. Customer or customers agent (such as ESCO) will develop and implement M&V plan specific to project and will submit it as a part of the project description in the initial audit phase of the product. Company will review M&V plan and results. Additionally, a random sample of all pre-approved projects will be selected by the Company and sent to an outside engineering firm for metering and verification.	
Residential Electric:				
ENERGY STAR New Homes	N/A	Direct/Prescriptive	RESNET Certified HERS rater performs multiple site walk throughs and at the end of construction determines final HERS rating - 100% site verification. Rebate amount is determined by the final HERS rating. Home size information, measures installed, and HERS rating are verified by third-party product implementer and then submitted to Public Service.	
Evaporative Cooling Rebate Product	N/A	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors; e.g. type of unit (tier 1, 2 or 3), and type of unit if previously installed and if registers and ducting are complete (if applicable to tier).	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Home Lighting & Recycling	N/A	Direct/Prescriptive	Third-party administrator provides tracking data and manufacturer sales reports for bulbs sold. Verification contractor audits the data and compares to manufacturer sales reports. Verification contractor corrects any errors and calculates energy savings based on Public Service assumptions.	
High Efficiency Air Conditioning	N/A	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors using a defined process. This includes verifying load calc was performed, unit sized properly and that refrigerant charge, air flow, and duct leakage are within acceptable ranges.	
Home Performance with ENERGY STAR	N/A	Direct/Prescriptive	Third-party product implementer performs a walk through inspection after the homeowner has performed all of their planned energy efficiency improvements. The work conducted by a participating installation contractor will be inspected through this method. Contractors will have first five completed projects inspected followed by a 10% sample of homes. Public Service will also implement a market research survey with customers to gauge satisfaction with the product, auditors, and installation contractors that were used.	
Pool Pumps	N/A	Direct/Prescriptive	Third-party product implementer reviews and verifies key information including product application submitted by program partner. If incorrect or missing information is noted, program partner is asked to remedy. Information for all homes receiving a rebate is submitted by third-party product implementer to Public Service, reviewed, then stored in customer relation database.	
Refrigerator Recycling	N/A	Direct/Prescriptive	Verification contractor conducts phone surveys of random sample of participants to verify removal of refrigerator and that refrigerator was operable at time of removal.	
Saver's Switch	N/A	Direct/ Demand Response	Xcel Energy's load research group manages third-party contractors to conduct sampling of enrolled sites. A data logger is installed on-site to monitor the air conditioner's energy use and how that use changes on a control day. Third-party evaluator analyzes results to determine load relief achieved during a control day.	

Residential Gas:				
Energy Efficient Showerheads	N/A	Direct/Prescriptive	Verification Contractor selects random sample and performs phone survey of deemed savings factors -- e.g. did the customer receive the product and was it installed.	
ENERGY STAR New Homes	N/A	Direct/Prescriptive	Third-party product implementer manages HERS raters who consult directly with builders during construction phase and then assign a HERS rating (with blower door testing) at end of construction prior to rebating for product - 100% site verification. Home size information, measures installed, and HERS rating are verified by product implementer.	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Heating System Rebate	N/A	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors; e.g. manufacturer, model, serial number	
Home Performance with ENERGY STAR	N/A	Direct/Prescriptive	Third-party product implementer performs a walk through inspection after the homeowner has performed all of their planned energy efficiency improvements. The work conducted by a participating installation contractor will be inspected through this method. Contractors will have first five completed projects inspected followed by a ten percent sample of homes. Public Service will also implement a market research survey with customers to gauge satisfaction with the product, auditors, and installation contractors that were used.	
Insulation Rebate	N/A	Direct/Prescriptive	Verification Contractor selects random sample and conducts onsite verification to confirm measure(s) were installed. VC conducts post blower door test for accuracy of air leakage reduction and confirms that the contractor is certified under Building Performance Institute (BPI), registered under Xcel Energy's program and licensed in Colorado.	
School Education Kits	N/A	Direct/Prescriptive	Third-party product implementer conducts phone/mail surveys to teachers/students to confirm what was installed at students' homes.	
Water Heating Rebate	N/A	Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors -- e.g. type of unit installed.	
Single Family Weatherization	N/A	Direct/Prescriptive	Contracted weatherization agency visits home, identifies savings opportunities and then installs measures. Weatherization agency provides documentation of completed measures to third-party product implementer, who submits information to PSCo.	
Multi-Family Weatherization	N/A	Direct/Prescriptive	Consultant visits building and completes energy audit. PSCo engineer reviews audit report and approves or denies report. Consultant visits site to verify that approved measures were installed and submits final savings in verification report.	Planned for 2014

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Non-Profit Weatherization	N/A	Direct/Prescriptive	Consultant visits building and completes energy audit. PSCo engineer reviews audit report and approves or denies report. Consultant visits site to verify that approved measures were installed and submits final savings in verification report.	
Energy Savings Kits	N/A	Direct/Prescriptive	Third-party product implementer conducts phone or mail surveys to confirm what was installed at recipient's home.	
Education/Market Transformation Segment				
Business Energy Analysis	N/A	Indirect	Since this is an indirect impact product, we will not perform M&V of savings; however Public Service does tracks the number of online assessments, onsite assessments, and engineering assistance studies.	
Customer Behavioral Change - Residential & Business	N/A	Indirect/Market Transformation	Direct savings are not credited to this program; therefore, on-going M&V will not be conducted.	
Energy Efficiency Financing	N/A	Indirect	A program evaluation will be performed by an independent third-party after the first full year of operation to obtain preliminary feedback on this product.	
Residential Home Energy Audit	N/A	Indirect	Since this is an indirect impact product, we will not perform M&V of savings. However, a third-party contractor will periodically review a sample of completed audits to determine if the auditor correctly identified all of the energy efficiency opportunities.	

Product Name	Component Name	Type of Product	2014 M&V Plan	Comprehensive Product Evaluation Plans
Pilots				
Community Energy Efficiency Planning	N/A	Business/Residential Pilot	The rate of DSM program participation prior to the pilot will be compared to participation rates after implementation. Attempts will be made to account for externalities which may drive participation. This may be accomplished by comparing program participation rates in similar jurisdictions not involved in the CEEP pilot to those within the pilot.	
Energy Feedback - Residential	N/A	Residential Pilot	Data is collected, analyzed and reported by third-party participants in the Pilot to assess effectiveness of products and feedback types. In addition, this Market Transformation behavior product will use relevant E,M&V plan guidelines as set forth in the California Evaluation Framework. [1]	
Energy Feedback - Business	N/A	Business Pilot	Data is collected, analyzed and reported by third-party participants in the Pilot to assess effectiveness of products and feedback types. In addition, this Market Transformation behavior product will use relevant E,M&V plan guidelines as set forth in the California Evaluation Framework. [1]	
In-Home Devices	N/A	Residential Pilot	Since this is pilot and an indirect impact product, we will not perform M&V of savings. However, a third-party contractor will perform an analysis and evaluation, including impact estimates. A preliminary evaluation will be completed after the 2012 summer season using a difference of differences approach. A final evaluation using data from 2012 and 2013 will be completed after the pilot concludes.	
Electric Vehicle Charging Station	N/A	Business/Residential Pilot	Since this is pilot and an indirect impact product, we will not perform M&V of savings.	
[1] TecMarket Works Framework Team, California Evaluation Framework, June 2004, p. 245 - 268.				

➤ **Interruptible Service Option Credit (ISOC) & Third-Party Demand Response**

➤ **Interruptible Service Option Credit**

A. Description

The Colorado Interruptible Service Option Credit (ISOC) Program offers significant savings opportunities for our Colorado business customers who can reduce their electric demand when notified. In return for participating, customers receive a monthly credit based on the options they have selected.

During periods of peak demand, such as hot summer days, the system may require more power than is normally available. By participating in this program, ISOC customers help reduce the amount of electricity needed, which helps Xcel Energy meet electric system requirements at critical times. To qualify, customers must have an interruptible demand of at least 300 kilowatts (kW) during the months of June, July August and September of the previous year. In addition, the customer must have a Contract Interruptible Load (CIL) of 300 kW or more.

The customer's contract interruptible load is the median of their maximum daily 1-hour integrated demands, which occurred between noon and 8 p.m. on Monday through Friday (excluding weekends and holidays); from June 1 through September 30 of the previous year. In addition, their interruptible demand is the maximum daily integrated demand used during the month that occurred between noon and 8 p.m., less any firm demand. Customers must install a phone line that is connected to their meter, which will allow Xcel Energy to provide near real-time usage information.

The participating customer signs a contract that includes their selected firm demand, the hours of interruption per year and their advance-notice requirement. Customers can use electricity as usual until Xcel Energy notifies them of a control period. We'll give advance notice before requiring the customer to curtail electricity use. Then, during the interruption period, customers cut their electricity use down to the firm demand chosen in their program agreement.

Customers choose the amount of interruption appropriate for their facility. The credit they receive is tied to the number of hours they contract to be interrupted each year and their advance notice option.

Interruption periods typically are triggered as a result of capacity, contingency and/or economic constraints. Economic interruptions are the only interruptions that offer a buy-through option. Currently, all interruptions (events) last a minimum of 4 hours, unless the customer has chosen to waive the 4-hour minimum interruption timeframe.

Unless customers choose the Within 10-Minute-notice option, we do not reduce the amount of electricity available to their facility; it's up to the customer to take steps to reduce their load during control periods. If customers do not meet their agreed-upon load reduction, they will be charged penalties.

B. Goals, Participants & Budgets

The Colorado ISOC program is dynamic, and we continue to explore ways to improve the program, work with customers on any change requests, and subsequently work to revise and enhance our budget forecasts. This effort takes place through the collaboration of a number of internal employees including analysts, account managers, product developers, marketers, technicians, and product managers.

From a total demand credit budget perspective, dollars allocated for this initiative are based on the number of hours they contract to be controlled each year, the amount of controllable load they have available, and their advance notice option.

Other ISOC budget items would include the development of marketing materials, such as customer ISOC System Guides, as well as annual training for both customers and Account Managers. This annual training ensures that all involved in the program are updated on the latest enhancements and revisions to the program.

C. Application Process

Account Managers play a vital role in communicating the benefits of this program to potential customers. They spend a great deal of time with the customer throughout the application process to ensure that the customer meets all the requirements of the program, and that all program information is understood. When customers decide to join the program, they will work with the account manager using the following application/contract process:

Qualification Requirements

We are offering the ISOC rate to all current PSCo qualified customers. Prior to completing a contract, we must insure that the customer qualifies for the ISOC rate. The customer must have a minimum of 300 kW of Interruptible Demand in each of the summer months of June, July, August and September of the previous year. In addition the customer's Contract Interruptible Load for Planning Reserves must be greater than 300 kW. The Interruptible Demand and Contract Interruptible Load figures must be reduced by any Contract Firm Demand the customer chooses.

Contract Term

The initial contract term shall be 24 months followed by an annual term that is automatically renewed each year. A six-month written notice is required to cancel. There is a one-year trial period provision provided in the tariff. In the first year on ISOC, the customer may choose to cancel their agreement by returning all credits paid. Xcel Energy will return any capacity/contingency penalties and cancel the contract. This provision is only available during the initial and current year in which the contract is signed. If the customer signs-up for ISOC in April, the trial period will run from April through December of the current year.

Contract Completion

Once it is determined that the customer will qualify for the ISOC, we will complete the Interruptible Service Option Agreement. The Agreement must be approved by the customer and by an authorized representative of PSCo prior to May 31st for the customer to receive credits in that year.

D. Marketing Objectives, Goals, & Strategy

A critical part of the Interruptible Service Option Credit (ISOC) program's success is our ability to locate potentially eligible customers, assist them in becoming a part of the program, and provide service according to the tariff. That process begins by us running a query on our customer information system to locate business customers in Colorado that meet eligibility requirements for the ISOC program.

Potential customers that meet program eligibility requirements are contacted by an Account Manager, and a meeting is scheduled with interested businesses. The objective of the meeting is to introduce the customer to the various ISOC program options, and discuss program requirements and responsibilities.

In addition to this customer prospecting process, Marketing and Communication materials are created, and these materials are used to communicate the features and benefits of the program. These marketing materials include:

- The Colorado Interruptible Service Option Credit (ISOC) System Guide –This guide is provided to customers on an annual basis and is a valuable reference to navigating the ISOC tracking system.
- Electric Rate Savings Feature Sheet – This piece summarizes the program features and benefits, and helps potential customers determine their qualification status.
- Electric Rate Savings Credit Sheet – This reference outlines the various control options, and assists customers in understanding the savings they could realize by participating in the program.
- ISOC Website on xcelenergy.com - Extensive program information is also included on the Xcel Energy website for current and potential customers to assess. The site is reviewed on a consistent basis to ensure the information is current.

Account Managers work with these potential customers by utilizing the marketing and communications materials referenced above. The account managers play a crucial role in this program by interacting with customers on a regular basis to ensure customer satisfaction.

A group of internal employees including analysts, account managers, product developers, marketers, technicians, and product managers are also continually working to set goals and objectives, as well as track the progress of the program. This goal measurement process consists of monitoring several indicators, including the number of customers participating, interruption data, MW available for control, and demand credit dollars.

Much of the effort for future ISOC marketing initiatives will involve working to target qualified customers and increase the level of communications to current and potential customers.

For a program of this nature, it is not only important to promote the program up-front, but customers also need ongoing support and communication. It should also be noted that we view marketing as a continuous process—not a single event—which includes initial discussion to recruit participants, then ongoing communications to ensure customers know and can continue to evaluate

the benefits of the program in order to retain these customers, and ongoing communication/education about how the program works.

This effort includes pre-season communication and training, as well as pre, during and post control event communications and support. Marketing works to understand the various stages of any particular customer's interpretation of the program and provides materials and support necessary to ensure consistent and positive customer experience.

Marketing encompasses both solicitation communications and education, and also on-going program communication, including on-going training to retain participant customers in support of achieving the capacity deferral benefit potential of the program as captured in our ISOC forecast.

E. Product-Specific Policies

All contracts for service under this schedule shall be for an initial two-year term, with automatic one-year renewal terms. A customer must provide Xcel Energy written six months notice to cancel service under this schedule.

Any time during the first year of service under this schedule a customer may opt to cancel its contract by returning all monthly credits paid by Xcel up until the date of cancellation. No additional payment will be assessed.

Any customer who cancels service without complying with the Service Period requirements under this schedule shall be required to pay Xcel Energy, as a penalty, an amount equal to the product of 110% times the customer's Contract Interruptible Load times the customer's Monthly Credit Rate for each of the remaining months of the unexpired contract term.

In addition, the customer shall reimburse Xcel Energy for the direct cost incurred for equipment to measure the customer's Interruptible Demand and to interrupt the customer.

F. Stakeholder Involvement

Colorado business customers have played a major role in the on-going dynamics of this program. We continue to meet frequently and interact with these business customers to encourage their input. We also consistently monitor the marketplace, and constantly work to upgrade and improve the program through a strategy that combines findings from marketplace monitoring as well as customer input.

G. Rebate (Credit) Levels

The monthly kW credit paid to customers as part of the ISOC program is calculated by multiplying the Monthly Credit Rate by the lesser of the customer's Contract Interruptible Load or the actual Interruptible Demand during the billing month. These credits paid are an actual monthly credit to the customer's energy bill.

The Monthly Credit Rate is revised effective January 1 each year, and shall remain in effect for the calendar year. The Monthly Credit Rate will vary by season. The summer season runs from June 1 through September 30, and the winter season is October 1 through May 31.

The number of hours in the year that each customer elects as interruptible is set in the Interruptible Service Option Credit Agreement. The options include 40 hours, 80 hours, and 160 hours.

H. Evaluation, Measurement, & Verification Plan

There are both ISOC MW and ISOC credit dollar budget goals in place. Our evaluation, measurement and verification plan will consist of our monthly monitoring of those goals to ensure that we are on track with our budget forecast. In addition to this on-going monitoring, our plans call for periodic meetings throughout the year with key ISOC players to evaluate our program strategy, and to measure and verify our progress against our program plan numbers. Program adjustments will be made at that time, if warranted.

Customer program performance is measured at each customer site with the use of an interval data recorder which tracks their daily use as well as use during a control event. We monitor each customer at the time of an event and verify the data at the time of billing. If the customer is non-compliant, they are penalized. Additionally, our Load Research group does an evaluation of the load that is shed or could be shed for the interruptible customers as part of the forecasting and reporting of actual load relief management.

➤ **Peak Savings Program (EnerNOC)**

A. Description

The Peak Savings Program is a third-party demand response aggregation program managed by EnerNOC. It was developed as a result of PUC Decision No. C08-0369 under Docket No. 07A-469E. The program was designed to be price capacity at below the levelized avoided cost of a combustion turbine. This means that on purely a capacity basis, the program should always yield positive net benefits. The EnerNOC contract runs through 2016 and has a 40 MW demand response minimum. EnerNOC's third-party demand response program was branded "Peak Savings" to align with other load reduction programs offered by Xcel Energy. Xcel Energy is allowed to recover the costs of the Peak Savings Program through the DSMCA.

Target Market

Peak Saving's participants range in size from >1 MW to <100 kW. EnerNOC seeks a diverse portfolio in order to meet the 40 MW year round DR commitments required under the contract.

Event Management

The Peak Savings Resource appears as one large resource to our System Operators, and is dispatched similarly to ISOC.

Results

EnerNOC has experienced some challenges in the build-out of the program and in reaching Target Capacity goals set by the contract. The first goal, 20 MW of Committed Load Reduction by June, 2009 was met in October, 2009. The second goal of 40 MW of Committed Load reductions by June 2010 was met in July of 2011. EnerNOC was penalized under the contract for meeting these goals later than specified. The penalties were taken as a reduction to the monthly payment to EnerNOC. Since then EnerNOC has reached the 44 MW contract maximum and will maintain the contractual minimum of 40 MW of Committed Load Reduction for the remainder of the contract term.

B. Goals, Participants & Budgets

EnerNOC is responsible for meeting the following goals. Failure to meet the minimum goal results in financial penalties identified in the contract.

- June 1, 2010 thru end of term- 40 to 44 MW

C. Application Process

EnerNOC is responsible for providing turn-key fulfillment of the Peak Savings Product offering. This includes the application process.

D. Marketing Objectives, Goals, & Strategy

All sales and marketing activities are the responsibility of EnerNOC. Currently EnerNOC is contractually responsible for providing a minimum of 40 MW and maximum of 44 MW of interruptible load each month.

E. Product-Specific Policies

Participation in EnerNOC is limited to Commercial and Industrial customers. Although no minimum or maximum customer size is identified, EnerNOC specializes in aggregating smaller loads from customers who do not qualify for the ISOC tariff. Participants are limited to existing firm rate Commercial and Industrial customers who are not currently under an existing interruptible contract (ISOC), or on a Standby Tariff.

F. Stakeholder Involvement

The primary stakeholders are Xcel Energy and EnerNOC. Xcel Energy uses this load to ensure system reliability and to reduce system costs when the costs of additional generation or power purchases exceed the program costs. EnerNOC has made investments in labor to attract, identify, and qualify and sign-up participants. EnerNOC has also made investments in their PowerTrak system which is used to monitor customer loads and events.

G. Rebate (Credit) Levels

Terms and the rates identified by the contract are confidential.

H. Evaluation, Measurement, & Verification Plan

Peak Savings customers have monitoring equipment installed as part of their enrollment. This data is accessible by the Customer through the PowerTrak web based monitoring system. Customers can view their usage at any time using their unique username and password to log into the system. The amount of demand reduction supplied for a given event is calculated by subtracting the actual aggregated usage of all customers from the aggregated baseline usage during the event window.

➤ **Benefit Cost Analyses**

DSM PORTFOLIO - ELECTRIC	2014	ELECTRIC	GOAL
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2014 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	\$86,401,662	\$86,401,662	\$86,401,662
Transmission & Distribution Cap	N/A	\$20,599,432	\$20,599,432	\$20,599,432
Marginal Energy	N/A	\$153,033,521	\$153,033,521	\$153,033,521
Avoided Emissions (CO2)	N/A	N/A	N/A	\$0
Subtotal				\$260,034,615
Non-Energy Benefits Adder (10.3%)				\$26,736,703
Subtotal	N/A	\$260,034,615	\$260,034,615	\$286,771,318
Other Benefits				
Bill Reduction - Electric	\$362,939,039	N/A	N/A	N/A
Participant Rebates and Incentives	\$48,478,484	N/A	N/A	\$48,478,484
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$23,508,760	N/A	N/A	\$2,186,876
Subtotal	\$434,926,283	N/A	N/A	\$50,665,361
Total Benefits	\$434,926,283	\$260,034,615	\$260,034,615	\$337,436,679
COSTS				
Utility Project Costs				
Program Planning & Design	N/A	\$634,823	\$634,823	\$634,823
Administration & Program Delivery	N/A	\$27,504,485	\$27,504,485	\$27,504,485
Advertising/Promotion/Customer I	N/A	\$9,144,315	\$9,144,315	\$9,144,315
Participant Rebates and Incentives	N/A	\$48,478,484	\$48,478,484	\$48,478,484
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$2,001,387	\$2,001,387	\$2,001,387
Subtotal	N/A	\$87,763,495	\$87,763,495	\$87,763,495
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	\$298,199,856	N/A
Subtotal	N/A	N/A	\$298,199,856	N/A
Participant Costs				
Incremental Capital Costs	\$111,589,173	N/A	N/A	\$91,675,951
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$111,589,173	N/A	N/A	\$91,675,951
Total Costs	\$111,589,173	\$87,763,495	\$385,963,351	\$179,439,446

Net Benefit (Cost)	\$323,337,110	\$172,271,120	(\$125,928,736)	\$157,997,233
Benefit/Cost Ratio	3.90	2.96	0.67	1.88

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW

Lifetime (Weighted on Generator kWh)	A	14 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	35.89%
Gross Load Factor at Customer	E	18.52%
Net-to-Gross (Energy)	F	85.7%
Net-to-Gross (Demand)	G	85.5%
Transmission Loss Factor (Energy)	H	6.947%
Transmission Loss Factor (Demand)	I	7.411%
Installation Rate (Energy)	J	98.2%
Installation Rate (Demand)	K	99.4%
MTRC Net Benefit (Cost)	L	\$603
MTRC Non-Energy Benefit Adder	M	\$102
Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1 - I)$	0.3295 kW
Gross Annual kWh Saved at Customer	$(B \times E \times C)$	1,623 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$	1,364 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times C \times J)) / (1 - H)$	1,466 kWh

Program Summary per Participant

Gross kW Saved at Customer	P	0.24 kW
Net coincident kW Saved at Generator	$(G \times P \times K) \times D / (1 - I)$	0.08 kW
Gross Annual kWh Saved at Customer	$(B \times E \times P)$	384 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J))$	323 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times P \times J)) / (1 - H)$	347 kWh

Program Summary All Participants

Total Participants	Q	1,108,152
Total Budget	R	\$87,763,495
Gross kW Saved at Customer	$(Q \times P)$	262,190 kW
Net coincident kW Saved at Generator	$((G \times P \times K) \times D / (1 - I)) \times Q$	86,381 kW
Gross Annual kWh Saved at Customer	$(B \times E \times P) \times Q$	425,457,651 kWh
Gross Installed Annual kWh Saved at Customer	$(B \times E \times P \times J) \times Q$	417,685,615 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J)) \times Q$	357,748,708 kWh
Net Annual kWh Saved at Generator	$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$	384,457,736 kWh
TRC Net Benefits with Adder	$(Q \times P \times L)$	\$157,997,233
TRC Net Benefits without Adder	$(Q \times P \times (L - M))$	\$131,260,530

Utility Program Cost per kWh Lifetime

Utility Program Cost per kWh at Gen	\$0.0162
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Utility Program Cost per kW at Gen

Utility Program Cost per kW at Gen	\$1,016
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BUSINESS PROGRAM TOTAL					2014 ELECTRIC		GOAL
2014 Net Present Cost Benefit Summary Analysis For All Participants					Input Summary and Totals		
	Participant	Utility	Rate	Modified	Program Inputs per Customer kW		
	Test	Test	Test	Test	Lifetime (Weighted on Generator kWh)	A	16 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits					Gross Customer kW	C	1 kW
Avoided Revenue Requirements					Generator Peak Coincidence Factor	D	72.74%
Generation Capacity	N/A	\$49,464,391	\$49,464,391	\$49,464,391	Gross Load Factor at Customer	E	48.96%
Transmission & Distribution Cap	N/A	\$11,314,604	\$11,314,604	\$11,314,604	Net-to-Gross (Energy)	F	87.1%
Marginal Energy	N/A	\$109,744,457	\$109,744,457	\$109,744,457	Net-to-Gross (Demand)	G	86.6%
Avoided Emissions (CO2)	N/A	N/A	N/A	\$0	Transmission Loss Factor (Energy)	H	6.500%
Subtotal				\$170,523,452	Transmission Loss Factor (Demand)	I	6.500%
Non-Energy Benefits Adder (10%)				\$17,052,345	Installation Rate (Energy)	J	100.0%
Subtotal	N/A	\$170,523,452	\$170,523,452	\$187,575,797	Installation Rate (Demand)	K	100.0%
					MTRC Net Benefit (Cost)	L	\$1,488
					MTRC Non-Energy Benefit Adder	M	\$281
Other Benefits					Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1 - I)$	0.6734 kW
Bill Reduction - Electric	\$200,016,770	N/A	N/A	N/A	Gross Annual kWh Saved at Customer	$(B \times E \times C)$	4,289 kWh
Participant Rebates and Incentives	\$28,130,548	N/A	N/A	\$28,130,548	Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$	3,735 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	Net Annual kWh Saved at Generator	$(F \times (B \times E \times C \times J)) / (1 - H)$	3,995 kWh
Incremental O&M Savings	\$13,295,198	N/A	N/A	\$1,348,448			
Subtotal	\$241,442,516	N/A	N/A	\$29,478,997	Program Summary per Participant		
					Gross kW Saved at Customer	P	6.76 kW
Total Benefits	\$241,442,516	\$170,523,452	\$170,523,452	\$217,054,794	Net coincident kW Saved at Generator	$(G \times P \times K) \times D / (1 - I)$	4.55 kW
COSTS					Gross Annual kWh Saved at Customer	$(B \times E \times P)$	29,012 kWh
Utility Project Costs					Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J))$	25,264 kWh
Program Planning & Design	N/A	\$91,217	\$91,217	\$91,217	Net Annual kWh Saved at Generator	$(F \times (B \times E \times P \times J)) / (1 - H)$	27,021 kWh
Administration & Program Delivery	N/A	\$15,092,869	\$15,092,869	\$15,092,869	Program Summary All Participants		
Advertising/Promotion/Customer I	N/A	\$2,911,204	\$2,911,204	\$2,911,204	Total Participants	Q	8,969
Participant Rebates and Incentives	N/A	\$28,130,548	\$28,130,548	\$28,130,548	Total Budget	R	\$47,347,362
Equipment & Installation	N/A	\$0	\$0	\$0	Gross kW Saved at Customer	$(Q \times P)$	60,668 kW
Measurement and Verification	N/A	\$1,121,523	\$1,121,523	\$1,121,523	Net coincident kW Saved at Generator	$((G \times P \times K) \times D / (1 - I)) \times Q$	40,852 kW
Subtotal	N/A	\$47,347,362	\$47,347,362	\$47,347,362	Gross Annual kWh Saved at Customer	$(B \times E \times P) \times Q$	260,213,957 kWh
					Gross Installed Annual kWh Saved at Customer	$(B \times E \times P \times J) \times Q$	260,213,957 kWh
Utility Revenue Reduction					Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J)) \times Q$	226,597,714 kWh
Revenue Reduction - Electric	N/A	N/A	\$174,310,530	N/A	Net Annual kWh Saved at Generator	$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$	242,350,496 kWh
Subtotal	N/A	N/A	\$174,310,530	N/A	TRC Net Benefits with Adder	$(Q \times P \times L)$	\$90,274,185
					TRC Net Benefits without Adder	$(Q \times P \times (L - M))$	\$73,221,839
Participant Costs							
Incremental Capital Costs	\$97,322,950	N/A	N/A	\$79,433,247	Utility Program Cost per kWh Lifetime		\$0.0120
Incremental O&M Costs	\$0	N/A	N/A	\$0	Utility Program Cost per kW at Gen		\$1,159
Subtotal	\$97,322,950	N/A	N/A	\$79,433,247			
Total Costs	\$97,322,950	\$47,347,362	\$221,657,893	\$126,780,609			
Net Benefit (Cost)	\$144,119,566	\$123,176,090	(\$51,134,440)	\$90,274,185			
Benefit/Cost Ratio	2.48	3.60	0.77	1.71			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

RESIDENTIAL PROGRAM TOTAL					2014	ELECTRIC	GOAL																																																																																																																																																																																																																																																																																																			
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Electric	\$147,272,229	N/A	N/A	N/A	Participant Rebates and Incentives	\$17,879,360	N/A	N/A	\$17,879,360	Incremental Capital Savings	\$0	N/A	N/A	\$0	Incremental O&M Savings	\$9,716,500	N/A	N/A	\$634,529	Subtotal	\$174,868,089	N/A	N/A	\$18,513,889	Total Benefits	\$174,868,089	\$82,273,149	\$82,273,149	\$109,014,352	COSTS					Utility Project Costs					Program Planning & Design	N/A	\$5,425	\$5,425	\$5,425	Administration & Program Delivery	N/A	\$8,349,386	\$8,349,386	\$8,349,386	Advertising/Promotion/Customer I	N/A	\$4,582,333	\$4,582,333	\$4,582,333	Participant Rebates and Incentives	N/A	\$17,879,360	\$17,879,360	\$17,879,360	Equipment & Installation	N/A	\$0	\$0	\$0	Measurement and Verification	N/A	\$372,710	\$372,710	\$372,710	Subtotal	N/A	\$31,189,213	\$31,189,213	\$31,189,213	Utility Revenue Reduction					Revenue Reduction - Electric	N/A	N/A	\$110,403,293	N/A	Subtotal	N/A	N/A	\$110,403,293	N/A	Participant Costs					Incremental Capital Costs	\$12,011,348	N/A	N/A	\$9,987,828	Incremental O&M Costs	\$0	N/A	N/A	\$0	Subtotal	\$12,011,348	N/A	N/A	\$9,987,828	Total Costs	\$12,011,348	\$31,189,213	\$141,592,507	\$41,177,041	Net Benefit (Cost)	\$162,856,741	\$51,083,935	(\$59,319,358)	\$67,837,311	Benefit/Cost Ratio	14.56	2.64	0.58	2.65	<table border="1"> <tbody> <tr> <td>Lifetime (Weighted on Generator kWh)</td> <td>A</td> <td>13 years</td> </tr> <tr> <td>Annual Hours</td> <td>B</td> <td>8760</td> </tr> <tr> <td>Gross Customer kW</td> <td>C</td> <td>1 kW</td> </tr> <tr> <td>Generator Peak Coincidence Factor</td> <td>D</td> <td>22.89%</td> </tr> <tr> <td>Gross Load Factor at Customer</td> <td>E</td> <td>7.79%</td> </tr> <tr> <td>Net-to-Gross (Energy)</td> <td>F</td> <td>77.9%</td> </tr> <tr> <td>Net-to-Gross (Demand)</td> <td>G</td> <td>81.4%</td> </tr> <tr> <td>Transmission Loss Factor (Energy)</td> <td>H</td> <td>7.700%</td> </tr> <tr> <td>Transmission Loss Factor (Demand)</td> <td>I</td> <td>7.700%</td> </tr> <tr> <td>Installation Rate (Energy)</td> <td>J</td> <td>95.0%</td> </tr> <tr> <td>Installation Rate (Demand)</td> <td>K</td> <td>99.0%</td> </tr> <tr> <td>MTRC Net Benefit (Cost)</td> <td>L</td> <td>\$373</td> </tr> <tr> <td>MTRC Non-Energy Benefit Adder</td> <td>M</td> <td>\$45</td> </tr> <tr> <td>Net coincident kW Saved at Generator</td> <td>$(G \times C \times K) \times D / (1 - 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I)) \times Q$</td> <td>36,312 kW</td> </tr> <tr> <td>Gross Annual kWh Saved at Customer</td> <td>$(B \times E \times P) \times Q$</td> <td>124,011,090 kWh</td> </tr> <tr> <td>Gross Installed Annual kWh Saved at Customer</td> <td>$(B \times E \times P \times J) \times Q$</td> <td>117,803,146 kWh</td> </tr> <tr> <td>Net Annual kWh Saved at Customer</td> <td>$(F \times (B \times E \times P \times J)) \times Q$</td> <td>91,799,996 kWh</td> </tr> <tr> <td>Net Annual kWh Saved at Generator</td> <td>$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$</td> <td>99,458,284 kWh</td> </tr> <tr> <td>TRC Net Benefits with Adder</td> <td>$(Q \times P \times L)$</td> <td>\$67,837,311</td> </tr> <tr> <td>TRC Net Benefits without Adder</td> <td>$(Q \times P \times (L - M))$</td> <td>\$59,609,996</td> </tr> <tr> <td colspan="3">Utility Program Cost per kWh Lifetime</td> </tr> <tr> <td>Utility Program Cost per kWh at Gen</td> <td></td> <td>\$0.0244</td> </tr> <tr> <td></td> <td></td> <td>\$859</td> </tr> </tbody> </table>			Lifetime (Weighted on Generator kWh)	A	13 years	Annual Hours	B	8760	Gross Customer kW	C	1 kW	Generator Peak Coincidence Factor	D	22.89%	Gross Load Factor at Customer	E	7.79%	Net-to-Gross (Energy)	F	77.9%	Net-to-Gross (Demand)	G	81.4%	Transmission Loss Factor (Energy)	H	7.700%	Transmission Loss Factor (Demand)	I	7.700%	Installation Rate (Energy)	J	95.0%	Installation Rate (Demand)	K	99.0%	MTRC Net Benefit (Cost)	L	\$373	MTRC Non-Energy Benefit Adder	M	\$45	Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1 - I)$	0.1999 kW	Gross Annual kWh Saved at Customer	$(B \times E \times C)$	683 kWh	Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$	505 kWh	Net Annual kWh Saved at Generator	$(F \times (B \times E \times C \times J)) / (1 - H)$	547 kWh	Program Summary per Participant			Gross kW Saved at Customer	P	0.20 kW	Net coincident kW Saved at Generator	$(G \times P \times K) \times D / (1 - I)$	0.04 kW	Gross Annual kWh Saved at Customer	$(B \times E \times P)$	135 kWh	Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J))$	100 kWh	Net Annual kWh Saved at Generator	$(F \times (B \times E \times P \times J)) / (1 - H)$	109 kWh	Program Summary All Participants			Total Participants	Q	915,317	Total Budget	R	\$31,189,213	Gross kW Saved at Customer	$(Q \times P)$	181,682 kW	Net coincident kW Saved at Generator	$((G \times P \times K) \times D / (1 - I)) \times Q$	36,312 kW	Gross Annual kWh Saved at Customer	$(B \times E \times P) \times Q$	124,011,090 kWh	Gross Installed Annual kWh Saved at Customer	$(B \times E \times P \times J) \times Q$	117,803,146 kWh	Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J)) \times Q$	91,799,996 kWh	Net Annual kWh Saved at Generator	$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$	99,458,284 kWh	TRC Net Benefits with Adder	$(Q \times P \times L)$	\$67,837,311	TRC Net Benefits without Adder	$(Q \times P \times (L - M))$	\$59,609,996	Utility Program Cost per kWh Lifetime			Utility Program Cost per kWh at Gen		\$0.0244			\$859
	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact (\$Total)	Modified TRC (\$Total)																																																																																																																																																																																																																																																																																																						
Benefits																																																																																																																																																																																																																																																																																																										
Avoided Revenue Requirements																																																																																																																																																																																																																																																																																																										
Generation Capacity	N/A	\$34,887,571	\$34,887,571	\$34,887,571																																																																																																																																																																																																																																																																																																						
Transmission & Distribution Cap	N/A	\$8,785,791	\$8,785,791	\$8,785,791																																																																																																																																																																																																																																																																																																						
Marginal Energy	N/A	\$38,599,786	\$38,599,786	\$38,599,786																																																																																																																																																																																																																																																																																																						
Avoided Emissions (CO2)	N/A	N/A	N/A	\$0																																																																																																																																																																																																																																																																																																						
Subtotal				\$82,273,149																																																																																																																																																																																																																																																																																																						
Non-Energy Benefits Adder (10%)				\$8,227,315																																																																																																																																																																																																																																																																																																						
Subtotal	N/A	\$82,273,149	\$82,273,149	\$90,500,464																																																																																																																																																																																																																																																																																																						
Other Benefits																																																																																																																																																																																																																																																																																																										
Bill Reduction - Electric	\$147,272,229	N/A	N/A	N/A																																																																																																																																																																																																																																																																																																						
Participant Rebates and Incentives	\$17,879,360	N/A	N/A	\$17,879,360																																																																																																																																																																																																																																																																																																						
Incremental Capital Savings	\$0	N/A	N/A	\$0																																																																																																																																																																																																																																																																																																						
Incremental O&M Savings	\$9,716,500	N/A	N/A	\$634,529																																																																																																																																																																																																																																																																																																						
Subtotal	\$174,868,089	N/A	N/A	\$18,513,889																																																																																																																																																																																																																																																																																																						
Total Benefits	\$174,868,089	\$82,273,149	\$82,273,149	\$109,014,352																																																																																																																																																																																																																																																																																																						
COSTS																																																																																																																																																																																																																																																																																																										
Utility Project Costs																																																																																																																																																																																																																																																																																																										
Program Planning & Design	N/A	\$5,425	\$5,425	\$5,425																																																																																																																																																																																																																																																																																																						
Administration & Program Delivery	N/A	\$8,349,386	\$8,349,386	\$8,349,386																																																																																																																																																																																																																																																																																																						
Advertising/Promotion/Customer I	N/A	\$4,582,333	\$4,582,333	\$4,582,333																																																																																																																																																																																																																																																																																																						
Participant Rebates and Incentives	N/A	\$17,879,360	\$17,879,360	\$17,879,360																																																																																																																																																																																																																																																																																																						
Equipment & Installation	N/A	\$0	\$0	\$0																																																																																																																																																																																																																																																																																																						
Measurement and Verification	N/A	\$372,710	\$372,710	\$372,710																																																																																																																																																																																																																																																																																																						
Subtotal	N/A	\$31,189,213	\$31,189,213	\$31,189,213																																																																																																																																																																																																																																																																																																						
Utility Revenue Reduction																																																																																																																																																																																																																																																																																																										
Revenue Reduction - Electric	N/A	N/A	\$110,403,293	N/A																																																																																																																																																																																																																																																																																																						
Subtotal	N/A	N/A	\$110,403,293	N/A																																																																																																																																																																																																																																																																																																						
Participant Costs																																																																																																																																																																																																																																																																																																										
Incremental Capital Costs	\$12,011,348	N/A	N/A	\$9,987,828																																																																																																																																																																																																																																																																																																						
Incremental O&M Costs	\$0	N/A	N/A	\$0																																																																																																																																																																																																																																																																																																						
Subtotal	\$12,011,348	N/A	N/A	\$9,987,828																																																																																																																																																																																																																																																																																																						
Total Costs	\$12,011,348	\$31,189,213	\$141,592,507	\$41,177,041																																																																																																																																																																																																																																																																																																						
Net Benefit (Cost)	\$162,856,741	\$51,083,935	(\$59,319,358)	\$67,837,311																																																																																																																																																																																																																																																																																																						
Benefit/Cost Ratio	14.56	2.64	0.58	2.65																																																																																																																																																																																																																																																																																																						
Lifetime (Weighted on Generator kWh)	A	13 years																																																																																																																																																																																																																																																																																																								
Annual Hours	B	8760																																																																																																																																																																																																																																																																																																								
Gross Customer kW	C	1 kW																																																																																																																																																																																																																																																																																																								
Generator Peak Coincidence Factor	D	22.89%																																																																																																																																																																																																																																																																																																								
Gross Load Factor at Customer	E	7.79%																																																																																																																																																																																																																																																																																																								
Net-to-Gross (Energy)	F	77.9%																																																																																																																																																																																																																																																																																																								
Net-to-Gross (Demand)	G	81.4%																																																																																																																																																																																																																																																																																																								
Transmission Loss Factor (Energy)	H	7.700%																																																																																																																																																																																																																																																																																																								
Transmission Loss Factor (Demand)	I	7.700%																																																																																																																																																																																																																																																																																																								
Installation Rate (Energy)	J	95.0%																																																																																																																																																																																																																																																																																																								
Installation Rate (Demand)	K	99.0%																																																																																																																																																																																																																																																																																																								
MTRC Net Benefit (Cost)	L	\$373																																																																																																																																																																																																																																																																																																								
MTRC Non-Energy Benefit Adder	M	\$45																																																																																																																																																																																																																																																																																																								
Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1 - I)$	0.1999 kW																																																																																																																																																																																																																																																																																																								
Gross Annual kWh Saved at Customer	$(B \times E \times C)$	683 kWh																																																																																																																																																																																																																																																																																																								
Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$	505 kWh																																																																																																																																																																																																																																																																																																								
Net Annual kWh Saved at Generator	$(F \times (B \times E \times C \times J)) / (1 - H)$	547 kWh																																																																																																																																																																																																																																																																																																								
Program Summary per Participant																																																																																																																																																																																																																																																																																																										
Gross kW Saved at Customer	P	0.20 kW																																																																																																																																																																																																																																																																																																								
Net coincident kW Saved at Generator	$(G \times P \times K) \times D / (1 - I)$	0.04 kW																																																																																																																																																																																																																																																																																																								
Gross Annual kWh Saved at Customer	$(B \times E \times P)$	135 kWh																																																																																																																																																																																																																																																																																																								
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J))$	100 kWh																																																																																																																																																																																																																																																																																																								
Net Annual kWh Saved at Generator	$(F \times (B \times E \times P \times J)) / (1 - H)$	109 kWh																																																																																																																																																																																																																																																																																																								
Program Summary All Participants																																																																																																																																																																																																																																																																																																										
Total Participants	Q	915,317																																																																																																																																																																																																																																																																																																								
Total Budget	R	\$31,189,213																																																																																																																																																																																																																																																																																																								
Gross kW Saved at Customer	$(Q \times P)$	181,682 kW																																																																																																																																																																																																																																																																																																								
Net coincident kW Saved at Generator	$((G \times P \times K) \times D / (1 - I)) \times Q$	36,312 kW																																																																																																																																																																																																																																																																																																								
Gross Annual kWh Saved at Customer	$(B \times E \times P) \times Q$	124,011,090 kWh																																																																																																																																																																																																																																																																																																								
Gross Installed Annual kWh Saved at Customer	$(B \times E \times P \times J) \times Q$	117,803,146 kWh																																																																																																																																																																																																																																																																																																								
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J)) \times Q$	91,799,996 kWh																																																																																																																																																																																																																																																																																																								
Net Annual kWh Saved at Generator	$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$	99,458,284 kWh																																																																																																																																																																																																																																																																																																								
TRC Net Benefits with Adder	$(Q \times P \times L)$	\$67,837,311																																																																																																																																																																																																																																																																																																								
TRC Net Benefits without Adder	$(Q \times P \times (L - M))$	\$59,609,996																																																																																																																																																																																																																																																																																																								
Utility Program Cost per kWh Lifetime																																																																																																																																																																																																																																																																																																										
Utility Program Cost per kWh at Gen		\$0.0244																																																																																																																																																																																																																																																																																																								
		\$859																																																																																																																																																																																																																																																																																																								

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

LOW-INCOME PROGRAM TOTAL					2014 ELECTRIC			GOAL
2014 Net Present Cost Benefit Summary Analysis For All Participants					Input Summary and Totals			
	Participant	Utility	Rate	Modified	Program Inputs per Customer kW			
	Test	Test	Impact	TRC	Lifetime (Weighted on Generator kWh)	A		14 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B		8760
Benefits					Gross Customer kW	C		1 kW
Avoided Revenue Requirements					Generator Peak Coincidence Factor	D		12.84%
Generation Capacity	N/A	\$1,159,246	\$1,159,246	\$1,159,246	Gross Load Factor at Customer	E		12.50%
Transmission & Distribution Cap:	N/A	\$266,475	\$266,475	\$266,475	Net-to-Gross (Energy)	F		100.0%
Marginal Energy	N/A	\$3,462,557	\$3,462,557	\$3,462,557	Net-to-Gross (Demand)	G		100.0%
Avoided Emissions (CO2)	N/A	N/A	N/A	\$0	Transmission Loss Factor (Energy)	H		7.338%
Subtotal				\$4,888,279	Transmission Loss Factor (Demand)	I		7.355%
Non-Energy Benefits Adder (25%)				\$1,222,070	Installation Rate (Energy)	J		81.0%
Subtotal	N/A	\$4,888,279	\$4,888,279	\$6,110,349	Installation Rate (Demand)	K		87.0%
					MTRC Net Benefit (Cost)	L		\$395
					MTRC Non-Energy Benefit Adder	M		\$143
Other Benefits					Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1 - I)$		0.1205 kW
Bill Reduction - Electric	\$12,010,205	N/A	N/A	N/A	Gross Annual kWh Saved at Customer	$(B \times E \times C)$		1,095 kWh
Participant Rebates and Incentives	\$2,254,876	N/A	N/A	\$2,254,876	Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$		887 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	Net Annual kWh Saved at Generator	$(F \times (B \times E \times C \times J)) / (1 - H)$		957 kWh
Incremental O&M Savings	\$479,690	N/A	N/A	\$203,899				
Subtotal	\$14,744,771	N/A	N/A	\$2,458,775				
Total Benefits	\$14,744,771	\$4,888,279	\$4,888,279	\$8,569,124				
COSTS					Program Summary per Participant			
Utility Project Costs					Gross kW Saved at Customer	P		0.49 kW
Program Planning & Design	N/A	\$0	\$0	\$0	Net coincident kW Saved at Generator	$(G \times P \times K) \times D / (1 - I)$		0.06 kW
Administration & Program Delivery	N/A	\$374,844	\$374,844	\$374,844	Gross Annual kWh Saved at Customer	$(B \times E \times P)$		533 kWh
Advertising/Promotion/Customer I	N/A	\$237,400	\$237,400	\$237,400	Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J))$		432 kWh
Participant Rebates and Incentives	N/A	\$2,254,876	\$2,254,876	\$2,254,876	Net Annual kWh Saved at Generator	$(F \times (B \times E \times P \times J)) / (1 - H)$		466 kWh
Equipment & Installation	N/A	\$0	\$0	\$0				
Measurement and Verification	N/A	\$74,469	\$74,469	\$74,469				
Subtotal	N/A	\$2,941,590	\$2,941,590	\$2,941,590				
Utility Revenue Reduction					Program Summary All Participants			
Revenue Reduction - Electric	N/A	N/A	\$9,846,197	N/A	Total Participants	Q		17,517
Subtotal	N/A	N/A	\$9,846,197	N/A	Total Budget	R		\$2,941,590
Participant Costs					Gross kW Saved at Customer	$(Q \times P)$		8,534 kW
Incremental Capital Costs	\$2,254,876	N/A	N/A	\$2,254,876	Net coincident kW Saved at Generator	$((G \times P \times K) \times D / (1 - I)) \times Q$		1,029 kW
Incremental O&M Costs	\$0	N/A	N/A	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times P) \times Q$		9,342,333 kWh
Subtotal	\$2,254,876	N/A	N/A	\$2,254,876	Gross Installed Annual kWh Saved at Customer	$(B \times E \times P \times J) \times Q$		7,570,131 kWh
					Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J)) \times Q$		7,570,131 kWh
					Net Annual kWh Saved at Generator	$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$		8,169,590 kWh
					TRC Net Benefits with Adder	$(Q \times P \times L)$		\$3,372,658
					TRC Net Benefits without Adder	$(Q \times P \times (L - M))$		\$2,150,589
Total Costs	\$2,254,876	\$2,941,590	\$12,787,786	\$5,196,466				
					Utility Program Cost per kWh Lifetime			\$0.0254
					Utility Program Cost per kW at Gen			\$2,860
Net Benefit (Cost)	\$12,489,895	\$1,946,689	(\$7,899,507)	\$3,372,658				
Benefit/Cost Ratio	6.54	1.66	0.38	1.65				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

DSM PORTFOLIO - GAS	2014	GAS	GOAL
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2014 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	\$24,697,930	\$24,697,930	\$24,697,930
Variable O&M Savings	N/A	\$144,349	\$144,349	\$144,349
Demand Savings	N/A	\$2,465,949	\$2,465,949	\$2,465,949
Subtotal				\$27,308,227
Emissions Non-Energy Benefits Adder (8.7%)				\$2,370,812
Subtotal	N/A	\$27,308,227	\$27,308,227	\$29,679,040
Other Benefits				
Bill Reduction - Gas	\$37,760,329	N/A	N/A	N/A
Participant Rebates and Incentives	\$7,168,904	N/A	N/A	\$7,168,904
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$45,618,675	N/A	N/A	\$9,269,317
Subtotal	\$90,547,908	N/A	N/A	\$16,438,221
Total Benefits	\$90,547,908	\$27,308,227	\$27,308,227	\$46,117,261

Costs

Utility Project Costs				
Program Planning & Design	N/A	\$128,525	\$128,525	\$128,525
Administration & Program Delivery	N/A	\$3,471,351	\$3,471,351	\$3,471,351
Advertising/Promotion/Customer	N/A	\$580,176	\$580,176	\$580,176
Participant Rebates and Incentives	N/A	\$7,168,904	\$7,168,904	\$7,168,904
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$957,001	\$957,001	\$957,001
Subtotal	N/A	\$12,305,957	\$12,305,957	\$12,305,957
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	\$33,498,649	N/A
Subtotal	N/A	N/A	\$33,498,649	N/A
Participant Costs				
Incremental Capital Costs	\$39,823,834	N/A	N/A	\$18,679,752
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$39,823,834	N/A	N/A	\$18,679,752
Total Costs	\$39,823,834	\$12,305,957	\$45,804,607	\$30,985,709

Net Benefit (Cost)	\$50,724,074	\$15,002,270	(\$18,496,379)	\$15,131,552
Benefit/Cost Ratio	2.27	2.22	0.60	1.49

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	12.81 years
Net-to-Gross (Weighted on Dth)	B	93.74%
Install Rate (Weighted on Dth)	C	90.8%
Program Totals:		
Participants	D	254,415
Average Net Dth/Yr Saved	E	2.45
Total Dth/Yr Saved	F	623,543
Utility Costs per Net Dth/Yr	G	\$19.74
Net Benefit (Cost) per Gross Dth/Yr	H	\$24.27
Non-Energy Benefits Adder per Gross Dth/Yr	I	\$3.80
Annual Dth/\$M	(\$1M / G)	50,670
Total Utility Budget	(G x F)	\$12,305,957
Total MTRC Net Benefits with Adder	(F x H)	\$15,131,552
Total MTRC Net Benefits without Adder	(H - I) x F	\$12,760,739
Utility Program Cost per Net Dth Lifetime	(G / A)	\$1.54

BUSINESS PROGRAM TOTAL	2014	GAS	GOAL
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2014 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	\$7,354,433	\$7,354,433	\$7,354,433
Variable O&M Savings	N/A	\$42,284	\$42,284	\$42,284
Demand Savings	N/A	\$722,354	\$722,354	\$722,354
Subtotal				\$8,119,071
Emissions Non-Energy Benefits Adder (5%)				\$405,954
Subtotal	N/A	\$8,119,071	\$8,119,071	\$8,525,025
Other Benefits				
Bill Reduction - Gas	\$10,759,794	N/A	N/A	N/A
Participant Rebates and Incentives	\$1,027,198	N/A	N/A	\$1,027,198
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$21,617,267	N/A	N/A	\$616,204
Subtotal	\$33,404,259	N/A	N/A	\$1,643,402
Total Benefits	\$33,404,259	\$8,119,071	\$8,119,071	\$10,168,427
Costs				
Utility Project Costs				
Program Planning & Design	N/A	\$0	\$0	\$0
Administration & Program Delivery	N/A	\$508,861	\$508,861	\$508,861
Advertising/Promotion/Customer	N/A	\$11,406	\$11,406	\$11,406
Participant Rebates and Incentives	N/A	\$1,027,198	\$1,027,198	\$1,027,198
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$97,535	\$97,535	\$97,535
Subtotal	N/A	\$1,645,000	\$1,645,000	\$1,645,000
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	\$10,290,480	N/A
Subtotal	N/A	N/A	\$10,290,480	N/A
Participant Costs				
Incremental Capital Costs	\$20,814,218	N/A	N/A	\$5,203,577
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$20,814,218	N/A	N/A	\$5,203,577
Total Costs	\$20,814,218	\$1,645,000	\$11,935,480	\$6,848,577
Net Benefit (Cost)	\$12,590,041	\$6,474,071	(\$3,816,409)	\$3,319,850
Benefit/Cost Ratio	1.60	4.94	0.68	1.48

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	18.00 years
Net-to-Gross (Weighted on Dth)	B	95.72%
Install Rate (Weighted on Dth)	C	100.0%
Program Totals:		
Participants	D	1,522
Average Net Dth/Yr Saved	E	84.25
Total Dth/Yr Saved	F	128,224
Utility Costs per Net Dth/Yr	G	\$12.83
Net Benefit (Cost) per Gross Dth/Yr	H	\$25.89
Non-Energy Benefits Adder per Gross Dth/Yr	I	\$3.17
Annual Dth/\$M	(\$1M / G)	77,948
Total Utility Budget	(G x F)	\$1,645,000
Total MTRC Net Benefits with Adder	(F x H)	\$3,319,850
Total MTRC Net Benefits without Adder	(H - I) x F	\$2,913,896
Utility Program Cost per Net Dth Lifetime	(G / A)	\$0.71

RESIDENTIAL PROGRAM TOTAL	2014	GAS		GOAL
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2014 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	\$12,115,427	\$12,115,427	\$12,115,427
Variable O&M Savings	N/A	\$70,351	\$70,351	\$70,351
Demand Savings	N/A	\$1,201,817	\$1,201,817	\$1,201,817
Subtotal				\$13,387,595
Emissions Non-Energy Benefits Adder (5%)				\$669,380
Subtotal	N/A	\$13,387,595	\$13,387,595	\$14,056,974
Other Benefits				
Bill Reduction - Gas	\$19,649,118	N/A	N/A	N/A
Participant Rebates and Incentives	\$3,352,150	N/A	N/A	\$3,352,150
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$20,137,888	N/A	N/A	\$7,010,871
Subtotal	\$43,139,157	N/A	N/A	\$10,363,021
Total Benefits	\$43,139,157	\$13,387,595	\$13,387,595	\$24,419,995
Costs				
Utility Project Costs				
Program Planning & Design	N/A	\$0	\$0	\$0
Administration & Program Delivery	N/A	\$1,344,192	\$1,344,192	\$1,344,192
Advertising/Promotion/Customer	N/A	\$111,605	\$111,605	\$111,605
Participant Rebates and Incentives	N/A	\$3,352,150	\$3,352,150	\$3,352,150
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$520,740	\$520,740	\$520,740
Subtotal	N/A	\$5,328,687	\$5,328,687	\$5,328,687
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	\$16,207,833	N/A
Subtotal	N/A	N/A	\$16,207,833	N/A
Participant Costs				
Incremental Capital Costs	\$16,468,460	N/A	N/A	\$10,935,020
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$16,468,460	N/A	N/A	\$10,935,020
Total Costs	\$16,468,460	\$5,328,687	\$21,536,521	\$16,263,707
Net Benefit (Cost)	\$26,670,696	\$8,058,907	(\$8,148,926)	\$8,156,288
Benefit/Cost Ratio	2.62	2.51	0.62	1.50

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	16.50 years
Net-to-Gross (Weighted on Dth)	B	90.62%
Install Rate (Weighted on Dth)	C	86.2%
Program Totals:		
Participants	D	69,939
Average Net Dth/Yr Saved	E	3.49
Total Dth/Yr Saved	F	244,306
Utility Costs per Net Dth/Yr	G	\$21.81
Net Benefit (Cost) per Gross Dth/Yr	H	\$33.39
Non-Energy Benefits Adder per Gross Dth/Yr	I	\$2.74
Annual Dth/\$M	(\$1M / G)	45,847
Total Utility Budget	(G x F)	\$5,328,687
Total MTRC Net Benefits with Adder	(F x H)	\$8,156,288
Total MTRC Net Benefits without Adder	(H - I) x F	\$7,486,909
Utility Program Cost per Net Dth Lifetime	(G / A)	\$1.32

LOW-INCOME PROGRAM TOTAL	2014	GAS	GOAL
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2014 Net Present Cost Benefit Summary Analysis For All Participants

Input Summary and Totals

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
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Program Assumptions:		
Lifetime (Weighted on Dth)	A	17.22 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	89.8%

Benefits

Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	\$4,551,822	\$4,551,822	\$4,551,822
Variable O&M Savings	N/A	\$26,277	\$26,277	\$26,277
Demand Savings	N/A	\$448,905	\$448,905	\$448,905
Subtotal				\$5,027,005
Emissions Non-Energy Benefits Adder (25%)				\$1,256,751
Subtotal	N/A	\$5,027,005	\$5,027,005	\$6,283,756

Program Totals:		
Participants	D	17,515
Average Net Dth/Yr Saved	E	4.93
Total Dth/Yr Saved	F	86,272
Utility Costs per Net Dth/Yr	G	\$38.34
Net Benefit (Cost) per Gross Dth/Yr	H	\$53.53
Non-Energy Benefits Adder per Gross Dth/Yr	I	\$14.57
Annual Dth/\$M	(\$1M / G)	26,084
Total Utility Budget	(G x F)	\$3,307,421
Total MTRC Net Benefits with Adder	(F x H)	\$4,618,578
Total MTRC Net Benefits without Adder	(H - I) x F	\$3,361,827
Utility Program Cost per Net Dth Lifetime	(G / A)	\$2.23

Other Benefits				
Bill Reduction - Gas	\$6,440,441	N/A	N/A	N/A
Participant Rebates and Incentives	\$2,541,156	N/A	N/A	\$2,541,156
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$3,863,519	N/A	N/A	\$1,642,243
Subtotal	\$12,845,116	N/A	N/A	\$4,183,398

Total Benefits	\$12,845,116	\$5,027,005	\$5,027,005	\$10,467,154
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Costs

Utility Project Costs				
Program Planning & Design	N/A	\$0	\$0	\$0
Administration & Program Delivery	N/A	\$478,956	\$478,956	\$478,956
Advertising/Promotion/Customer	N/A	\$211,600	\$211,600	\$211,600
Participant Rebates and Incentives	N/A	\$2,541,156	\$2,541,156	\$2,541,156
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$75,709	\$75,709	\$75,709
Subtotal	N/A	\$3,307,421	\$3,307,421	\$3,307,421

Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	\$6,089,358	N/A
Subtotal	N/A	N/A	\$6,089,358	N/A

Participant Costs				
Incremental Capital Costs	\$2,541,156	N/A	N/A	\$2,541,156
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$2,541,156	N/A	N/A	\$2,541,156

Total Costs	\$2,541,156	\$3,307,421	\$9,396,779	\$5,848,576
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Net Benefit (Cost)	\$10,303,960	\$1,719,584	(\$4,369,774)	\$4,618,578
Benefit/Cost Ratio	5.05	1.52	0.53	1.79

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Appendix A – List of Acronyms

Acronym	Meaning
ACEE	American Council for an Energy Efficient Economy
AFUE	Annual Fuel Utilization Efficiency
ASHRAE	American Society of Heating Refrigeration & Air Conditioning Engineers
BOMA	Building Owners and Managers Association
BSC	Business Solutions Center
CE (Minnesota)	Center for Energy and the Environment
CE (Boston)	Consortium for Energy Efficiency
CFL	Compact Fluorescent Light Bulb
CFM	Cubic Feet Per Minute
CPUC	Colorado Public Utilities Commission
DOE	Department of Energy
DSM	Demand-Side Management
DSMCA	Demand-Side Management Cost Adjustment
EEBC	Energy Efficiency Business Coalition
EER	Energy Efficiency Ratio
EF	Energy Factor
EIA	Energy Information Administration
EMS	Energy Management System
EM&V	Evaluation, Measurement & Verification
EOC	Energy Outreach Colorado
EPA	Environmental Protection Agency
ESCO	Energy Services Company
GAMA	Gas Appliance Manufacturer’s Association
GEO	Governor’s Energy Office
GPM	Gallons per Minute
HERS	Home Energy Rating System
HVAC	Heating, Ventilation, and Air Conditioning
IPMVP	International Performance Measurement and Verification Protocol
LIHEAP	Low-Income Home Energy Assistance Program
M&V	Measurement and Verification
NAIOP	National Association of Industrial and Office Properties
NEEP	Non-Profit Energy Efficiency Initiative
NEMA	National Electrical Manufacturers Association
NTG	Net-to-gross
O&M	Operations and Maintenance
RAP	Resource Action Programs
RESNET	Residential Energy Services Network
SEER	Seasonal Energy Efficiency Ratio
TRC	Total Resource Cost Test
VFD	Variable Frequency Drive

➤ **Appendix B – Product Ranking**

DSM Product rankings are established by determining market segments that could participate in the product, customer classes available, total projected savings, cost effectiveness, and participation rates (as a number and a percent of the market). This ranking is a requirement from Gas Rules 723-4, Docket No. 07R-371G. The tables below show the 2014 Product rankings.

Colorado 2014 DSM Products	Product Ranking
Home Lighting & Recycling	1
Lighting Efficiency	2
School Education Kits	3
Motor & Drive Efficiency	4
Commercial Refrigeration Efficiency	5
Computer Efficiency	6
Cooling Efficiency	7
Energy Savings Kit	8
Showerhead	9
Evaporative Cooling Rebates	10
Small Business Lighting	11
Energy Management Systems	12
Refrigerator Recycling	13
Data Center Efficiency	14
Recommissioning	15
New Construction	16
Process Efficiency	17
Custom Efficiency	18
Saver's Switch	19
ENERGY STAR New Homes	20
Single-Family Weatherization	21
Self-Directed Custom Efficiency	22
Heating System Rebates	23
Insulation	24
Segment Efficiency	25
Compressed Air Efficiency	26
Pool Pump	27
High Efficiency Air Conditioning	28
Heating Efficiency	29
Home Performance with ENERGY STAR	30
Water Heater Rebate	31
Non-Profit Energy Efficiency	32
Multi-Family Weatherization	33

➤ Appendix C -- Avoided Cost Assumptions

The following sections summarize the avoided cost assumptions Public Service has made in order to perform the cost-effectiveness tests for electric and gas programs, and for which the Company is asking for approval of for use in the status reports and incentives calculations for 2014 achievements.

Electric Programs

In order to determine the cost-effectiveness of its electric energy efficiency and load management programs, Public Service must first calculate the avoided generation, transmission, distribution, and marginal energy costs these programs avoid. Below are tables showing the avoided cost assumptions used in this plan.

1. Estimated Annual Avoided Generation Capacity Costs (Source: Public Service Resource Planning)

Capacity costs reflect current generic capacity cost estimates used in Phase II of the Public Service Company of Colorado's 2011 Electric Resource Plan (Docket No. 11A-869E) for the two types of avoided electric generation – a gas-fired combustion turbine (CT) and a gas-fire combined-cycle plant (CC).

	CT	CC		CT	CC
Year	Gen Capacity \$/kW-mo	Gen Capacity \$/kW-mo	Year	Gen Capacity \$/kW-mo	Gen Capacity \$/kW-mo
2014	\$7.41	\$9.06	2024	\$9.41	\$11.28
2015	\$7.59	\$9.26	2025	\$9.64	\$11.53
2016	\$7.78	\$9.47	2026	\$9.87	\$11.79
2017	\$7.96	\$9.68	2027	\$10.11	\$12.05
2018	\$8.16	\$9.89	2028	\$10.35	\$12.32
2019	\$8.36	\$10.11	2029	\$10.59	\$12.59
2020	\$8.56	\$10.33	2030	\$10.85	\$12.87
2021	\$8.76	\$10.56	2031	\$11.11	\$13.16
2022	\$8.98	\$10.80	2032	\$11.37	\$13.45
2023	\$9.19	\$11.04	2033	\$11.64	\$13.75

2. Estimated Annual Avoided Transmission and Distribution Capacity Costs (Source: Public Service Resource Planning)

A 2014 start value is based on the Phase I of the Public Service Company of Colorado’s 2011 Electric Resource Plan (Docket No. 11A-869E) in which an assumed Transmission upgrade of \$28.40/kW-yr was applied to the cost of a CC. This value is a leveled value and is not escalated.

3. Estimated Annual Avoided Marginal Energy Costs (Source: Public Service Resource Planning and Quantitative Risk Services)

Avoided marginal energy costs reflect a March 2013 assumed gas forecast and heat rates used in Phase II of the Public Service Company of Colorado’s 2011 Electric Resource Plan (Docket No. 11A-869E) for the two types of avoided electric generation – a CT and a CC.

	CT	CC		CT	CC
Year	Marginal Energy \$/MWh	Marginal Energy \$/MWh	Year	Marginal Energy \$/MWh	Marginal Energy \$/MWh
2014	\$60.09	\$35.58	2024	\$91.41	\$55.69
2015	\$61.69	\$36.57	2025	\$94.15	\$57.42
2016	\$63.28	\$37.54	2026	\$96.66	\$59.00
2017	\$66.04	\$39.31	2027	\$98.67	\$60.24
2018	\$69.86	\$41.79	2028	\$100.67	\$61.47
2019	\$74.11	\$44.55	2029	\$103.37	\$63.17
2020	\$77.92	\$47.02	2030	\$105.63	\$64.58
2021	\$81.01	\$49.00	2031	\$107.50	\$65.71
2022	\$84.03	\$50.93	2032	\$109.67	\$67.04
2023	\$88.83	\$54.06	2033	\$112.08	\$68.54

4. Estimated Annual Avoided Emissions Costs (includes CO₂) (Source: Public Service Resource Planning)

In the Public Services Company of Colorado’s 2012 Renewable Energy Standard Compliance Plan (Docket No. 11A-418E), the base-case assumed zero cost for CO₂ emissions. For this reason, this value is set to \$0 for all future years.

Gas Programs

In order to determine the cost-effectiveness of its gas programs, Public Service must calculate the avoided commodity cost of gas, avoided capacity costs and any avoided variable O&M costs associated with the gas energy efficiency savings. Below are tables showing the avoided cost assumptions used in this Plan.

1. Estimated Commodity Cost of Gas (Source: Public Service Gas Resource Planning)

The following table outlines the current gas price forecast as of April 2013 using a market snapshot for short-term prices and a quantitative average of projections from well-known forecasting services for the long-term forecast prices.

Year	\$/Dth	Year	\$/Dth
2014	\$4.11	2024	\$6.84
2015	\$4.25	2025	\$7.07
2016	\$4.38	2026	\$7.28
2017	\$4.60	2027	\$7.45
2018	\$4.94	2028	\$7.62
2019	\$5.31	2029	\$7.85
2020	\$5.65	2030	\$8.04
2021	\$5.92	2031	\$8.18
2022	\$6.18	2032	\$8.36
2023	\$6.60	2033	\$8.56

2. Estimated Avoided Variable O&M Costs (Source: Public Service Pricing and Planning)

The company used the following value provided by the Company’s Pricing and Planning department to determine variable O&M costs avoided with a reduction in gas usage.

Year	\$/Dth
2014-2033	\$0.05

4. Estimated Annual Avoided Reservation Costs (used to estimate capacity savings – Peak Day Dth savings estimated as 1% of annual Dth savings) (Source: Public Service Gas Resource Planning)

The following annual avoided reservation costs was used to determine the cost of service to transport incremental gas supplies to the metropolitan Denver area. The Company uses the CIG firm transportation rate to estimate this cost.

Year	\$/Dth
2014-2033	\$56.37

➤ **Appendix D – Budget Categories**

The following chart indicates how projected DSM expenditures are divided between the budget categories.

- | ▪ Budget Category | ▪ Components |
|-----------------------------|--|
| ▪ Product Planning & Design | <ul style="list-style-type: none"> ▪ • Labor for product development and product managers. ▪ • Expenditures related to product development, product planning and design. |
| ▪ Administration & Product | <ul style="list-style-type: none"> ▪ • Labor for product managers, sales representatives, call center, rebate processing, technical consulting, and other |
| ▪ Delivery | <ul style="list-style-type: none"> ▪ fulfillment activities associated with delivering a product directly to the customer. |
| ▪ | <ul style="list-style-type: none"> ▪ • Labor for installation contractors, vendors, technical consultants, fulfillment contractors and alternative providers that Xcel Energy contracts with to provide DSM services. |
| ▪ | <ul style="list-style-type: none"> ▪ • Project fulfillment, implementation and program support activities associated with delivering a program directly to the customer. |
| ▪ Advertising, Promotions & | <ul style="list-style-type: none"> ▪ • Labor for communication staff and others. |
| ▪ Customer Education | <ul style="list-style-type: none"> ▪ • TV, radio, newspaper and print media; direct promotion and sales support materials; postage, promotional events; contracted outbound telephone sales. |
| ▪ | <ul style="list-style-type: none"> ▪ • Customer education through seminars, pamphlets, videos, and computer games. |
| ▪ Incentives | <ul style="list-style-type: none"> ▪ • Customer rebates, finance interest subsidies, subsidies for engineering studies, trade incentives, and incentives given in the form of subsidized products or |
| ▪ | |

equipment.

- Equipment & Installation
 -
- Measurement & Verification
 -
 - • The costs to purchase energy efficient equipment and to install efficient equipment at the customer site.
 - • Labor for market research and load research.
 - • Labor product development staff, product development
 - external consultants, product development research activities.
 - • Customer surveys, program evaluation expenses.

➤ **Appendix E – Natural Gas DSM \$/Therm and Acknowledgement of Lost Revenue Methodology**

The Company proposes the following dollar per therm values applicable to natural gas DSM programs provided to its residential and non-residential customers, respectively:

Proposed Dollar per Therm Values for the DSMCA factors to be effective January 1, 2014:

DTVR = \$0.08401
DTVNR = \$0.10238

The dollar per therm values proposed in this motion have been used to calculate the lost revenues sought to be recovered through the Gas-Demand Side Management Cost Adjustment (G-DSMCA) filed on July 1, 2013 to be effective January 1, 2014. The methodology for calculating the dollar per therm values set forth above follows.

The following methodology is proposed for calculation of the Dollar per Therm Values (DTV) that are required to calculate the Acknowledgement of Lost Revenue (ALR) value in accordance with Public Service gas Demand-Side Management Cost Adjustment (DSMCA). Two dollar per therm values are required, one for residence service, which is herein labeled “DTVR”, and one for non residence service, which is herein labeled “DTVNR”..

Calculation of the Residence Service Dollar per Therm Value (DTVR):

Calculation Components:

1. Residential Base Rate per Therm (RBR)
2. Variable Cost per Therm (VCT)

Formula: $DTVR = RBR \text{ minus } VCT$

Calculation of the Non Residence Service Dollar per Therm Value (DTVNR):

Calculation Components:

1. Commercial Small Gas Service Base Rate per Therm (CSGBR)
2. Commercial Large Gas Service Base Rate per Therm (CLGBR)
3. Interruptible Industrial Gas Service Base Rate per Therm (IGBR)
4. CSG Sales (CSGS)
5. CLG Sales (CLGS)
6. IG Sales (IGS)
7. Total of CSG + CLG + IG Sales (TS)
8. Variable Cost per Therm (VCT)

Formula: $DTVNR = \{ [CSGBR \text{ times } (CSGS/TS)] + [CLGBR \text{ times } (CLGS/TS)] + [IGBR \text{ times } (IGS/TS)] \} \text{ minus } VCT$

Calculation of the Variable Cost per Therm (VCT)

[Note: the VCT is the same for both the DTVR and DTVNR formula]:

Calculation Components:

1. Total Variable Costs (VC)

2. Weather Normalized throughput in Therms (WNT)
Formula: $VCT = VC/WNT$

Proposed Dollar per Therm Values for the DSMCA factors to be effective January 1, 2014:

DTVR = \$0.08401
DTVNR = \$0.10238

As stipulated in Service Company's gas tariff, these Dollar per Therm Values are applied to the gas DSMCA factor calculations as follows:

“The RDSM ALR Value is the sum of multiplying the dollar per therm value, as approved by the Commission for residential service, (DTVR) times the annual number of therms lost from all residential programs executed during the program year under consideration.

“The NDSMCA ALR Value is the sum of multiplying the dollar per therm value, as approved by the Commission for non residential services (DTVNR), times the annualized number of therms lost from all non residential programs executed during the program year under consideration.”

➤ **Appendix F – Technical Assumption and Net-to-Gross Review**

The Colorado Net-to-Gross Review is the final report on net-to-gross ratio recommendations provided to the Company by a third-party consultant.

To meet the Company's obligations under the Settlement Agreement in Docket No. 11A-631EG, the Company engaged a third-party to perform an engineering, literature, and benchmarking review of the technical assumptions and net-to-gross ratios it uses to determine energy savings in the 2012-13 DSM Plan.

The Company's response to the recommendations is attached to the report.

Colorado Net-to-Gross Review

June 2013

Xcel Energy
414 Nicollet Mall
Minneapolis | MN 55401

Michaels No.: X8312AAN

p 608.785.1900 | 400 Main Street, Suite 200 | La Crosse, WI 54601



MichaelsEnergy

www.michaelsenergy.com

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Background

The Public Service Company of Colorado (the Company) filed the 2012-13 demand side management (DSM) plan in Docket No. 11A-631EG. Several parties raised issues regarding this filing, and an agreement was reached and approved as the Settlement Agreement in Docket No. 11A-631EG. As a part of this Settlement Agreement,

the Company agrees to expand its ongoing M&V with respect to its prescriptive programs commencing in 2012 and continuing through 2013 in order to gather information from program participants regarding the extent to which such participants would have undertaken such energy saving actions in the absence of the rebate provided by the Company (participant free-ridership). This information will be used *together with certain benchmarking information* [emphasis added] gathered as part of the Company's comprehensive review of technical assumptions . . . to determine whether any changes should be made to the net-to-gross ratios used by the company in the next DSM plan.

To meet the Company's obligations under the settlement agreement, the Company retained Michaels Energy as an independent third party consultant to conduct a benchmarking review of the programs included in the 2012-13 DSM program. Michaels Energy has undergone a thorough review of industry literature and recent evaluation reports of similar utility sponsored energy efficiency programs to determine whether any changes should be made to the net-to-gross ratios in the next DSM filing. This report, along with the included appendix, includes the recommendations and supporting documentation for the Company regarding suggested changes to the net-to-gross ratios to be used in the next DSM filing. Low income prescriptive measures were not included in this review, as the Company meets the industry standard, and applies a 1.0 NTG ratio for low income programs.

Method

Net-to-gross ratios for individual measures are difficult to assess and are influenced by many factors, including geography and climate, program age, incentive levels, and regional penetration rates of specific energy savings technology, among others. This, along with the relative lack of publicly available NTG ratios derived from primary data collection, makes it difficult to reach definitive conclusions about what constitutes an appropriate range of NTG ratio for a specific program or measure. In light of these difficulties, to assess the reasonableness of the current NTG ratios used by the Company in the 2012-13 DSM program, these ratios were compared to other similar NTG ratios derived from primary research that included the impact of free-riders. Prevailing trends and industry standards were also considered as part of the benchmarking review. Finally, significant weight was given to prior, recent evaluation reports conducted on the Company's DSM programs since 2009. These evaluation reports included primary data from the Company's service territory, and hence provide strong evidence about free-ridership and other NTG factors for the Company's DSM program measures.

Michaels Energy has examined each measure and measure group to assess the reasonableness of the NTG ratios currently in use. For each measure, the type of technology and incentive level provided by the utility was determined. The existing NTG ratios for these measures were then compared to prior Company evaluation reports, and other publicly available NTG ratios for similar measures. The comparison group of NTG ratios were taken from programs that used primary data collection and considered free-ridership to derive their NTG ratios. The Company also provided internal survey data to Michaels Energy to assist in the review of the NTG ratios. This survey data was used qualitatively, as the total number of data points available at the time of this review was limited, to help assess the current NTG ratios. Industry literature and trends were also used to assess the reasonableness of NTG ratios when appropriate.

For each prescriptive measure examined, Michaels Energy made one of three recommendations based on the preponderance of the examined publicly available evidence.

- There is not enough evidence to support changing the existing NTG ratio
- Keep the current NTG ratio
- Change the current NTG ratio

Michaels Energy found that there was not enough evidence to support changing the NTG ratio when two criteria were met. The first was a lack of consensus in the publicly available data about what an appropriate NTG ratio for a specific measure should be, or when the data did not seem applicable to the measures incented in the Company's service area. The second was when the industry literature and prevailing industry practice did not provide enough evidence to support changing the existing NTG ratio.

Michaels Energy recommended that the Company keep the current NTG ratio when it was in line with existing evaluation reports, similar programs' NTG ratios, and current industry practice.

Finally, Michaels Energy recommended that the Company change the current NTG ratio when a preponderance of the evidence indicated that the current NTG ratio was not appropriate. When Michaels Energy suggested a change to the NTG ratio, it also provided the Company with the rationale behind that recommendation.

Sources

Three primary data sources were used to assess the reasonableness of the Company's current NTG ratios. The first were the recent evaluation reports provided to the Company as part of ongoing evaluation, measurement, and verification activities. A list of these evaluation reports is provided below in Table 1. Publicly available evaluation reports for other jurisdictions with similar programs were also used in this benchmarking exercise. A list of these sources is included in Table 2. Finally, in some instances when the publicly available data was not conclusive, limited weight was given to general industry sources, trends, and practices.

TABLE 1: RECENT EVALUATION REPORTS FOR COMPANY PROGRAMS

Sector	Program	Program Year Evaluated
Business	Cooling Efficiency	2009
Business	Lighting Efficiency	2009
Business	Motor & Drive Efficiency	2010
Business	SB Lighting Efficiency	2009
Business	Heating Efficiency	2011
Residential	Energy Efficient Showerhead	2011
Residential	Evaporative Cooling Rebates	2010
Residential	HEAC Rebate	2012
Residential	Home Lighting & Recycling	2009
Residential	Heating System Rebate (gas)	2011
Residential	Savers Switch	2009

TABLE 2: OUTSIDE SOURCE LIST

References
2009-2010 Cool Utah Cash Program Evaluation
2012 MA RR and LL evaluation report
Act on Energy Business Program Evaluation PY 2011
Ameren Appliance Recycling PY2 Evaluation
Annual Report to the Pennsylvania PUC Program Year 3
Annual Report to the Pennsylvania PUC for Program Year 1
Arizona Public Service DSM Progress report 2011, July - December 2011
Average value, depends on measure; Focus on Energy HPwES PY 2011 Evaluation Report
Avista Northwest Non-residential 2011 Evaluation Report
California Investor-Owned Utilities Construction Program Evaluation for Program Years 2006-2008
Consumers Energy PSC case U-16670
CPUC 2010 Upstream Lighting Report Final Evaluation
CPUC Residential Retrofit High Impact Measures Evaluation Report 2009 Program Year
CT Energy Efficiency Fund 2011 Report of the Energy Efficiency Board
Deer 2011
Delaware State Energy Efficiency Programs EM&V report, 2013
Efficiency Maine 2011 HES Evaluation Report
Efficiency Maine Trust HEwES Final Evaluation Report, 2011
Energy - Efficiency Portfolio Evaluation Report 2012 Program Year
Energy Trust of Oregon Business Energy Solutions Evaluation Report
EPA: Next Generation Lighting Programs: Opportunities to Advance Efficiency Lighting for a Cleaner
Focus on Energy 2012 Calendar Year Evaluation Report Volume II
Focus on Energy Territory Wide and Community Pilot Program Evaluation Report Program Year 2011
Idaho Power 2009 Potential Study
Idaho Power Demand Side Management 2012 Annual Report
Impact and Process Evaluation of Ameren Illinois Company's Residential HVAC Program (PY4
Massachusetts Program Administrators (PAs) 2010 Residential New Construction (RNC) programs, Commercial and Industrial (C&I) programs, and Multi-family Retrofit and Residential High Efficiency Heating and Water Heating (HEHE) programs. 2010
New Jersey Clean Energy Program Residential HVAC impact evaluation, 2009
North and South Carolina Smart saver 2011 Evaluation Report
NV Docket No.12-06 Volume 8
NV Energy 2011 Residential Lighting Evaluation
NYSERDA 2007-2008 HPwES impact evaluation
NYSERDA Gas Efficiency Program Evaluation Report
NYSERDA Industrial and Process Efficiency Program Impact Evaluation 2009-2010
NYSERDA New Construction Evaluation Report 2011
NYSERDA Results of the Multi-State CFL Modeling Effort
Pacific Power Washington 2009-2010 Residential Home Energy Savings Evaluation
Pacificorp Rocky Mountain Power Idaho See-ya-later Refrigerator evaluation 2009-2010
Pennsylvania PUC annual report for PY1 in May 2010
Rhode Island TRM 2013
Rocky Mountain Power HES evaluation report

Findings

Table 3 lists the findings for each measure and measure group examined as part of the benchmarking exercise. On the whole, most of the NTG ratios currently in use are in line with the Company's recent evaluation findings, and other similar programs that consider free-riders and rely on primary data collection to set their NTG ratios. Michaels recommended changes to the NTG ratios of some measures in five programs; Business Heating, Motors and Drives, Residential Evaporative Cooling, Residential High Efficiency Air Conditioning, and Residential Lighting. The rationale for these changes is provided in the table below.

TABLE 3: FINDINGS

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Business	Compressed Air	Average Study - Efficiency	0.87	Recommend keeping current NTG value	None	None	None
Business	Compressed Air	No Air Loss Drain Valves	0.87	Recommend keeping current NTG value	None	None	None
Business	Compressed Air	New VFD Compressors < 50 hp	0.87	Recommend keeping current NTG value	None	None	None
Business	Compressed Air	Replacement VFD Compressors < 50 hp	0.87	Recommend keeping current NTG value	None	None	None
Business	Computer Efficiency	Desktop PC; Energy Star 5.0 with 80 plus Bronze level power supply	0.88	Not enough evidence to support a change to the NTG value	None	None	None
Business	Computer Efficiency	Desktop PC; Energy Star 5.0 with 80 plus Silver level power supply	0.88	Not enough evidence to support a change to the NTG value	None	None	None
Business	Computer Efficiency	Desktop PC; Energy Star 5.0 with 80 plus Gold level power supply	0.88	Not enough evidence to support a change to the NTG value	None	None	None
Business	Computer Efficiency	Desktop PC; Energy Star 5.0 with 80 plus Platinum level power supply	0.88	Not enough evidence to support a change to the NTG value	None	None	None
Business	Computer Efficiency	Thin-client or Zero-client solution, 1 device per 1 desktop	0.92	Not enough evidence to support a change to the NTG value	None	None	None
Business	Cooling Efficiency	RTUs	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling Efficiency	Split Systems < 5.4 tons	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling Efficiency	Cond Unit > 5.4 tons	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling Efficiency	Water-source Heat Pump	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling Efficiency	PTAC	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling Efficiency	Chiller Scroll-Screw	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling Efficiency	Centrifugal Chiller	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling	Air-cooled Chiller	0.80	Recommend keeping	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
	Efficiency			current NTG value			
Business	Cooling Efficiency	Advanced Evaporative Cooler	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling Efficiency	Chiller VSD	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling Efficiency	Water-side economizer	0.80	Recommend keeping current NTG value	None	None	None
Business	Cooling Efficiency	Cooling Studies	0.80	Recommend keeping current NTG value	None	None	None
Business	Heating Efficiency (Gas)	Hot Water Boiler: Plan A: 85%	0.97	Recommend Changing the NTG value	0.86	-0.11	This measure provides for rebates for replacement of a hot water boiler, or installation of a new hot water boiler where one was not originally present, for certain boilers with greater than 85 percent efficient boilers. The current NTG value in use during the 2012/13 program year, and supplied in the post-settlement deemed savings workbooks is 0.97. The current value of 0.97 is well above the industry average for programs that rely on primary data collection to set NTG values. Examination of three other programs showed an average NTG value of just under 0.76. Additionally, the evaluation report on the 2011 Heating Efficiency measures suggested a NTG value of 0.86 for this program moving forward. It should be noted that the evaluation report was not able to include a large number of Plan B boilers in the study. It is the opinion of Michaels Energy that enough evidence exists in industry literature, other program values, and the 2011 evaluation report to recommend a change in the NTG value for this measure. Michaels recommends that Xcel adopt the 2011 evaluation report recommended value of 0.86 for this measure in future program years. Existing values may be reasonable for other boiler measures with higher minimum efficiency requirements.
Business	Heating Efficiency (Gas)	Hot Water Boiler: Plan A: 92%	0.97	Not enough evidence to support a change to the NTG value	None	None	None
Business	Heating Efficiency (Gas)	Hot Water Boiler: Plan B: 92%	0.97	Not enough evidence to support a change to the NTG value	None	None	None
Business	Heating Efficiency (Gas)	Furnace greater than 150,000 BTU/h and greater than 92% efficiency	0.77	Keep Current NTG Value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Business	Heating Efficiency (Gas)	Furnace greater than 150,000 BTUH and greater than 94% efficiency	0.77	Keep Current NTG Value	None	None	None
Business	Heating Efficiency (Gas)	Water Heaters	0.97	Recommend Changing the NTG value	0.86	-0.11	This measure provides rebates for tankless or storage tank water heaters with a minimum efficiency of 92 percent, among other criteria. The current NTG value in use during the 2012/13 program year, and supplied in the post-settlement deemed savings workbooks is 0.97. The current value of 0.97 is well above the industry average for programs that rely on primary data collection to set NTG values. Examination of three other programs showed an average NTG value of just under 0.76. Additionally, the evaluation report on the 2011 Heating Efficiency measures suggested a NTG value of 0.86 for this program moving forward. While the Xcel evaluation report only sampled a small number of total water heater projects in the 2011 program year, the values for this measure seem high in light of the prevailing industry standards. Michaels recommends a NTG of 0.86 for this measure in future program years.
Business	Heating Efficiency (Gas)	Pipe Insulation	0.61	Recommend Changing the NTG value	0.71	0.10	This measure provides for rebates for the installation of pipe insulation for boiler or hot water pipes. The current NTG value in use during the 2012/13 program year, and supplied in the post-settlement deemed savings workbooks is 0.61. Little industry data exists on the realization rates for pipe insulation measures. The Database for Energy Efficient Resources (DEER) provides perhaps the best estimation of NTG values for pipe insulation. The DEER values are used for program planning in California, which has very progressive and well-established energy efficiency programs. The DEER NTG value for pipe insulation measures from the 2011 Update of the Net-to-Gross Tables provides a NTG value of 0.71. Examination of three other programs showed an average NTG value of just under 0.76 for heating efficiency programs generally, but the weight and specific NTG values for pipe insulation measures could not be identified. The evaluation report on the 2011 Heating Efficiency measures suggested a NTG value of 0.86 for all Heating Efficiency programs moving forward. It is the opinion of Michaels Energy that enough evidence exists from the DEER values, and the 2011 evaluation report to recommend a change in

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
							the NTG value for this measure. Michaels recommends that Xcel adopt the 2011 DEER value of 0.71 for this measure in future program years.
Business	Heating Efficiency (Gas)	Boiler Tune-Ups	0.97	Not enough evidence to support a change to the NTG value	None	None	None
Business	Heating Efficiency (Gas)	Modular burner controls > 5:1 turndown ratio	0.97	Not enough evidence to support a change to the NTG value	None	None	None
Business	Heating Efficiency (Gas)	Outdoor air reset controls	0.97	Not enough evidence to support a change to the NTG value	None	None	None
Business	Heating Efficiency (Gas)	Stack dampers	0.97	Not enough evidence to support a change to the NTG value	None	None	None
Business	Heating Efficiency (Gas)	Steam trap replacements	0.97	Not enough evidence to support a change to the NTG value	None	None	None
Business	Lighting Retrofit	T8 Ballasts, 4 ft. or less, 1 and 2 lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T8 Ballasts, 4 ft. or less, 3 and 4 lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T8 Ballasts, Length > 4 ft. and <= 8 ft., 1 lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T8 Ballasts, Length > 4 ft. and <= 8 ft., 1 lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T8 to T8 Delamping	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T8 Optimization 1 and 2 Lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T8 Optimization 3 and 4 Lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T5 Ballasts 1 and 2 Lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T5 Ballasts 3 and 4 Lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	CFL < 19 W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	CFL, 19 W to 32 W	0.84	Recommend keeping current NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Business	Lighting Retrofit	CFL, 33 W to 56 W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Industrial Multi-CFL	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	HID, 151 W to 250 W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	HID, 250 W to 1000 W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Pulse Start Metal Halide <= 175 W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Pulse Start Metal Halide, 175 W to 319 W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Pulse Start Metal Halide, 320 W to 749 W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Pulse Start Metal Halide, 750+ W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Parking Garages	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	High Bay Fluorescents replacing 250 Watt Metal Halide	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	High Bay Fluorescents replacing 400 Watt Metal Halide	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	High Bay Fluorescents replacing 750 Watt Metal Halide	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	High Bay Fluorescents replacing 1000 Watt Metal Halide	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Wall mount occupancy sensor	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Ceiling mount occupancy sensor	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Photocell	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Exit sign retrofit and replacement	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Low Wattage T8 4' lamps	0.84	Recommend keeping current NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Business	Lighting Retrofit	Integrated 25W Ceramic Metal Halide	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Ceramic Metal Halide <=150W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Ceramic Metal Halide 151-250W	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	Ceramic Metal Halide 251W-	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T12 to T8 with delamping, 1 and 2 Lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting Retrofit	T12 to T8 with delamping, 3 Lamp	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a weighted average of T5 1 and 2 lamp systems replacing T12 systems and Deemed Savings.	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a weighted average of T5 3 and 4 lamp systems replacing T12 systems and Deemed Savings.	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a weighted average of 7W and 15W, CFL from past participation. Systems installed instead of a mix of 40W and 60W incandescent and Deemed Savings Data	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a weighted average of 20W, 23W and 26W CFL from past participation. Systems replaced a mix of 75W and 100W incandescent and Deemed Savings Data	0.84	Recommend keeping current NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Business	Lighting New Construction	Based on a weighted average of 36W and 55w CFLs from participation. Systems installed instead of a mix of 150W and 200W incandescent	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a weighted average of 250W.Pulse Start Metal Halides. Systems installed instead of 400W Metal Halide and 400W Mercury Vapor. Retrofit data used to establish baseline technologies.	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a weighted average of 320W and 350W.Pulse Start Metal Halides. Systems replaced 400W and 1000W Metal Halide; 400W and 1000W Mercury Vapor; and 400W High Pressure Sodium. Retrofit data used to establish baseline technologies.	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a 750W Pulse Start Metal Halides. Systems installed instead of 1000W Metal Halide. Retrofit data used to establish baseline technologies.	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on replacing Metal Halide less than 400W and Deemed Savings	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on replacing Metal Halide less than 750W and Deemed Savings	0.84	Recommend keeping current NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Business	Lighting New Construction	Based on replacing Metal Halide less than 1000W and Deemed Savings	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on Deemed Savings. Lamps installed instead of 32W T8.	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on Deemed Savings and replacing a 75W incandescent	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a weighted average of 39W, 70W, 100W and 150W Ceramic Metal Halide. Systems installed instead of 100W, 250W, 300W and 500W Incandescent and Deemed Savings Data.	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a weighted average of 175W and 250W Ceramic Metal Halide. Systems installed instead of 250W and 400W Mercury Vapor and Deemed Savings Data	0.84	Recommend keeping current NTG value	None	None	None
Business	Lighting New Construction	Based on a weighted average of 320W, 350W, and 400W Ceramic Metal Halide. Systems installed instead of 400W Metal Halide and 1000W Mercury Vapor and Deemed Savings Data	0.84	Recommend keeping current NTG value	None	None	None
Business	Motors and Drives	Plan A enhanced	0.65	Recommend keeping current NTG value	None	None	None
Business	Motors and Drives	Plan B	0.65	Recommend keeping current NTG value	None	None	None
Business	Motors and Drives	Plan B enhanced	0.65	Recommend keeping current NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Business	Motors and Drives	VFD	0.65	Recommend keeping current NTG value	None	None	None
Business	Motors and Drives	Motor Controls	0.95	Recommend Changing the NTG value	0.65	-0.30	<p>These rebates are offered for to provide Nola type controls. A Nola controller operates as an electronic soft starter with feedback from voltage and current sensors or other load sensors to reduce voltage during continuous operation at low loads. This rebate is available for controls installed on motors between five and 500 horsepower that run at 20 percent or less load more than 65 percent of the time.</p> <p>Other measures in the Motors and Drives program, particularly VFD's, use a NTG value of 0.65, while the motor controls measure applies a NTG value of 0.95. VFDs and Nola motor controls operate in different ways, but industry trends indicate that VFD and other motor controls are subject to high levels of free-ridership. The latest evaluation report for the Xcel Motors and Drives 2010 program year recommended a NTG value of 0.65 across all measures; however the NTG value found in the evaluation report for drives is much lower than the NTG value found for new and upgraded motors. The evaluation report indicates that the drives portion of the program had a NTG value of 0.56. And noted that generally VFDs, which are the primary driver of program savings, are reported as becoming a standard technology due to building codes requirements, demonstrated high energy savings, declining costs, and performance benefits (e.g., allowing companies to fine-tune some processes). All of these factors are contributing to the measure's relatively high free-ridership as evidenced in the NTG research." It is the opinion of Michaels Energy that enough evidence exists in industry literature and the 2011 evaluation report to recommend a change in the NTG value for this measure. Michaels recommends that Xcel adopt the 2010 evaluation report recommended aggregate NTG value of 0.65 for this measure in future program years.</p>

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Business	Motors and Drives	ECM on Evaporators	0.95	Recommend Changing the NTG value	0.65	-0.30	This measure provides rebates for electrically commutated motors (ECMs) for refrigeration applications. Other measures in the Motors and Drives program, particularly VFD's, use a NTG value of 0.65, while the ECM measure applies a NTG value of 0.95. Many motors and drives programs have added ECMs to their measure offerings to appeal to more customer types. However, like VFDs, ECMs may suffer from high free-ridership rates as they provide benefits in addition to direct energy savings. It is the opinion of Michaels that enough evidence exists in industry literature to recommend a change in the NTG value for this measure. Michaels recommends that Xcel adopt the 2010 evaluation report recommended aggregate NTG value of 0.65 for this measure in future program years.
Business	Small Business Retrofit Lighting	High-efficiency fluorescent T8 fixtures—retrofits and lamp reduction (delamping)	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	Fluorescent T5 retrofits	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	Installing CFL lamps or fixtures	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	High-bay fluorescent fixtures	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	LED exit signs and	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	LED wall pack fixtures	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	Parking garage T8 lamps	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	Occupancy sensors, to name a few	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	ENERGY STAR®-qualified interior LED screw-in or pin-based lamps	0.84	Recommend keeping current NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Business	Small Business Retrofit Lighting	ENERGY STAR-qualified interior LED luminaires/downlights	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	Exterior LED canopy and soffit fixtures	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	Refrigerated LED Case Lighting for five and six foot doors	0.84	Recommend keeping current NTG value	None	None	None
Business	Small Business Retrofit Lighting	T12 to T8 optimization retrofits	0.84	Recommend keeping current NTG value			
Residential	Showerhead	Showerhead - Electric	0.99	Recommend keeping current NTG value	None	None	None
Residential	Showerhead	Showerhead - Gas	0.99	Recommend keeping current NTG value	None	None	None
Residential	Showerhead	Showerhead - Low Income - Electric	1.00	Recommend keeping current NTG value	None	None	None
Residential	Showerhead	Showerhead - Low Income - Gas	1.00	Recommend keeping current NTG value	None	None	None
Residential	Energy Star New Homes - Gas and Electric	Envelope Measures - Not Boulder	0.92	Not enough evidence to support a change to the NTG value	None	None	None
Residential	Energy Star New Homes - Gas and Electric	Envelope Measures - Boulder Homes < 3,000 SF	0.92	Not enough evidence to support a change to the NTG value	None	None	None
Residential	Energy Star New Homes - Gas and Electric	Appliances - Energy Star Dishwashers	0.92	Not enough evidence to support a change to the NTG value	None	None	None
Residential	Energy Star New Homes - Gas and Electric	Appliances - Energy Star Clothes Washers	0.92	Not enough evidence to support a change to the NTG value	None	None	None
Residential	Energy Star New Homes - Electric Only	Appliances - Refrigerator	0.92	Not enough evidence to support a change to the NTG value	None	None	None
Residential	Energy Star Lighting 2013	High Efficiency Lighting Fixtures	0.92	Not enough evidence to support a change to the NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Residential	Evaporative Cooling	Front Range - Replacement - Tier 1	0.52	Keep Current NTG Value	None	None	None
Residential	Evaporative Cooling	Front Range - 1st Time Install - Tier 1	0.52	Keep Current NTG Value	None	None	None
Residential	Evaporative Cooling	Front Range - Replacement - Tier 2	0.59	Keep Current NTG Value	None	None	None
Residential	Evaporative Cooling	Front Range - 1st Time Install - Tier 2	0.59	Keep Current NTG Value	None	None	None
Residential	Evaporative Cooling	Front Range - Replacement - Tier 3	1.00	Recommend Changing the NTG value	0.59	-0.41	This measure provides rebates for the installation of a whole home evaporative cooling HVAC system. The current NTG value in use during the 2012/13 program year, and supplied in the post-settlement deemed savings workbooks is 1.00. The current value of 1.00 is well above the industry average for programs that rely on primary data collection to set NTG values. Examination of three other programs showed an average NTG value of between 0.52 and 0.59 for standard and premium equivalent evaporative coolers for new and replacement evaporative cooling systems. These programs differed from the Xcel program in Colorado in that they did not have a whole house requirement; however, there was nothing in the prevailing industry literature that suggested that whole home systems would have different NTG values associated with them. Additionally, the evaluation report on the 2009 program year evaporative coolers measures suggested a NTG value of 0.52 for the standard evaporative coolers (Tier 1) and 0.59 for premium evaporative coolers (Tier 2) for this program moving forward. No whole house evaporative cooling systems were included in the 2009 program year evaluation report. It is the opinion of Michaels Energy that enough evidence exists in industry literature, other program values, and the 2009 evaluation report to recommend a change in the NTG value for this measure. Michaels recommends that Xcel adopt the 2009 evaluation report recommended value for premium evaporative cooling equipment for this the Whole House System in future program years.
Residential	Evaporative Cooling	Western Slope - Replacement - Tier 1	0.52	Keep Current NTG Value	None	None	None
Residential	Evaporative Cooling	Western Slope - 1st Time Install - Tier 1	0.52	Keep Current NTG Value	None	None	None
Residential	Evaporative Cooling	Western Slope - Replacement - Tier 2	0.59	Keep Current NTG Value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Residential	Evaporative Cooling	Western Slope - 1st Time Install - Tier 2	0.59	Keep Current NTG Value	None	None	None
Residential	Evaporative Cooling	Western Slope - Replacement - Tier 3	1.00	Recommend Changing the NTG value	0.59	-0.41	<p>This measure provides rebates for the installation of a whole home evaporative cooling HVAC system. The current NTG value in use during the 2012/13 program year, and supplied in the post-settlement deemed savings workbooks is 1.00. The current value of 1.00 is well above the industry average for programs that rely on primary data collection to set NTG values. Examination of three other programs showed an average NTG value of between 0.52 and 0.59 for standard and premium equivalent evaporative coolers for new and replacement evaporative cooling systems. These programs differed from the Xcel program in Colorado in that they did not have a whole house requirement; however, there was nothing in the prevailing industry literature that suggested that whole home systems would have different NTG values associated with them. Additionally, the evaluation report on the 2009 program year evaporative coolers measures suggested a NTG value of 0.52 for the standard evaporative coolers (Tier 1) and 0.59 for premium evaporative coolers (Tier 2) for this program moving forward. No whole house evaporative cooling systems were included in the 2009 program year evaluation report. It is the opinion of Michaels Energy that enough evidence exists in industry literature, other program values, and the 2009 evaluation report to recommend a change in the NTG value for this measure. Michaels recommends that Xcel adopt the 2009 evaluation report recommended value for premium evaporative cooling equipment for this the Whole House System in future program years.</p>

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Residential	High Efficiency Air Conditioning	New Home Install High Efficiency Energy Star AC CEE Tier 1	0.89	Recommend Changing the NTG value	0.68	-0.21	This measure provides rebates for various air conditioning and ground source heat pumps. The current NTG value in use during the 2012/13 program year, and supplied in the post-settlement deemed savings workbooks is .89 for air conditioning systems. The current values are well above the industry average for programs that rely on primary data collection to set NTG values. Examination of three other similar air conditioning programs from three other states that used primary data collection to determine NTG values for air conditions, without consideration of ground source heat pumps, showed an average NTG value of 0.63. The evaluation report on the 2009 air conditioning measures suggested a NTG value of 0.68 for this program moving forward. It is the opinion of Michaels Energy that enough evidence exists in industry literature, other program values, and the 2009 evaluation report to recommend a change in the NTG value for these measures. Michaels recommends that Xcel adopt the 2009 evaluation report recommended NTG value of 0.68 for air conditioning units in future program years
Residential	High Efficiency Air Conditioning	New Home Install High Efficiency Energy Star AC CEE Tier 2	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	New Home Install High Efficiency Energy Star AC CEE Tier 3	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	New Home Provide Quality Install of New AC 3 T 13 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	New Home Provide Quality Install of New AC 3 T 14.5 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	New Home Provide Quality Install of New AC 3 T 15 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	New Home Provide Quality Install of New AC 3 T 16 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Existing Home Install High Efficiency Energy Star AC CEE Tier 1	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Residential	High Efficiency Air Conditioning	Existing Home Install High Efficiency Energy Star AC CEE Tier 2	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Existing Home Install High Efficiency Energy Star AC CEE Tier 3	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Existing Home Provide Quality Install of New AC 3 T 13 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Existing Home Provide Quality Install of New AC 3 T 14.5 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Existing Home Provide Quality Install of New AC 3 T 15 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Existing Home Provide Quality Install of New AC 3 T 16 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Install High Efficiency AC with Quality Installation Trade In	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Install High Efficiency AC with Quality Installation Trade In	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Install High Efficiency AC with Quality Installation Trade In	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above
Residential	High Efficiency Air Conditioning	Install High Efficiency AC with Quality Installation Trade In	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Residential	High Efficiency Air Conditioning	Installation of GSHP 6 T 14.1 EER in New Home (3220 Sq. Ft.) for Cooling	1.00	Recommend Changing the NTG value	0.7	-0.30	This measure provides rebates for various ground source heat pumps. The current NTG value in use during the 2012/13 program year, and supplied in the post-settlement deemed savings workbooks is 1.00 for ground source heat pumps. The current values are well above the industry average for programs that rely on primary data collection to set NTG values. Examination of five other programs that either included NTG values for ground source heat pumps specifically or as part of a larger HVAC program showed an average NTG value of 0.70. An examination of relevant industry literature did not find support applying a 1.00 NTG value for this measure. Ground source heat pumps were not included in the 2009 program year Xcel evaluation; however, the current NTG value far exceeds industry averages for programs that have conducted primary data collection for these programs. Michaels recommends that Xcel adopt an industry standard NTG value of 0.70 for ground source heat pumps in future program years.
Residential	High Efficiency Air Conditioning	Installation of GSHP 6 T 14.1 EER in New Home (1440 Sq. Ft.) for Cooling	1.00	Recommend Changing the NTG value	0.7	-0.30	Same as above
Residential	High Efficiency Air Conditioning	Installation of GSHP 6 T 14.1 EER in New Home (3220 Sq. Ft.) for Heating	1.00	Recommend Changing the NTG value	0.7	-0.30	Same as above
Residential	High Efficiency Air Conditioning	Installation of GSHP 6 T 14.1 EER in New Home (1440 Sq. Ft.) for Heating	1.00	Recommend Changing the NTG value	0.7	-0.30	Same as above
Residential	Home Lighting	CFL	0.85	Recommend keeping current NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Residential	Home Lighting	LED	1.00	Recommend Changing the NTG value	0.85	-0.15	This measure provides rebates for LED lighting. The current NTG value in use during the 2012/13 program year, and supplied in the post-settlement deemed savings workbooks is 1.00 for LED lighting. The current values are well above the industry average for programs that rely on primary data collection to set NTG values. Examination of two other programs that offered similar buy down LED incentives that rely on primary data collection to set NTG values showed NTG value of 0.68. LED lighting was not included in the 2009 program year Xcel evaluation. An examination of relevant industry literature did not find significant differences in the free-ridership and spillover rates for CFL and LED lighting. Michaels recommends that Xcel use the same NTG value of 0.85 for LED lighting that it currently has in place for CFL lighting.
Residential	HPwES	Attic Insulation	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Air Sealing and Weather-stripping	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Wall Insulation	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	CFL	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Refrigerator Recycling	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	ES Refrigerator	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	EMC Furnace Fan	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Dishwasher	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Clothes washer	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Evap Cooling	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Evap Cooling	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Evap Cooling	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	New Home Install High Efficiency Energy Star AC CEE Tier 1	0.94	Recommend keeping current NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Residential	HPwES	New Home Install High Efficiency Energy Star AC CEE Tier 2	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	New Home Install High Efficiency Energy Star AC CEE Tier 3	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	New Home Provide Quality Install of New AC 3 T 13 SEER	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	New Home Provide Quality Install of New AC 3 T 14.5 SEER	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	New Home Provide Quality Install of New AC 3 T 15 SEER	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	New Home Provide Quality Install of New AC 3 T 16 SEER	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Install High Efficiency AC with Quality Installation Trade In	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Install High Efficiency AC with Quality Installation Trade In	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Install High Efficiency AC with Quality Installation Trade In	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	Install High Efficiency AC with Quality Installation Trade In	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	GSHP Heating	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES	GSHP Cooling	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES (gas)	Setback Thermostat	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES (gas)	Furnace	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES (gas)	Boiler	0.94	Recommend keeping current NTG value	None	None	None
Residential	HPwES (gas)	Water Heater	0.94	Recommend keeping current NTG value	None	None	None

Program Type	Measure	Description	Current NTG	Suggestions	Suggested NTG Ratio	Current NTG - Suggested NTG	Rationale
Residential	Heating System Rebate	Furnace, 92 AFUE	0.94	Recommend keeping current NTG value	None	None	None
Residential	Heating System Rebate	Furnace, 94 AFUE	0.94	Recommend keeping current NTG value	None	None	None
Residential	Heating System Rebate	Boiler, 84 AFUE	0.94	Recommend keeping current NTG value	None	None	None
Residential	Insulation Heating Effects	Attic Insulation	0.89	Recommend keeping current NTG value	None	None	None
Residential	Insulation Heating Effects	Air Sealing and Weather-stripping	0.89	Recommend keeping current NTG value	None	None	None
Residential	Insulation Heating Effects	Wall Insulation	0.89	Recommend keeping current NTG value	None	None	None
Residential	Refrigerator Recycling	Refrigerator Recycling - Secondary	0.61	Not enough evidence to support a change to the NTG value	None	None	None
Residential	Refrigerator Recycling	Refrigerator Recycling - Primary	0.53	Recommend keeping current NTG value	None	None	None
Residential	Refrigerator Recycling	Refrigerator Recycling - Freezer	0.53	Recommend keeping current NTG value	None	None	None
Residential	Saver Switch	A/C	1.00	Recommend keeping current NTG value	None	None	None
Residential	School Education Kits	CFL	1.00	Recommend keeping current NTG value	None	None	None
Residential	Water Heater Rebate (gas)	0.62 Hot Water Heater	0.90	Not enough evidence to support a change to the NTG value	None	None	None
Residential	Water Heater Rebate (gas)	0.65 Hot Water Heater	0.90	Not enough evidence to support a change to the NTG value	None	None	None
Residential	Water Heater Rebate (gas)	0.67 Hot Water Heater	0.90	Recommend keeping current NTG value	None	None	None
Residential	Water Heater Rebate (gas)	0.82 Tankless Hot Water Heater	0.90	Recommend keeping current NTG value	None	None	None

Appendix

The attached appendix includes values from each source used to determine the reasonableness of the existing NTG ratio under review.

Business – Compressed Air

Measure Group	Description	Requirement	Current NTG Ratio	Evaluation Suggestion	Average Benchmark EM&V ratios for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG	Current NTG - Suggested NTG
Study	Average Study - Efficiency	Leaks and Waste Found and Repaired	0.87	N/A	0.85	None; Xcel survey sample size is too small to be significant, but generally supports these findings	Keep current value	0.87	0.0
Prescriptive	No Air Loss Drain Valves	No Air Loss Drains	0.87	N/A	0.85	None; Xcel survey sample size is too small to be significant, but generally supports these findings	Keep current value	0.87	0.0
Prescriptive	New VFD Compressors < 50 hp	VFD Compressor	0.87	N/A	0.85	None; Xcel survey sample size is too small to be significant, but generally supports these findings	Keep current value	0.87	0.0
Prescriptive	Replacement VFD Compressors < 50 hp	VFD Compressor	0.87	N/A	0.85	None; Xcel survey sample size is too small to be significant, but generally supports these findings	Keep current value	0.87	0.0

Compressed Air Program Requirements from Xcel website

Description	Eligibility	Funding
Study for system > 50 hp	None	None
Study for system 55-99 hp	Once every 5 years	\$2,500
Study for system < 100 hp	Once every 5 years	75 percent up to \$15,000
Implimentation of No Loss Air Drains	No Loss Air Drains	\$200 per valve
Integrated VFD Compressors	10-24 hp	\$4,000
Integrated VFD Compressors	25-49 hp	\$4,500
measures, requires study and preapproval	Custom < 50 hp	\$600 per KW of savings

Data from 2012/13 Biennial Program Filing

Measure Group	Description	Requirement	NTG Ratio	Source
Study	Average Study - Efficiency	Leaks and Waste Found and Repaired	0.87	National Energy Efficiency Best Practices Report (http://www.eebestpractices.com)
Custom*	Average Custom Project	New Equipment	0.87	National Energy Efficiency Best Practices Report (http://www.eebestpractices.com)
Prescriptive	No Air Loss Drain Valves	No Air Loss Drains	0.87	National Energy Efficiency Best Practices Report (http://www.eebestpractices.com)
Prescriptive	New VFD Compressors < 50 hp	VFD Compressor	0.87	National Energy Efficiency Best Practices Report (http://www.eebestpractices.com)
Prescriptive	Replacement VFD Compressors < 50 hp	VFD Compressor	0.87	National Energy Efficiency Best Practices Report (http://www.eebestpractices.com)

* Not in review scope

Utility	State	Program	Rebate/Requirements	NTG Evaluation Findings with Primary Data	Notes
Ameren Illinois Utilities (AmerenCIPS, AmerenCILCO, AmerenIP)	Illinois	Act On Energy Business Program	Leak Audit and Repair \$12 per horsepower up to \$10,000; All VFD programs are custom	0.8	Evaluation of 2011 Program year. Note that the overall core program NTG ratio was 0.71
Consumers Energy	Michigan	Energy Efficiency Program	Compressed air programs are custom		Expert Testimony Based on Program Design
NGRID	NY	Mass Save	15-75 HP. \$100 - \$200 per hp; Zero loss drains, \$125/drain	1.04	NYSEERDA 2009 – 2010 Industrial and Process Efficiency Program Impact Evaluation Report submitted 9/24/2012: Note high spillover rates
PECO	Pennsylvania	Smart Equipment Incentives	Includes drains and VFDs, custom savings		Statutory
We Energies	Wisconsin	Large Energy Users Program	VFD \$55/HP; Drains \$100/Drain	0.72	Focus on Energy 2012 Calendar Year Evaluation Report Volume II
			Average	0.85	

Xcel Evaluation Report: Not available, it will be completed in 2013.

n=2

CO Compressed Air

Range of NTG

68%-100%

Respondent #1

Respondent #2

Net-to Gross Final (%)	CORE NTG	Previous Prg	Spillover
100%	100.0	0.0	0.0
68%	67.6	0	0

Business – Computer Efficiency

Measure Group	Description	Requirement	Evaluation		Average Benchmark NTG	Average Benchmark EM&V values for	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG	Current NTG -
			Current NTG Ratio	Suggestion	Stipulated Values*	other similar programs*				Suggested NTG
Upstream Manufacturer Incentives	Desktop PC; Energy Star 5.0 with 80 plus Bronze level power supply	Desktop PC; Energy Star 5.0 with 80 plus Bronze level power supply	0.88	N/A	62%	N/A	Power strip and power supply devices tend to have higher NTG values than other consumer electronic products	Not enough evidence to make a recommendation	0.88	0
Upstream Manufacturer Incentives	Desktop PC; Energy Star 5.0 with 80 plus Silver level power supply	Desktop PC; Energy Star 5.0 with 80 plus Silver level power supply	0.88	N/A	62%	N/A	Power strip and power supply devices tend to have higher NTG values than other consumer electronic products	Not enough evidence to make a recommendation	0.88	0
Upstream Manufacturer Incentives	Desktop PC; Energy Star 5.0 with 80 plus Gold level power supply	Desktop PC; Energy Star 5.0 with 80 plus Gold level power supply	0.88	N/A	62%	N/A	Power strip and power supply devices tend to have higher NTG values than other consumer electronic products	Not enough evidence to make a recommendation	0.88	0
Upstream Manufacturer Incentives	Desktop PC; Energy Star 5.0 with 80 plus Platinum level power supply	Desktop PC; Energy Star 5.0 with 80 plus Platinum level power supply	0.88	N/A	62%	N/A	Power strip and power supply devices tend to have higher NTG values than other consumer electronic products	Not enough evidence to make a recommendation	0.88	0
Desktop PC Virtualization	Thin-client or Zero-client solution, 1 device per 1 desktop	Server & software at data center along with thin-client or zero-client device replaces desktop CPU (VM Ware w/ Wyse thin-client system, Pan-Logic zero-client system); meeting Energy	0.92	N/A	62%	N/A	Power strip and power supply devices tend to have higher NTG values than other consumer electronic products	Not enough evidence to make a recommendation	0.92	0

*Very little data is available on upstream computer incentive NTG levels specific to this measure type

Co Computer Efficiency Program*

Upstream Incentives	Requirement:	Incentive	Current NTG**
Processed by Eco Plug Loads Solutions	Desktop PC; Energy Star 5.0 with 80 plus Bronze level power supply	56% of the cost of installing a high efficiency power supply	0.88
Processed by Eco Plug Loads Solutions	Desktop PC; Energy Star 5.0 with 80 plus Silver level power supply	56% of the cost of installing a high efficiency power supply	0.88
Processed by Eco Plug Loads Solutions	Desktop PC; Energy Star 5.0 with 80 plus Gold level power supply	56% of the cost of installing a high efficiency power supply	0.88
Processed by Eco Plug Loads Solutions	Desktop PC; Energy Star 5.0 with 80 plus Platinum level power supply	56% of the cost of installing a high efficiency power supply	0.88

Desktop PC Virtualization	Requirement:	Incentive	Current NTG
Processed by Public Service	VDI installation	\$60 per change-over; Estimated as 52% of the incremental cost	0.92

Data from Post-Settlement Perspective Workbooks

Upstream Incentive

Desktop Computer	CO Market Penetration % (ref 12)	Net Customer kW Saved	Net Customer kWh Saved	NTG
ES 4.0 or 80 Plus Qualified	10%			
ES 5.0 or 80 Plus Bronze Qualified	5%	0.0252	221	87.9%
ES 5.0 or 80 Plus Silver Qualified	0%	0.0254	222	88.0%
ES 5.0 or 80 Plus Gold Qualified	2.5%	0.0255	224	88.1%
ES 5.0 or 80 Plus Platinum Qualified	0%	0.0256	225	88.1%
Average				88.00%

Desktop PC Virtualization

NTG	Net-to-Gross = Calculated by applying a market penetration % of the efficient computer power supplies to the wattage and kilowatt-hour savings amount at five baseline levels. If our program was not in place, some of the customers that bought VDI boxes would have bought desktop computers at ESTAR 4 or higher. = 92%
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*Upstream delivery does not appear to discriminate between commercial and residential consumers

**NTG ratios for upstream values were provided by PLS

Utility	State	Program	Rebate/Requirements	NTG Evaluation Findings		Notes
				with Primary Data	Stipulated NTG Ratios	
National Grid	Rhode Island	EnergyStar Products	Energy Star Monitors		0.75	Sources for the stipulated value are not given
Entergy Arkansas	Arkansas	Residential Lighting and Appliance Program	Advanced Power Strips		0.8	APSC assumed value for APSs. Higher than other equipment types in program
Penelec	Pennsylvania	Energy Efficiency Projects Program			0.32	Based on the opinion of an expert witness. Program also uses upstream incentives
Average					0.62	

CO Xcel Evaluation Report is not Available

Business – Cooling Efficiency

Measure	Current NTG Ratio	Evaluation Suggestion	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
RTUs	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Split Systems < 5.4 tons	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Cond Unit > 5.4 tons	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Water-source Heat Pump	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
PTAC	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Chiller Scroll-Screw	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Centrifugal Chiller	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Air-cooled Chiller	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Advanced Evaporative Cooler	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Chiller VSD	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Water-side economizer	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00
Cooling Studies	0.80	0.75	0.81	Xcel survey only has one respondent;anecdotally, NTG is high	Keep current NTG value	0.80	0.00

Compressed Air Program Requirements from Xcel website

Prescriptive Rebates

We offer cash rebates for qualifying, high-efficiency cooling equipment, such as DX units, chillers and other select equipment. On average, our rebates equate to approximately 60% of the incremental cost incurred for purchasing high-efficiency equipment rather than standard efficiency equipment.

Custom Rebates

For cooling equipment that does not qualify for our prescriptive rebate program, we offer rebates of up to \$400 per kW of electricity saved through our Custom Efficiency program. All Custom Efficiency projects require preapproval prior to purchase and installation. See our Custom Efficiency page for more details.

Compressed Air Program Requirements from Xcel 2012/13 Program Filing

Measure Group	Description	Requirement	NTG Value	Source
RTUs	RTUs	RTUs from 15.5 SEER, EER to 11.8 SEER 10.02 EER	0.80	Xcel 2010 evaluation report*
Split Systems < 5.4 tons	Split Systems < 5.4 tons	17.2 SEER, 14.6 EER	0.80	Xcel 2010 evaluation report*
Cond Unit > 5.4 tons	Cond Unit > 5.4 tons	14.8 EER - 12.6 EER	0.80	Xcel 2010 evaluation report*
Water-source Heat Pump	Water-source Heat Pump	17 SEER, 15.3 EER	0.80	Xcel 2010 evaluation report*
PTAC	PTAC	13.8 SEER, 11.7 EER	0.80	Xcel 2010 evaluation report*
Chiller Scroll-Screw	up to 300 tons	.43-.44 IPLV	0.80	Xcel 2010 evaluation report*
Centrifugal Chiller	up to 300 tons	.52 - .32 IPLV	0.80	Xcel 2010 evaluation report*
Air-cooled Chiller	Air-cooled Chiller	11.5 EER, 14.0 SEER	0.80	Xcel 2010 evaluation report*
Advanced Evaporative Cooler	Advanced Evaporative Cooler	Indirect or Hybrid	0.80	Xcel 2010 evaluation report*
Chiller VSD	Constant Speed to VFD	0.43 IPLV	0.80	Xcel 2010 evaluation report*
Water-side economizer	Plate and Frame HX	-	0.80	Xcel 2010 evaluation report*
Cooling Studies	Cooling Studies	-	0.80	Xcel 2010 evaluation report*

*Note, the Xcel 2010 evaluation report recommends a 0.75 NTG value

Utility/Group	State	Program	Rebate/Requirements	NTG Evaluation Findings with Primary Data	Notes
Idaho Power	Idaho	Heating and Cooling Efficiency Program		0.80	From 2009 Potential Study
Focus on Energy	Wisconsin	Non-res HVAC	Varies	1.00	From Calendar Year 2011 Evaluation Report
DEER	California	Non-res	Chillers	0.58	DEER2011
DEER	California	Non-res	Package and Split System	0.85	DEER2011
Arizona Public Service	Arizona	Non-res Large Existing Facility	Varies		Based on 2010 MER NTGR report
Average				0.81	

Xcel evaluation results from 2009 program year reported in 2010

NTG	Freeridership	Spillover	Recommended NTG
0.7	0.51	0.21	0.75

Note, the recommended NTG value was 0.75 assuming that some measures would be reworked and modified moving forward.

n=1

Range of NTG

CO Cooling Efficiency

Respondent #1

	Net-to Gross Final (%)	CORE NTG	Previous Prg	Spillover
100%				
	100%	10.0	0.0	0.0

Business – Heating Efficiency (gas)

Measure Group	Description	Requirement	Current NTG Ratio	Evaluation Suggestion	Average Benchmark	Average Benchmark EM&V	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
					NTG Stipulated Values	values for other similar programs				
Hot Water Boiler	Plan A – Replace a non-working hot water boiler or install a new boiler where none existed	85% min efficiency	0.97	0.86	0.95	0.76		Adjust Current NTG Value	0.86	0.11
		92% min efficiency	0.97	0.86	0.95	0.76	Xcel survey data only has one respondent at this time. Anecdotally, this value supports higher NTG values; Higher efficiency units may deserve higher NTG values	Not Enough Evidence to Make a Recommendation; No Change	0.97	0
	Plan B – Boiler being replaced must be less than 25 years old and still functioning (provide Colorado state inspection report with application)	92% min efficiency	0.97	0.86	0.95	0.76	Xcel survey data only has one respondent at this time. Anecdotally, this value supports higher NTG values; Higher efficiency units may deserve higher NTG values	Not Enough Evidence to Make a Recommendation; No Change	0.97	0
Furnace greater than 150,000 BTUh and greater than 92% efficiency	92% AFUE		0.77	0.86	0.95	0.81	Xcel survey data only has one respondent at this time. Anecdotally, this value supports higher NTG values; Higher efficiency units may deserve higher NTG values	Keep Current NTG Value	0.77	0
	94% AFUE		0.77	0.86	0.95	0.81	Xcel survey data only has one respondent at this time. Anecdotally, this value supports higher NTG values; Higher efficiency units may deserve higher NTG values	Keep Current NTG Value	0.77	0
Water Heaters	Tankless or with storage		0.97	0.86	0.95	0.76		Adjust Current NTG Value	0.86	0.11
Pipe Insulation	Based on pipe diameter and R value		0.61	0.86	0.9	0.71		Adjust Current NTG Value	0.71	-0.1
Boiler Tune-Ups	Must meet tune-up requirements on application		0.97	0.86	0.95	0.71		Not Enough Evidence to Make a Recommendation; No Change	0.97	0
Improvements and Add-ons (Add-ons are only eligible if a breakout of the equipment costs is clearly indicated on the invoice)	Modular burner controls > 5:1 turndown ratio		0.97	0.86	0.95	0.76		Not Enough Evidence to Make a Recommendation; No Change	0.97	0
			0.97	0.86	0.95	0.76		Not Enough Evidence to Make a Recommendation; No Change	0.97	0
	Outdoor air reset controls		0.97	0.86	0.95	0.76		Not Enough Evidence to Make a Recommendation; No Change	0.97	0
	Stack dampers		0.97	0.86	0.95	0.76		Not Enough Evidence to Make a Recommendation; No Change	0.97	0
	Steam trap replacements		0.97	0.86	0.95	0.76		Not Enough Evidence to Make a Recommendation; No Change	0.97	0

Program Year 2012/13 requirements from Xcel website and 2012/13 program filing and post settlement workbooks

Measure	Description	Requirement	Rebate	NTG Value Source
	Plan A – Replace a non-working hot water boiler or install a new	85% min efficiency	\$750 per million BTUh	0.97 Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.*
		92% min efficiency	\$3,500 per million BTUh	0.97 Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.*
Hot Water Boiler	Plan B – Boiler being replaced must be less than 25 years old and still functioning (provide Colorado state inspection report with application)	92% min efficiency	\$7,000 per million BTUH	0.97 Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.*
Furnace greater than 150,000 BTUh and greater than 92% Water Heaters	92% AFUE		\$80 per unit	0.77 Net-to-Gross factor from Summit Blue 2006 Midwest Residential market Assessments DSM Potential Study
	94% AFUE		\$120 per unit	0.77 Net-to-Gross factor from Summit Blue 2006 Midwest Residential market Assessments DSM Potential Study
	Tankless or with storage		\$350 per unit	0.97 Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.*
Pipe Insulation	Based on pipe diameter and R value		\$3–\$5 per linear foot	Net-to-Gross factor for Pipe Insulation is assumed to be 61% based on the average of the NTG for SCG and PG&E in the 2006-2008 Evaluation Report for the Southern California Industrial and Agricultural Contract Group
Boiler Tune-Ups	Must meet tune-up requirements on application		\$250 per million BTUh ¹ per boiler	0.97 Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.*
Improvements and Add-ons (Add-ons are only eligible if a breakout of the equipment costs is clearly indicated on the invoice)	Modular burner controls > 5:1 turndown ratio		\$750 per million BTUh ¹ ; \$2,000 maximum	0.97 Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.*
	Outdoor air reset controls		\$250 per million BTUh ¹	0.97 Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.*
	Stack dampers		\$250 per million BTUh ¹	0.97 Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.*
	Steam trap replacements		25% of trap cost up to \$250 per trap; maximum \$10,000 per facility	0.97 Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.*

*Note, the free-rider value for Cooling Efficiency in the latest evaluation report is 51%

6. Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.

7. Net-to-Gross factor for Pipe Insulation is assumed to be 61% based on the average of the NTG for SCG and PG&E in the 2006-2008 Evaluation Report for the Southern California Industrial and Agricultural Contract Group

8. Net-to-Gross factor from Summit Blue 2006 Midwest Residential market Assessments DSM Potential Study

Boiler Measures

Utility/Group	State	Program	Rebate/Requirements	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Consumers Energy DEER	MI CA	Energy Savings Sol	Varies	0.9		This value was reach by the PSC in case U-16670 as a compromise between parties
CT Energy Fund	CT	C&I Gas			0.865	From 2011 program year
Idaho Power	ID			1		From 2011 program year
Energy Trust of Oregc	OR	Business Energy Solutions - Existing Buildings			0.76	From 2010 program adjustments

Pipe Insulation

Utility/Group	State	Program	Rebate/Requirements	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Consumers Energy DEER	MI CA	Energy Savings Sol	Varies - For heating, space	0.9		This value was reach by the PSC in case U-16670 as a compromise between parties
					0.71	From 2011 program year

Furnace measures

Utility/Group	State	Program	Rebate/Requirements	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Consumers Energy	MI	Energy Savings Sol	Varies	0.9		This value was reach by the PSC in case U-16670 as a compromise between parties
CT Energy Fund	CT	C&I Gas			0.865	From 2011 program year
Idaho Power	ID			1		From 2011 program year
Energy Trust of Oregc	OR	Business Energy Solutions - Existing Buildings			0.76	From 2010 program adjustments

Average Boiler	Average Boiler	0.95	0.758333333
Average Pipe Insulation	Average Pipe Insulation	0.9	0.71
Average Furnace	Average Furnace	0.95	0.8125

Xcel evaluation results from 2011 program year reported in 2011

Core NTG	Spillover	Recommended NTG
0.74	0.11	0.86

*average value for steam traps in small and large C&I

n=1

Range of NTG		Net-to Gross Final (%)	CORE NTG	Previous Prg	Spillover
CO Heating Efficiency	94%				
Respondent #1		94%	76.7	17.5	0.0

Business – Lighting

Measure Group	Measure Group	Requirement	Current NTG Ratio	2008 Xcel Evaluation Suggestion	Average Benchmark NTG Stipulated Values*	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Lighting Retrofit	T8	T8 Ballasts, 4 ft. or less, 1 and 2 lamp	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T8	T8 Ballasts, 4 ft. or less, 3 and 4 lamp	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T8	T8 Ballasts, Length > 4 ft. and <= 8 ft., 1 lamp	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T8	T8 Ballasts, Length > 4 ft. and <= 8 ft., 2 lamp	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T8	T8 to T8 Delamping	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T8	T8 Optimization 1 and 2 Lamp	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T8	T8 Optimization 3 and 4 Lamp	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T5	T5 Ballasts 1 and 2 Lamp	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T5	T5 Ballasts 3 and 4 Lamp	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	CFL	Compact Fluorescent Lamps (CFL), less than 19W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	CFL	CFL, 19 to 32 W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	CFL	CFL, 33 to 56W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	CFL	Industrial Multi-CFL	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	HID	HID, 151 to 250W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	HID	HID, 251 to 1000W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	Pulse Start MH	Pulse-Start Metal Halide, <= 175W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	Pulse Start MH	Pulse-Start Metal Halide, 176W-319W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	Pulse Start MH	Pulse-Start Metal Halide, 320W-749W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	Pulse Start MH	Pulse-Start Metal Halide, 750W+	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T8 or T5	Parking Garages	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	High Bay	High Bay Fluorescents replacing 250 Watt Metal Halide	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	High Bay	High Bay Fluorescents replacing 400 Watt Metal Halide	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	High Bay	High Bay Fluorescents replacing 750 Watt Metal Halide	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	High Bay	High Bay Fluorescents replacing 1000 Watt Metal Halide	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	Occ Sensor	Wall mount occupancy sensor	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00

Lighting Retrofit	Occ Sensor	Ceiling mount occupancy sensor	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	Photocell	Photocell	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	Exit Sign	Exit sign retrofit and replacement	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T8	Low Wattage T8 4' lamps	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	CMH	Integrated 25W Ceramic Metal Halide	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	CMH	Ceramic Metal Halide <=150W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	CMH	Ceramic Metal Halide 151-250W	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	CMH	Ceramic Metal Halide 251W-	0.84	0.84	1.00	0.84	0.86 value for N=5 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting Retrofit	T12 to T8	T12 to T8 with delamping, 1 and 2 Lamp	0.84	0.84	1.00	0.84	Program will be eliminated	N/A	N/A	N/A
Lighting Retrofit	T12 to T8	T12 to T8 with delamping, 3 Lamp	0.84	0.84	1.00	0.84	Program will be eliminated	N/A	N/A	N/A
Lighting New Construction	Lighting - T5 Ballasts 1 and 2 Lamp	Based on a weighted average of T5 1 and 2 lamp systems replacing T12 systems and Deemed Savings.	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Lighting - T5 Ballasts 3 and 4 Lamp		0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Lighting - CFL <=18W	Based on a weighted average of 7W and 15W, CFL from past participation. Systems installed instead of a mix of 40W and 60W incandescent and Deemed Savings Data	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Lighting - CFL19-32W	Based on a weighted average of 20W, 23W and 26W CFL from past participation. Systems replaced a mix of 75W and 100W incandescent and Deemed Savings Data	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	CFL, 33 W-56W	Based on a weighted average of 36W and 55w CFLs from participation. Systems installed instead of a mix of 150W and 200W incandescent	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Pulse-Start Metal Halide, 176W-319W	Based on a weighted average of 250W.Pulse Start Metal Halides. Systems installed instead of 400W Metal Halide and 400W Mercury Vapor. Retrofit data used to establish baseline technologies.	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Pulse-Start Metal Halide, 320W-749W	Based on a weighted average of 320W and 350W.Pulse Start Metal Halides. Systems replaced 400W and 1000W Metal Halide; 400W and 1000W Mercury Vapor; and 400W High Pressure Sodium. Retrofit data used to establish baseline technologies.	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Pulse-Start Metal Halide, 750W+	Based on a 750W Pulse Start Metal Halides. Systems installed instead of 1000W Metal Halide. Retrofit data used to establish baseline technologies.	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	High Bay Fluorescents <= 300 Watts	Based on replacing Metal Halide less than 400W and Deemed Savings	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00

Lighting New Construction	High Bay Fluorescents <= 610 Watts	Based on replacing Metal Halide less than 750W and Deemed Savings	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	High Bay Fluorescents <= 900 Watts	Based on replacing Metal Halide less than 1000W and Deemed Savings	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Low Wattage T8	Based on Deemed Savings. Lamps installed instead of 32W T8.	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Integrated 25W Ceramic Metal Halide	Based on Deemed Savings and replacing a 75W incandescent	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Ceramic Metal Halide <=150W	Based on a weighted average of 39W, 70W, 100W and 150W Ceramic Metal Halide. Systems installed instead of 100W, 250W, 300W and 500W Incandescent and Deemed Savings Data.	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Ceramic Metal Halide 151-250W	Based on a weighted average of 175W and 250W Ceramic Metal Halide. Systems installed instead of 250W and 400W Mercury Vapor and Deemed Savings Data	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Lighting New Construction	Ceramic Metal Halide 251W-	Based on a weighted average of 320W, 350W, and 400W Ceramic Metal Halide. Systems installed instead of 400W Metal Halide and 1000W Mercury Vapor and Deemed Savings Data	0.84	0.84	1.00	0.80	There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	T8	High-efficiency fluorescent T8 fixtures—retrofits and lamp reduction (delamping)	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	T5	Fluorescent T5 retrofits	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	CFL	Installing CFL lamps or fixtures	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	High Bay	High-bay fluorescent fixtures	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	Exit Sign	LED exit signs and	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	LED	LED wall pack fixtures	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	T8	Parking garage T8 lamps	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	Occ Sensor	Occupancy sensors, to name a few	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	LED	ENERGY STAR®-qualified interior LED screw-in or pin-based lamps	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	LED	ENERGY STAR-qualified interior LED luminaires/downlights	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	LED	Exterior LED canopy and soffit fixtures	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	LED	Refrigerated LED Case Lighting for five and six foot doors	0.84	0.84	1.00	0.84	0.84 value for N=6 in this program**; There is little data to support dramatically changing NTG values post EISA	Keep current NTG value	0.84	0.00
Small Business Retrofit Lighting	T12 to T8	T12 to T8 optimization retrofits	0.84	0.84	1.00	0.84	Program will be eliminated	N/A	N/A	N/A

*prospective value from EPA for post EISA program NTG values for LED and other higher efficiency measures
 ** some studies used to develop portfolio level savings have smaller sample sizes per measure than the Xcel survey

Program Year 2012/13 requirements from Xcel website and 2012/13 program filing and post settlement workbooks

Lighting

Measure	Description	Rebate	NTG Value	Source
Prescriptive Retrofit Lighting	Lighting Retrofit	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T8 Ballasts, 4 ft. or less, 1 and 2 lamp	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T8 Ballasts, 4 ft. or less, 3 and 4 lamp	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T8 Ballasts, Length > 4 ft. and <= 8 ft., 1 lamp	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T8 Ballasts, Length > 4 ft. and <= 8 ft., 2 lamp	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T8 to T8 Delamping	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T8 Optimization 1 and 2 Lamp	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T8 Optimization 3 and 4 Lamp	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T5 Ballasts 1 and 2 Lamp	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T5 Ballasts 3 and 4 Lamp	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Compact Fluorescent Lamps (CFL), less than 19W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	CFL, 19 to 32 W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	CFL, 33 to 56W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Industrial Multi-CFL	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	HID, 151 to 250W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	HID, 251 to 1000W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Pulse-Start Metal Halide, <= 175W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Pulse-Start Metal Halide, 176W-319W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Pulse-Start Metal Halide, 320W-749W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Pulse-Start Metal Halide, 750W+	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Parking Garages	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	High Bay Fluorescents replacing 250 Watt Metal Halide	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	High Bay Fluorescents replacing 400 Watt Metal Halide	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	High Bay Fluorescents replacing 750 Watt Metal Halide	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	High Bay Fluorescents replacing 1000 Watt Metal Halide	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Wall mount occupancy sensor	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Ceiling mount occupancy sensor	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Photocell	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Exit sign retrofit and replacement	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Low Wattage T8 4' lamps	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Integrated 25W Ceramic Metal Halide	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Ceramic Metal Halide <=150W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Ceramic Metal Halide 151-250W	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	Ceramic Metal Halide 251W-	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T12 to T8 with delamping, 1 and 2 Lamp	Varies	0.84	2008 Xcel Evaluation
Prescriptive Retrofit Lighting	T12 to T8 with delamping, 3 Lamp	Varies	0.84	2008 Xcel Evaluation

New Construction

Measure	Description	Rebate	NTG Value	Source
Lighting New Construction	In general, measures are for one-for-one fixture comparisons. Cooling benefits and heating penalty based upon information in the Deemed Savings data (11% kW credit for cooling, 22% kWh credit for cooling, 0.000887 DKt penalty per lighting kWh savings @ \$10/DKt)	Varies	0.84	2008 Xcel Evaluation
Lighting - T5 Ballasts 1 and 2 Lamp	Based on a weighted average of T5 1 and 2 lamp systems replacing T12 systems and Deemed Savings.	Varies	0.84	2008 Xcel Evaluation
Lighting - T5 Ballasts 3 and 4 Lamp		Varies	0.84	2008 Xcel Evaluation
Lighting - CFL <=18W	Based on a weighted average of 7W and 15W, CFL from past participation. Systems installed instead of a mix of 40W and 60W incandescent and Deemed Savings Data	Varies	0.84	2008 Xcel Evaluation
Lighting - CFL19-32W	Based on a weighted average of 20W, 23W and 26W CFL from past participation. Systems replaced a mix of 75W and 100W incandescent and Deemed Savings Data	Varies	0.84	2008 Xcel Evaluation

CFL, 33 W-56W	Based on a weighted average of 36W and 55w CFLs from participation. Systems installed instead of a mix of 150W and 200W incandescent	Varies	0.84	2008 Xcel Evaluation
Pulse-Start Metal Halide, 176W-319W	Based on a weighted average of 250W.Pulse Start Metal Halides. Systems installed instead of 400W Metal Halide and 400W Mercury Vapor. Retrofit data used to establish baseline technologies.	Varies	0.84	2008 Xcel Evaluation
Pulse-Start Metal Halide, 320W-749W	Based on a weighted average of 320W and 350W.Pulse Start Metal Halides. Systems replaced 400W and 1000W Metal Halide; 400W and 1000W Mercury Vapor; and 400W High Pressure Sodium. Retrofit data used to establish baseline technologies.	Varies	0.84	2008 Xcel Evaluation
Pulse-Start Metal Halide, 750W+	Based on a 750W Pulse Start Metal Halides. Systems installed instead of 1000W Metal Halide. Retrofit data used to establish baseline technologies.	Varies	0.84	2008 Xcel Evaluation
High Bay Fluorescents <= 300 Watts	Based on replacing Metal Halide less than 400W and Deemed Savings	Varies	0.84	2008 Xcel Evaluation
High Bay Fluorescents <= 610 Watts	Based on replacing Metal Halide less than 750W and Deemed Savings	Varies	0.84	2008 Xcel Evaluation
High Bay Fluorescents <= 900 Watts	Based on replacing Metal Halide less than 1000W and Deemed Savings	Varies	0.84	2008 Xcel Evaluation
Low Wattage T8	Based on Deemed Savings. Lamps installed instead of 32W T8.	Varies	0.84	2008 Xcel Evaluation
Integrated 25W Ceramic Metal Halide	Based on Deemed Savings and replacing a 75W incandescent	Varies	0.84	2008 Xcel Evaluation
Ceramic Metal Halide <=150W	Based on a weighted average of 39W, 70W, 100W and 150W Ceramic Metal Halide. Systems installed instead of 100W, 250W, 300W and 500W Incandescent and Deemed Savings Data.	Varies	0.84	2008 Xcel Evaluation
Ceramic Metal Halide 151-250W	Based on a weighted average of 175W and 250W Ceramic Metal Halide. Systems installed instead of 250W and 400W Mercury Vapor and Deemed Savings Data	Varies	0.84	2008 Xcel Evaluation
Ceramic Metal Halide 251W-	Based on a weighted average of 320W, 350W, and 400W Ceramic Metal Halide. Systems installed instead of 400W Metal Halide and 1000W Mercury Vapor and Deemed Savings Data	Varies	0.84	2008 Xcel Evaluation

Small Business

Measure	Description	Rebate	NTG Value	Source
Small Business Retrofit Lighting	High-efficiency fluorescent T8 fixtures—retrofits and lamp reduction (delamping)	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	Fluorescent T5 retrofits	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	Installing CFL lamps or fixtures	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	High-bay fluorescent fixtures	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	LED exit signs and	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	LED wall pack fixtures	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	Parking garage T8 lamps	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	Occupancy sensors, to name a few	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	ENERGY STAR®-qualified interior LED screw-in or pin-based lamps	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	ENERGY STAR-qualified interior LED luminaires/downlights	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	Exterior LED canopy and soffit fixtures	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	Refrigerated LED Case Lighting for five and six foot doors	Varies	0.84	2008 Xcel Evaluation
Small Business Retrofit Lighting	T12 to T8 optimization retrofits	Varies	0.84	2008 Xcel Evaluation

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes		
Deer	CA	Varies		0.89	Deer	CA	Varies
Deer	CA	Varies		0.75	Deer	CA	Varies
				0.82			
EPA: Next Generation Lighting Programs: Opportunities to Advance Efficiency Lighting for a Cleaner Environment	N/A		1		EPA: Next Generation Lighting Programs: Opportunities to Advance Efficiency Lighting for a Cleaner Environment	N/A	
National Grid	RI	Commercial Electric: New Construction		0.75	National Grid	RI	al Electric: New
National Grid	RI	Commercial Electric: C&I Large		0.97	National Grid	RI	al Electric: C&I Large
National Grid	RI	Commercial Electric C&I Small		0.96	National Grid	RI	al Electric C&I Small
Pennsylvania Public Utility Commission	PA	Commercial Lighting		0.84	Pennsylvania Public Utility Commission	PA	Commercial Lighting
National Grid	MA	Lighting		0.92	National Grid	MA	Lighting
Focus on Energy	WI	Territory Wide Programs		0.6	Focus on Energy	WI	Territory Wide Programs
Focus on Energy	WI	Territory Wide Programs		0.8	Focus on Energy	WI	Territory Wide Programs
				0.7			
NV Energy	NV	Commercial		0.78	NV Energy	NV	Commercial
		Average Large C&I		0.84			
		Average New Construction		0.80			
		Average Small Business		0.84			

Xcel evaluation results from 2008 program year reported in 2009, aggregate spillover and free-ridership values are not provided.

Recommended Value 0.84

CO Lighting Efficiency n=5

Respondent #1
Respondent #2
Respondent #3
Respondent #4
Respondent #5

	Net-to Gross Final (%)	CORE NTG	Previous Prg	Spillover
64%-100%				
Respondent #1	64%	56.7	0.0	7.0
Respondent #2	86%	77.5	8.5	0.0
Respondent #3	93%	93.3	0.0	0.0
Respondent #4	100%	100.0	0.0	0.0
Respondent #5	89%	88.7	0.0	0.0
Average	86%			

CO Small Business Light n=6

Respondent #1
Respondent #2
Respondent #3
Respondent #4
Respondent #5
Respondent #6

	Net-to Gross Final (%)	CORE NTG	Previous Prg	Spillover
57%-110%				
Respondent #1	77%	76.7	0.0	0.0
Respondent #2	110%	100.0	0.0	10.0
Respondent #3	69%	69.1	0.0	0.0
Respondent #4	100%	100.0	0.0	0.0
Respondent #5	57%	56.7	0.0	0.0
Respondent #6	89%	89.0	0.0	0.0
Average	84%			

Business – Motors & Drives

Measure Group	Description	Requirement	Current NTG Ratio	Evaluation Suggestion	Average Benchmark NTG Stipulated Ratios	Average Benchmark EM&V Ratios for Other Similar Programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Prescriptive	Plan A enhanced	NEMA Premium	0.65	0.65	0.90	0.64	None; Xcel data shows higher NTG values, but is not statistically significant across measure types	Keep current value	0.65	0
Prescriptive	Plan B	EPACT	0.65	0.65	0.90	0.64	None; Xcel data shows higher NTG values, but is not statistically significant across measure types	Keep current value	0.65	0
Prescriptive	Plan B enhanced	EPACT	0.65	0.65	0.90	0.64	None; Xcel data shows higher NTG values, but is not statistically significant across measure types	Keep current value	0.65	0
Prescriptive	VFD	No ASD/VFD in place	0.65	0.65	0.90	0.64	None; Xcel data shows higher NTG values, but is not statistically significant across measure types	Keep current value	0.65	0
Prescriptive	Motor Controls	No Voltage Controls in place	0.95	0.65	0.90	0.64	Different NTG rates for Voltage Controls is not supported in the literature	Change current value	0.65	0.3
Prescriptive	EC motors	ECM on Evaporators	0.95	0.65	0.90	0.64	Different NTG rates for ECMs is not supported in the literature	Change current value	0.65	0.3

Program Year 2012/13 requirements from Xcel website

Description	Horsepower	Rebate Offer
Plan A: New motor – (due to new equipment installation or burnout)	1 - 500 hp	\$25 to \$2,250
Plan B: Upgrade Motor for replacing an in-service (working) motor	1 - 500 hp	\$200 to \$13,500
Drives (adjustable or variable) for fans and pumps	1 - 200 hp	\$400 to \$8,000
Custom - motor or drive applications (require preapproval prior to purchase and installation)	Motors > 500 hp	Rebate amounts are individually determined
	Drives > 200 hp	

Data from 2012/13 Biennial Program Filing

Measure Group	Description	Requirement	NTG Value	Source
Prescriptive	Plan A enhanced	NEMA Premium	0.65	Evaluation Report Submitted 3/2011
Prescriptive	Plan B	EPACT	0.65	Evaluation Report Submitted 3/2011
Prescriptive	Plan B enhanced	EPACT	0.65	Evaluation Report Submitted 3/2011
Prescriptive	VFD	No ASD/VFD in place	0.65	Evaluation Report Submitted 3/2011
Prescriptive	Motor Controls	No Voltage Controls in place	0.95	Unknown
Prescriptive	EC motors	ECM on Evaporators	0.95	Unknown
Custom*	New Equipment	Existing or new Equipment	0.65	Evaluation Report Submitted 3/2011

* Not in review scope

Utility	State	Program	Efficiency Requirement	HP Range	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Arizona Public Service	Arizona	Solutions for Business Program	NEMA Premium	1-200 hp	1.0		2011 value; APS used 1.0 for all NTG values
Consolidated Edison (ConEd)	New York	Energy Efficiency Business	NEMA Premium		0.9		0.9 value is applied across the board
Duke Energy	North Carolina	SmartSaver	NEMA Premium	1-250 hp	?	0.7	0.7 Suggested in 2011 Evaluation Report
Duke Energy	South Carolina	SmartSaver	NEMA Premium	1-250 hp	?	0.7	0.7 Suggested in 2011 Evaluation Report
Hawaii Energy Efficiency	Hawaii	For Your Business	NEMA Premium	1-450 hp	1.0		In 2011, no NTG value was applied
Avista	North West	Non-residential	CEE Premium		?	0.53	.53 suggested in 2011 evaluation report
Progress Energy	North Carolina	Energy Efficiency for Business	Above NEMA Energy Efficient	1-500 hp	0.7		Applied to all programs
				Average	0.90	0.64	

Evaluation Report

Equipment	Spillover	Free riders	NTG
New Motors	0.45	0.46	0.91
Upgraded Motors	0	0.62	0.62
Drives	0.03	0.53	0.56
Overall	0.03	0.54	0.57

N=7

Range of NTG		Net-to Gross Final (%)	CORE NTG	Previous Prg	Spillover
CO Motors & Drives	n=7 84%-105%				
Respondent #1		98%	96.7	1.3	0.0
Respondent #2		84%	75.0	9.4	0.0
Respondent #3		99%	96.7	2.5	0.0
Respondent #4		100%	100.0	0.0	0.0
Respondent #5		92%	66.7	25.0	0.0
Respondent #6		90%	84.8	5.7	0.0
Respondent #7		105%	81.0	14.2	10.0

Residential – Energy Star New Homes

Measure Group	Measure Group	Requirement	Current NTG Ratio	2009 Xcel Evaluation Suggestion	Average Benchmark NTG Stipulated Ratios*	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Energy Star New Homes - Gas and Electric	Envelope Measures - Not Boulder	Varies	0.92	0.79	1.00	0.99		Not enough information to make a recommendation	0.92	0
Energy Star New Homes - Gas and Electric	Envelope Measures - Boulder Homes < 3,000 SF	Varies	0.92	0.79	1.00	0.99		Not enough information to make a recommendation	0.92	0
Energy Star New Homes - Gas and Electric	Appliances - Energy Star Dishwashers	Energy Star	0.92	0.79	1.00	0.99		Not enough information to make a recommendation	0.92	0
Energy Star New Homes - Gas and Electric	Appliances - Energy Star Clothes Washers	Energy Star	0.92	0.79	1.00	0.99		Not enough information to make a recommendation	0.92	0
Energy Star New Homes - Electric Only	Appliances - Refrigerator	Energy Star	0.92	0.79	1.00	0.99		Not enough information to make a recommendation	0.92	0
Lighting 2012	High Efficiency Lighting Fixtures	HE lighting	0.92	0.79	1.00	0.99		Not enough information to make a recommendation	0.92	0
Lighting 2013	High Efficiency Lighting Fixtures	HE lighting	0.92	0.79	1.00	0.99		Not enough information to make a recommendation	0.92	0

New Construction

Measure	Description	Rebate	NTG Value	Source
Energy Star New Homes - Gas and Electric	Envelope Measures - Not Boulder	Varies	0.92	Unknown
Energy Star New Homes - Gas and Electric	Envelope Measures - Boulder Homes < 3,000 SF	Varies	0.92	Unknown
Energy Star New Homes - Gas and Electric	Appliances - Energy Star Dishwashers	Varies	0.92	Unknown
Energy Star New Homes - Gas and Electric	Appliances - Energy Star Clothes Washers	Varies	0.92	Unknown
Energy Star New Homes - Electric Only	Appliances - Refrigerator	Varies	0.92	Unknown
Lighting 2013	High Efficiency Lighting Fixtures (CFL)	Varies	0.92	Unknown

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
NYSERDA	NY	New Construction		1.16	Included C&I and Multifamily
California Investor-Owned Utilities	CA	Residential New Construction		0.80	Statewide average; Construction Program Evaluation for Program Years 2006-2008
MA-EEAC	MA	Residential New Construction, Residential HEHE and Multi-family gas programs		1.00	Compilation of primary data collection from other states; Massachusetts Program Administrators (PAs) 2010 Residential New Construction (RNC) programs, commercial and industrial (C&I) programs, and multi-family retrofit and residential High Efficiency Heating and Water Heating (HEHE) programs. 2010
Arizona Public Service	AZ	HPwES	1.00		DSM Progress report 2011, July - December 2011
		Average	1.00	0.99	

Xcel Evaluation of the 2011 Showerhead program

	Free-rider	Spillover	NTG
New Construction	0.34	0.13	0.79

Residential – Evaporative Cooling

Measure Group	Measure Group	Requirement	Current NTG Ratio	2009 PY Xcel Evaluation		Literature Notes / Xcel Survey Consideration	Finding	Recommended NTG Ratio	Current NTG - Suggested NTG
				Suggestion	Ratio for other similar programs				
Evaporative Cooling	Front Range - Replacement - Tier 1	Tier 1	0.52	0.52	0.52	NTG values for evaporative coolers are low in climates that support the use of this equipment	Keep Current Value	0.52	0.00
Evaporative Cooling	Front Range - 1st Time Install - Tier 1	Tier 1	0.52	0.52	0.58	NTG values for evaporative coolers are low in climates that support the use of this equipment	Keep Current Value	0.52	0.00
Evaporative Cooling	Front Range - Replacement - Tier 2	Tier 2	0.59	0.59	0.59	NTG values for evaporative coolers are low in climates that support the use of this equipment	Keep Current Value	0.59	0.00
Evaporative Cooling	Front Range - 1st Time Install - Tier 2	Tier 2	0.59	0.59	0.59	NTG values for evaporative coolers are low in climates that support the use of this equipment	Keep Current Value	0.59	0.00
Evaporative Cooling	Front Range - Replacement - Tier 3	Tier 3	1.00	N/A		NTG values for evaporative coolers are low in climates that support the use of this equipment	Change Current Value	0.59	0.41
Evaporative Cooling	Western Slop - Replacement - Tier 1	Tier 1	0.52	0.52	0.52	NTG values for evaporative coolers are low in climates that support the use of this equipment	Keep Current Value	0.52	0.00
Evaporative Cooling	Western Slope - 1st Time Install - Tier 1	Tier 1	0.52	0.52	0.58	NTG values for evaporative coolers are low in climates that support the use of this equipment	Keep Current Value	0.52	0.00
Evaporative Cooling	Western Slope - Replacement - Tier 2	Tier 2	0.59	0.59	0.59	NTG values for evaporative coolers are low in climates that support the use of this equipment	Keep Current Value	0.59	0.00
Evaporative Cooling	Western Slope - 1st Time Install - Tier 2	Tier 2	0.59	0.59	0.59	NTG values for evaporative coolers are low in climates that support the use of this equipment	Keep Current Value	0.59	0.00
Evaporative Cooling	Western Slope - Replacement - Tier 3	Tier 3	1.00	N/A		NTG values for evaporative coolers are low in climates that support the use of this equipment	Change Current Value	0.59	0.41

Evaporative Cooling

Measure	Description	Rebate	NTG Value	Source
Evaporative Cooling	Front Range - Replacement - Tier 1	\$ 250	0.52	Xcel Evaluation Report for 2009 Program Year
Evaporative Cooling	Front Range - 1st Time Install - Tier 1	\$ 100	0.52	Xcel Evaluation Report for 2009 Program Year
Evaporative Cooling	Front Range - Replacement - Tier 2	\$ 600	0.59	Xcel Evaluation Report for 2009 Program Year
Evaporative Cooling	Front Range - 1st Time Install - Tier 2	\$ 500	0.59	Xcel Evaluation Report for 2009 Program Year
Evaporative Cooling	Front Range - Replacement - Tier 3	\$ 1,000	1.00	No Tier 3 rebates were issued in 2009
Evaporative Cooling	Western Slop - Replacement - Tier 1	\$ 250	0.52	Xcel Evaluation Report for 2009 Program Year
Evaporative Cooling	Western Slope - 1st Time Install - Tier 1	\$ 100	0.52	Xcel Evaluation Report for 2009 Program Year
Evaporative Cooling	Western Slope - Replacement - Tier 2	\$ 600	0.59	Xcel Evaluation Report for 2009 Program Year
Evaporative Cooling	Western Slope - 1st Time Install - Tier 2	\$ 500	0.59	Xcel Evaluation Report for 2009 Program Year
Evaporative Cooling	Western Slope - Replacement - Tier 3	\$ 1,000	1.00	No Tier 3 rebates were issued in 2009

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Rocky Mountain Power	UT	Utah Cool Cash		0.59	2009-2010 Cool Utah Cash Program Evaluation Replacement
Rocky Mountain Power	UT	Utah Cool Cash		0.76	2009-2010 Cool Utah Cash Program Evaluation new
Rocky Mountain Power	UT	Utah Cool Cash		0.79	2009-2010 Cool Utah Cash Program Evaluation Premium
Pacific Power Washington	WA	Residential Home Energy Savings		0.61	2009-2010 Residential Home Energy Savings Evaluation
CPUC	CA	Residential Retrofit High Impact Measures		0.36	Residential Retrofit High Impact Measures Evaluation Report 2009 Program Year (note, includes other AC measures)
	Average	Replacement		0.52	
		New		0.58	
		Premium		0.59	

Residential – Heating System Rebate

Measure Group	Measure Description	Current NTG Ratio	Recent Xcel Evaluation Suggested Ratio	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Heating System Rebate	Furnace, 92 AFUE	0.94	n/a	0.87		Keep Current NTG value	0.94	0.00
Heating System Rebate	Furnace, 94 AFUE	0.94	n/a	0		Keep Current NTG value	0.94	0.00
Heating System Rebate	Boiler, 84 AFUE	0.94	n/a	0		Keep Current NTG value	0.94	0.00

Appliance	Efficiency	Rebate
Natural Gas Furnace	92% AFUE	\$80
Natural Gas Furnace	94% AFUE	\$120
Natural Gas Boiler	85% AFUE	\$100

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Ameren	IL	GSHP		0.81	Impact and Process Evaluation of Ameren Illinois Company's Residential HEP (PY4); PY 2012
Focus on Energy	WI	HPwES		0.95	Average value, depends on measure; PY 2011 evaluation report
NYSERDA	NY	HPwES		0.94	From the 2007-2008 HPwES impact evaluation. Only counts internal SO
SUE	DEL	HPwES		0.78	State Energy Efficiency Programs EM&V report, 2013
			average	0.87	

Residential – High Efficiency Air Conditioning

Measure Group	Measure Description	Current NTG Ratio	2011/12 PY Xcel Evaluation Value	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
New Home Install High Efficiency Energy Star AC CEE Tier 1	New High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
New Home Install High Efficiency Energy Star AC CEE Tier 2	New High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
New Home Install High Efficiency Energy Star AC CEE Tier 3	New High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
New Home Provide Quality Install of New AC 3 T 13 SEER	New High Efficiency AC with QI	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
New Home Provide Quality Install of New AC 3 T 14.5 SEER	New High Efficiency AC with QI	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
New Home Provide Quality Install of New AC 3 T 15 SEER	New High Efficiency AC with QI	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
New Home Provide Quality Install of New AC 3 T 16 SEER	New High Efficiency AC with QI	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Existing Home Install High Efficiency Energy Star AC CEE Tier 1	Replace with High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Existing Home Install High Efficiency Energy Star AC CEE Tier 2	Replace with High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Existing Home Install High Efficiency Energy Star AC CEE Tier 3	Replace with High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Existing Home Provide Quality Install of New AC 3 T 13 SEER	Replace with High Efficiency AC with QI	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Existing Home Provide Quality Install of New AC 3 T 14.5 SEER	Replace with High Efficiency AC with QI	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Existing Home Provide Quality Install of New AC 3 T 15 SEER	Replace with High Efficiency AC with QI	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Existing Home Provide Quality Install of New AC 3 T 16 SEER	Replace with High Efficiency AC with QI	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Install High Efficiency AC with Quality Installation Trade In	Early Retirement Install High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Install High Efficiency AC with Quality Installation Trade In	Early Retirement Install High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Install High Efficiency AC with Quality Installation Trade In	Early Retirement Install High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Install High Efficiency AC with Quality Installation Trade In	Early Retirement Install High Efficiency AC	0.89	0.68	0.63	Recently proposed to accept 0.68	Adjust Value	0.68	0.21
Installation of GSHP 6 T 14.1 EER in New Home (3220 Sq. Ft.) for Cooling	Install GSHP Cooling	1.00	N/A	0.70	GSHP values suffer from high FR va	Adjust Value	0.70	0.30
Installation of GSHP 6 T 14.1 EER in New Home (1440 Sq. Ft.) for Cooling	Install GSHP Cooling	1.00	N/A	0.70	GSHP values suffer from high FR va	Adjust Value	0.70	0.30
Installation of GSHP 6 T 14.1 EER in New Home (3220 Sq. Ft.) for Heating	Install GSHP Cooling	1.00	N/A	0.70	GSHP values suffer from high FR va	Adjust Value	0.70	0.30
Installation of GSHP 6 T 14.1 EER in New Home (1440 Sq. Ft.) for Heating	Install GSHP Cooling	1.00	N/A	0.70	GSHP values suffer from high FR va	Adjust Value	0.70	0.30

HEAC Trade-In and New Equipment Rebate Amounts

Equipment Tier	New Equipment SEER	New Equipment EER	New Equipment Rebate	Trade-In Rebate	Customer Total	Total Contractor QI Incentive
	13	< 12	\$ -	\$ -	\$ -	\$ 100
	14	< 12	\$ -	\$ 500	\$ 500	\$ 100
Tier 1	14.5	12	\$250	\$ 500	\$ 750	\$ 100
Tier 2	15	12.5	\$350	\$ 500	\$ 850	\$ 100
Tier 3	16	13	\$500	\$ 500	\$ 1,000	\$ 100

Ground Source Heat Pumps Rebate/Ton

Existing Homes	300
New Homes	300

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Pennsylvania PUC*	PA	GSHP		0.53	0.47 Freeridership for GSHP, no quantitative SO supplied, used for planning only. From PUC annual report for PY1 in May 2010
New Jersey Clean Energy Program	NJ	Res HVAC		0.57	0.48 Freeridership for HVAC including GSHP measures, 0.05 Spillover; Res HVAC impact evaluation, 2009
Central Hudson	NY	Res HVAC	0.95		
Pennsylvania PUC*	PA	Smart		0.9	Unsure why the PY 3 NTG values vary from PY 1 results
Rocky Mountain Power	ID	HES non-lighting (HVAC)		0.87	Includes other HVAC measures
Ameren	IL	GSHP		0.63	Impact and Process Evaluation of Ameren Illinois Company's Residential HVAC Program (PY4); PY 2012\
		Average**		0.70	

*Different Program Year Evaluations

** Blended values for different program years; single weight

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Pacific Power Washington	WA	Residential Home Energy Savings		0.61	2009-2010 Residential Home Energy Savings Evaluation
CPUC	CA	Residential Retrofit High Impact Measures		0.36	Residential Retrofit High Impact Measures Evaluation Report 2009 Program Year
Focus on Energy	WI			0.91	FOE 2011 Territory Wide and Community Pilot PY 2011 Evaluation Reports
		average		0.63	

Residential – Home Lighting & Recycling Program

Measure Group	Measure Description	Current NTG Ratio	2009 PY Xcel Evaluation Suggested Ratio	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
CFL	CFL buy-down	0.85	1.00	0.71	CFL NTG values are expected to continue to decrease in the future	Keep existing value	0.85	0.00
LED	LED buy-down	1.00	N/A	0.68	LED lighting also suffers from low NTG numbers	Change existing value	0.85	0.15

Home Lighting

Measure	Description	Rebate	NTG Ratio	Source
CFL	CFL Program	buy-down	0.85	Unknown
LED	LED Program	buy-down	1.00	Unknown

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Focus on Energy	WI	LED		0.6	Focus on Energy Pilot Program
Focus on Energy	WI	CFL		0.86	Focus on Energy Pilot Program
NV Energy	NV	Lighting		0.634	NV Energy 2011 Res lighting evaluation
DEER	CA	CFL		0.53	buydown programs, 2011 data
CA PUC	CA	LED		0.8	buydown programs, 2010 Upstream Lighting Report Final Evaluation
CA PUC	CA	CFL		0.8	buydown programs, 2010 Upstream Lighting Report Final Evaluation
Ameren	IL	CFL		0.88	
			CFL Average	0.71	
			LED Average	0.68	

Residential – Home Performance with Energy Star

Measure Group (Electric)	Measure Description	Current NTG Ratio	Recent Xcel Evaluation Suggested Ratio	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Attic Insulation	Attic Insulation and Bypass Se	0.94	N/A	0.87		Keep Current Value	0.94	0
Air Sealing and Weather-stripping	Air Sealing and Weather Strip	0.94	N/A	0.87		Keep Current Value	0.94	0
Wall Insulation	Wall Insulation	0.94	N/A	0.87		Keep Current Value	0.94	0
CFL	CFL	0.94	N/A	0.87		Keep Current Value	0.94	0
Refrigerator Recycling	Refrigerator Recycling	0.94	N/A	0.87		Keep Current Value	0.94	0
ES Refrigerator	ES Refrigerator	0.94	N/A	0.87		Keep Current Value	0.94	0
EMC Furnace Fan	EMC Furnace Fan	0.94	N/A	0.87		Keep Current Value	0.94	0
Dishwasher		0.94	N/A	0.87		Keep Current Value	0.94	0
Clotheswasher		0.94	N/A	0.87		Keep Current Value	0.94	0
Evap Cooling	Tier 1	0.94	N/A	0.87		Keep Current Value	0.94	0
Evap Cooling	Tier 2	0.94	N/A	0.87		Keep Current Value	0.94	0
Evap Cooling	Tier 3	0.94	N/A	0.87		Keep Current Value	0.94	0
New Home Install High Efficiency Energy Star AC CEE Tier 1	New High Efficiency AC	0.94	N/A	0.87		Keep Current Value	0.94	0
New Home Install High Efficiency Energy Star AC CEE Tier 2	New High Efficiency AC	0.94	N/A	0.87		Keep Current Value	0.94	0
New Home Install High Efficiency Energy Star AC CEE Tier 3	New High Efficiency AC	0.94	N/A	0.87		Keep Current Value	0.94	0
New Home Provide Quality Install of New AC 3 T 13 SEER	New High Efficiency AC with QI	0.94	N/A	0.87		Keep Current Value	0.94	0
New Home Provide Quality Install of New AC 3 T 14.5 SEER	New High Efficiency AC with QI	0.94	N/A	0.87		Keep Current Value	0.94	0
New Home Provide Quality Install of New AC 3 T 15 SEER	New High Efficiency AC with QI	0.94	N/A	0.87		Keep Current Value	0.94	0
New Home Provide Quality Install of New AC 3 T 16 SEER	New High Efficiency AC with QI	0.94	N/A	0.87		Keep Current Value	0.94	0
Install High Efficiency AC with Quality Installation Trade In	Early Retirement Install High Efficiency AC	0.94	N/A	0.87		Keep Current Value	0.94	0
Install High Efficiency AC with Quality Installation Trade In	Early Retirement Install High Efficiency AC	0.94	N/A	0.87		Keep Current Value	0.94	0
Install High Efficiency AC with Quality Installation Trade In	Early Retirement Install High Efficiency AC	0.94	N/A	0.87		Keep Current Value	0.94	0
Install High Efficiency AC with Quality Installation Trade In	Early Retirement Install High Efficiency AC	0.94	N/A	0.87		Keep Current Value	0.94	0
GSHP Heating	GSHP Heating	0.94	N/A	0.87		Keep Current Value	0.94	0
GSHP Cooling	GSHP Cooling	0.94	N/A	0.87		Keep Current Value	0.94	0

Measure Group (Gas)	Measure Description	Current NTG Ratio	Recent Xcel Evaluation Suggested Ratio	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Setback Thermostat		0.94	N/A	0.87		Keep Current Value	0.94	0
Furnace		0.94	N/A	0.87		Keep Current Value	0.94	0
Boiler		0.94	N/A	0.87		Keep Current Value	0.94	0
Water Heater		0.94	N/A	0.87		Keep Current Value	0.94	0

1. To start now, choose a participating audit contractor. The program starts with a Blower Door or Infrared Home Energy Audit.
2. Choose a participating Home Performance contractor and have that contractor install your recommended improvements. If you need help deciding on improvements, choosing a contractor, or reviewing bids call our trusted program partner, Populus at 303-446-7910.
3. Have your Home Performance contractor complete the improvements and then perform post-improvement inspection which includes a blower door and combustion safety appliance test assuring the completed work has been successfully installed
4. The contractor will collect your receipts and submit the rebate paperwork to Xcel Energy. You will receive your rebate check eight to 10 weeks from paperwork being submitted.

Home Performance with Energy Star

Measure	Description	Rebate	NTG Value	Source
Refrige Rec	Must be working	50	0.94	National Energy Efficiency Best Practices Study - Residential Single-Family
Energy Star	varies	varies	0.94	National Energy Efficiency Best Practices Study - Residential Single-Family
Other Measures	varies	varies	0.94	National Energy Efficiency Best Practices Study - Residential Single-Family

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Ameren	IL	GSHP		0.81	Impact and Process Evaluation of Ameren Illinois Company's Residential HEP (PY4); PY 2012
Focus on Energy	WI	HPwES		0.95	Average value, depends on measure; PY 2011 evaluation report
NYSERDA	NY	HPwES		0.94	From the 2007-2008 HPwES impact evaluation. Only counts internal SO
SUE	DEL	HPwES		0.78	State Energy Efficiency Programs EM&V report, 2013
		average		0.87	

Residential – Insulation

Measure Group (Electric)	Measure Description	Current NTG Ratio	Recent Xcel Evaluation Suggested Ratio	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Insulation		0.89	N/A	0.85		keep current value	0.89	0

To participate in our 2013 Insulation Rebate program, please consider the following criteria:

- You must be a residential, natural gas customer in Colorado or an electric heating customer in Colorado
- Install insulation and/or air sealing measures according to program requirements
- Must perform a pre- and post-blower door test on your home
- Combustion Appliance Zone (CAZ) testing check-off by contractor and customer
- Select a Xcel Energy registered Building Performance Institute (BPI) certified contractor

2013 Eligible installations **include:**

- Attic insulation (where existing is R-19 or less) to an R-value of 40 or greater
- Attic insulation (where existing is R-20 or more) to at least R-25 higher than existing
- Wall insulation to an R-value of 13 (where existing is an empty wall cavity)
- Air sealing and weather stripping (**required**, unless a .45 NACH or better is determined with a pre-blower door test in value)

The Insulation Rebate program **excludes:**

- New residential construction
- New residential additions
- Garages
- Sheds
- Workshops
- Below-ground basements
- Insulated doors
- Mobile homes
- Unit properties with more than four units

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Focus on Energy	WI	HPwES		0.8	from 2011 evaluation report
MA	MA	HES		0.9	2012 MA RR and LL evaluation report; insulation measures had low free-ridership
Efficiency Maine	ME	HES		0.86	From the 2011 HES evaluation report
average				0.85	

Residential – Refrigerator Recycling

Measure Group (Electric)	Measure Description	Current NTG Ratio	Recent Xcel Evaluation Value	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Refrigerator Recycling	Refrigerator Recycling - Secondary	0.61	N/A	N/A		Not enough evidence to support a change	0.61	0
Refrigerator Recycling	Refrigerator Recycling - Primary	0.53	N/A	0.62		Keep current value	0.53	0
Refrigerator Recycling	Refrigerator Recycling - Freezer	0.53	N/A	0.65		Keep current value	0.53	0

Participation in this program is subject to important rules and eligibility requirements.

To participate in the program, you must:

Be a residential electric customer of Xcel Energy living in Colorado, with a valid account number.

Have the appliance picked up from the residential address listed on your billing account.

Own the refrigerator/freezer you are recycling.

Have either an operational refrigerator or a stand-alone freezer that is 10–30 cubic feet. Operational is defined as being capable of cooling/freezing and able to make ice. Most miniature and commercially-sized refrigerators do not qualify.

Plug in your fridge or freezer the night before the pickup date. The unit must demonstrate full operational capability when inspected at the time of pickup.

Recycle no more than two working fridges or freezers per year, per household.

Enjoy the cool savings. The reward of \$50 is mailed to you within four weeks after pickup of the refrigerator or freezer.

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Rocky Mountain Power	ID	See you later - refrigerator		0.49	Refrigerators: Pacificorp Rocky Moutain Power Idaho See ya later refrigerator evaluation 2009-2010
				0.57	Freezers: Pacificorp Rocky Moutain Power Idaho See ya later refrigerator evaluation 2009-2010
Ameren Power	IL	Appliance Recycling		0.79	Refrigerators: Appliance Recycling PY2 Evaluation
				0.82	Freezers: Appliance Recycling PY2 Evaluation
				0.57	Annual Report to the Pennsylvania PUC for the period ending May 2010 PY 1; fridge and freezer
			average refrigerator	0.62	
			average freezer	0.65	

Residential – School Education Kits & Saver Switch

Measure Group	Measure Description	Current NTG Ratio	Recent Xcel Evaluation Value	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Residential	Saver Switch	1.00	N/A	N/A	This type of program generally uses a NTG ratio of 1.0	Keep Current Value	1.00	0.00
Residential	School Education Kits	1.00	N/A	N/A	This type of program generally uses a NTG ratio of 1.0	Keep Current Value	1.00	0.00

Residential – Showerheads

Measure Group	Measure Group	Requirement	Current NTG Ratio	2011 Xcel Evaluation Suggestion	Average Benchmark NTG Stipulated Ratios	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Showerhead	Showerhead - Electric	1.5 GPM showerhead replacing a 2.5 GPM showerhead for units with electric DHW	0.99	0.99	1.00	0.90	The lower evaluated NTG numbers for showerheads was given at the program level for most sources. DEER listed showerheads as having a higher NTG value than other DHW measures	Keep Current NTG Value	0.99	0.00
Showerhead	Showerhead - Gas	1.5 GPM showerhead replacing a 2.5 GPM showerhead for units with gas DHW	0.99	0.99	1.00	0.90	The lower evaluated NTG numbers for showerheads was given at the program level for most sources. DEER listed showerheads as having a higher NTG value than other DHW measures	Keep Current NTG Value	0.99	0.00
Showerhead	Showerhead - Low Income - Electric	1.5 GPM showerhead for LI units with electric DHW	1.00	1	1.00	N/A	LI programs are generally have a 1.00 stipulated NTG value	Keep Current NTG Value	1.00	0.00
Showerhead	Showerhead - Low Income - Gas	1.5 GPM showerhead for LI units with gas DHW	1.00	1	1.00	N/A	LI programs are generally have a 1.00 stipulated NTG value	Keep Current NTG Value	1.00	0.00

Showerheads

Measure	Description	Rebate	NTG Value	Source
Showerhead	Showerhead - Electric	Free	0.99	Unknown
Showerhead	Showerhead - Gas	Free	0.99	Unknown
Showerhead	Showerhead - Low Income - Electric	Free	1.00	Industry Standard
Showerhead	Showerhead - Low Income - Gas	Free	1.00	Industry Standard

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Focus on Energy	WI	Hot Water		0.93	Included other measures including faucet aeration, water heaters, and pre-rinse sprayers: 2011 evaluation report
Arizona Public Service	AZ	HPwES	1.00		DSM Progress report 2011, July - December 2011
Efficiency Maine Trust	ME	HPwES		0.86	Efficiency Maine Trust HEwES Final Evaluation Report, Nov. 30, 2011
DEER	WI			0.70	Note, in the DEER report, FA and other Hotwater measures had lower NTG rates
NYSERDA	NY	Gas Efficiency Program, LI		1.09	Average value NTG for programs that included low flow showerheads
		Average		1.00	0.90

Xcel Evaluation of the 2011 Showerhead program

	Free-rider	Spillover	NTG
Gas	0.18	0.17	0.99
Electric	0.18	0.17	0.99

Residential – Water Heater

Measure Group (Electric)	Measure Description	Current NTG Ratio	Recent Xcel Evaluation Suggested Ratio	Average Benchmark EM&V values for other similar programs	Literature Notes / Xcel Survey Consideration	Finding	Suggested NTG Ratio	Current NTG - Suggested NTG
Water Heater Rebate (gas)	0.62 Hot Water Heater	0.9	n/a	0.87	results may not reflect lower end v	Not enough evidence to support a change to the NTG value	0.9	0
Water Heater Rebate (gas)	0.65 Hot Water Heater	0.9	n/a	0.87	results may not reflect lower end v	Not enough evidence to support a change to the NTG value	0.9	0
Water Heater Rebate (gas)	0.67 Hot Water Heater	0.9	n/a	0.87		Recommend keeping current NTG value	0.9	0
Water Heater Rebate (gas)	0.82 Tankless Hot Water Heater	0.9	n/a	0.87		Recommend keeping current NTG value	0.9	0

The following eligibility requirements apply to all Colorado water heater applicants:

You must be an Xcel Energy gas or electric customer. To qualify for the natural gas water heater rebates, you must be an Xcel Energy natural gas customer. To qualify for the electric rebate, you must be an Xcel Energy electric customer.

You must purchase a water heater that has the appropriate energy efficiency rating as indicated by the Energy Factor per the chart below. If not, the unit will not qualify for a rebate.

The application deadline for units purchased and installed between January 1, 2013 and December 31, 2013 is July 31, 2014 (applicants will qualify for 2013 rebate levels).

For units purchased and installed in 2012, the application deadline is July 31, 2013 (applicants will qualify for 2012 rebate levels).

Rebates for new home construction should be negotiated between the builder and resident or new home buyer to determine who receives the rebate.

		Natural Gas Appliance	Energy Efficiency	2012 Rebate	2013 Rebate
Natural Gas Standard Tank Water Heater			.62 EF+	\$25	\$25
			.65 EF	\$70	\$70
			.67 EF	\$90	\$90
Natural Gas Tankless Water Heater			.82 EF	\$100	\$100
		Electric Appliance	Energy Efficiency	2012 Rebate	2013 Rebate
Electric Heat Pump Water Heater ¹			N/A	\$450	\$450

+ Energy Factor (EF) is the measure of overall efficiency for water heaters.

¹ Must have electricity as the heat source. Your home may be heated with gas but if electricity is the heat source for the electric heat pump water heater, you may still qualify for the electric heat pump water heater rebate.

Utility/Group	State	Program	NTG Stipulated Value	NTG Evaluation Findings with Primary Data	Notes
Ameren	IL	GSHP		0.81	Impact and Process Evaluation of Ameren Illinois Company's Residential HEP (PY4); PY 2012
Focus on Energy	WI	HPwES		0.95	Average value, depends on measure; PY 2011 evaluation report
NYSERDA	NY	HPwES		0.94	From the 2007-2008 HPwES impact evaluation. Only counts internal SO
SUE	DEL	HPwES		0.78	State Energy Efficiency Programs EM&V report, 2013
		average		0.87	

Program Type	Measure	Description	Current NTG	Recommendation	Recommended NTG value	Delta NTG	Rational	Xcel Energy Response: Adopt Recommendation? Yes/No	Xcel Energy's Response: Rationale/Explanation
Residential	Showerhead	Showerhead - Electric	0.99	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Showerhead	Showerhead - Gas	0.99	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Showerhead	Showerhead - Low Income - Electric	1.00	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Showerhead	Showerhead - Low Income - Gas	1.00	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Energy Star New Homes - Gas and Electric	Envelope Measures - Not Boulder	0.92	Not enough evidence to support a change to the NTG value	N/A	N/A	N/A		
Residential	Energy Star New Homes - Gas and Electric	Envelope Measures - Boulder Homes < 3 000 SF	0.92	Not enough evidence to support a change to the NTG value	N/A	N/A	N/A		
Residential	Energy Star New Homes - Gas and Electric	Appliances - Energy Star Dishwashers	0.92	Not enough evidence to support a change to the NTG value	N/A	N/A	N/A		
Residential	Energy Star New Homes - Gas and Electric	Appliances - Energy Star Clothes Washers	0.92	Not enough evidence to support a change to the NTG value	N/A	N/A	N/A		
Residential	Energy Star New Homes - Electric Only	Appliances - Refrigerator	0.92	Not enough evidence to support a change to the NTG value	N/A	N/A	N/A		
Residential	Energy Star Lighting 2013	High Efficiency Lighting Fixtures	0.92	Not enough evidence to support a change to the NTG value	N/A	N/A	N/A		
Residential	Evaporative Cooling	Front Range - Replacement - Tier 1	0.52	Keep Current NTG Value	N/A	N/A	N/A		
Residential	Evaporative Cooling	Front Range - 1st Time Install - Tier 1	0.52	Keep Current NTG Value	N/A	N/A	N/A		
Residential	Evaporative Cooling	Front Range - Replacement - Tier 2	0.59	Keep Current NTG Value	N/A	N/A	N/A		
Residential	Evaporative Cooling	Front Range - 1st Time Install - Tier 2	0.59	Keep Current NTG Value	N/A	N/A	N/A		
Residential	Evaporative Cooling	Front Range - Replacement - Tier 3	1.00	Recommend Changing the NTG value	0.59	-0.41	This measure provides rebates for the installation of a whole home evaporative cooling HVAC system. The current NTG value in use during the 2012/13 program year and supplied in the post-settlement deemed savings workbooks is 1.00. The current value of 1.00 is well above the industry average for programs that rely on primary data collection to set NTG values. Examination of three other programs showed an average NTG value of between 0.52 and 0.59 for standard and premium equivalent evaporative coolers for new and replacement evaporative cooling systems. These programs differed from the Xcel program in Colorado in that they did not have a whole house requirement; however there was nothing in the prevailing industry literature that suggested that whole home systems would have different NTG values associated with them. Additionally, the evaluation report on the 2009 program year evaporative coolers measures suggested a NTG value of 0.52 for the standard evaporative coolers (Tier 1) and 0.59 for premium evaporative coolers (Tier 2) for this program moving forward. No whole house evaporative cooling systems were included in the 2009 evaluation report.		
Residential	Evaporative Cooling	Western Slope - Replacement - Tier 1	0.52	Keep Current NTG Value	N/A	N/A	N/A		
Residential	Evaporative Cooling	Western Slope - 1st Time Install - Tier 1	0.52	Keep Current NTG Value	N/A	N/A	N/A		
Residential	Evaporative Cooling	Western Slope - Replacement - Tier 2	0.59	Keep Current NTG Value	N/A	N/A	N/A		
Residential	Evaporative Cooling	Western Slope - 1st Time Install - Tier 2	0.59	Keep Current NTG Value	N/A	N/A	N/A		
Residential	Evaporative Cooling	Western Slope - Replacement - Tier 3	1.00	Recommend Changing the NTG value	0.59	-0.41	This measure provides rebates for the installation of a whole home evaporative cooling HVAC system. The current NTG value in use during the 2012/13 program year and supplied in the post-settlement deemed savings workbooks is 1.00. The current value of 1.00 is well above the industry average for programs that rely on primary data collection to set NTG values. Examination of three other programs showed an average NTG value of between 0.52 and 0.59 for standard and premium equivalent evaporative coolers for new and replacement evaporative cooling systems. These programs differed from the Xcel program in Colorado in that they did not have a whole house requirement; however there was nothing in the prevailing industry literature that suggested that whole home systems would have different NTG values associated with them. Additionally, the evaluation report on the 2009 program year evaporative coolers measures suggested a NTG value of 0.52 for the standard evaporative coolers (Tier 1) and 0.59 for premium evaporative coolers (Tier 2) for this program moving forward. No whole house evaporative cooling systems were included in the 2009 evaluation report.		
Residential	High Efficiency Air Conditioning	New Home Install High Efficiency Energy Star AC CEE Tier 1	0.89	Recommend Changing the NTG value	0.68	-0.21	This measure provides rebates for various air conditioning and ground source heat pumps. The current NTG value in use during the 2012/13 program year and supplied in the post-settlement deemed savings workbooks is .89 for air conditioning systems. The current values are well above the industry average for programs that rely on primary data collection to set NTG values. Examination of three other similar air conditioning programs from three other states that used primary data collection to determine NTG values for air conditions without consideration of ground source heat pumps, showed an average NTG value of 0.63. The evaluation report on the 2009 air conditioning measures suggested a NTG value of 0.68 for this program moving forward. It is the opinion of Michaels Energy that enough evidence exists in industry literature, other program values, and the 2009 evaluation report to recommend a change in the NTG value for these measures. Michaels recommends that Xcel adopt the 2009 evaluation report recommended NTG value of 0.68 for air conditioning units in future Same as above	NO	A program evaluation of the Colorado High Efficiency Air Conditioning Product Program (HEAC Program) was completed in November 2012 by The Cadmus Group, Inc. This evaluation resulted in an updated net-to-gross (NTG) of 68% (0.676). The NTG analysis was based on self-report data from the phone surveys with participating and nonparticipating contractors and participating customers, in which we asked questions about freeridership and spillover. The recommended NTG from Michaels Engineering and The Cadmus Group are the same.
Residential	High Efficiency Air Conditioning	New Home Install High Efficiency Energy Star AC CEE Tier 2	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	New Home Install High Efficiency Energy Star AC CEE Tier 3	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	New Home Provide Quality Install of New AC 3 T 13 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above

Residential	High Efficiency Air Conditioning	New Home Provide Quality Install of New AC 3 T 14.5 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	New Home Provide Quality Install of New AC 3 T 15 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	New Home Provide Quality Install of New AC 3 T 16 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Existing Home Install High Efficiency Energy Star AC CEE Tier 1	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Existing Home Install High Efficiency Energy Star AC CEE Tier 2	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Existing Home Install High Efficiency Energy Star AC CEE Tier 3	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Existing Home Provide Quality Install of New AC 3 T 13 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Existing Home Provide Quality Install of New AC 3 T 14.5 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Existing Home Provide Quality Install of New AC 3 T 15 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Existing Home Provide Quality Install of New AC 3 T 16 SEER	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Install High Efficiency AC with Quality Installation Trade In	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Install High Efficiency AC with Quality Installation Trade In	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Install High Efficiency AC with Quality Installation Trade In	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Install High Efficiency AC with Quality Installation Trade In	0.89	Recommend Changing the NTG value	0.68	-0.21	Same as above	NO	See Above
Residential	High Efficiency Air Conditioning	Installation of GSHP 6 T 14.1 EER in New Home (3220 Sq. Ft.) for Cooling	1.00	Recommend Changing the NTG value	0.7	-0.30	This measure provides rebates for various ground source heat pumps. The current NTG value in use during the 2012/13 program year and supplied in the post-settlement deemed savings workbooks is 1.00 for ground source heat pumps. The current values are well above the industry average for programs that rely on primary data collection to set NTG values. Examination of five other programs that either included NTG values for ground source heat pumps specifically or as part of a larger HVAC program showed an average NTG value of 0.70. An examination of relevant industry literature did not find support applying a 1.00 NTG value for this measure. Ground source heat pumps were not included in the 2009 program year Xcel evaluation; however the current NTG value far exceeds industry averages for programs that have conducted primary data collection for these programs. Michaels recommends that Xcel adopt an industry standard NTG value of 0.70 for ground source heat pumps in future program years.	YES	GSHPs were not included in the HEAC program evaluation referenced above. Michaels NTG recommendation was based on a comparison of five other programs that either included NTG values for ground source heat pumps specifically or as part of a larger HVAC program showed an average NTG value of 0.70. Xcel Energy accepts this recommendation and will adopt a NTG of 0.70 for GSHPs.
Residential	High Efficiency Air Conditioning	Installation of GSHP 6 T 14.1 EER in New Home (1440 Sq. Ft.) for Cooling	1.00	Recommend Changing the NTG value	0.7	-0.30	Same as above	YES	See Above
Residential	High Efficiency Air Conditioning	Installation of GSHP 6 T 14.1 EER in New Home (3220 Sq. Ft.) for Heating	1.00	Recommend Changing the NTG value	0.7	-0.30	Same as above	YES	See Above
Residential	High Efficiency Air Conditioning	Installation of GSHP 6 T 14.1 EER in New Home (1440 Sq. Ft.) for Heating	1.00	Recommend Changing the NTG value	0.7	-0.30	Same as above	YES	See Above
Residential	Home Lighting	CFL	0.85	Recommend keeping current NTG value	N/A	N/A	N/A	YES	
Residential	Home Lighting	LED	1.00	Recommend Changing the NTG value	0.85	-0.15	This measure provides rebates for LED lighting. The current NTG value in use during the 2012/13 program year and supplied in the post-settlement deemed savings workbooks is 1.00 for LED lighting. The current values are well above the industry average for programs that rely on primary data collection to set NTG values. Examination of two other programs that offered similar buy down LED incentives that rely on primary data collection to set NTG values showed NTG value of 0.68. LED lighting was not included in the 2009 program year Xcel evaluation. An examination of relevant industry literature did not find significant differences in the free-ridership and spillover rates for CFL and LED lighting. Michaels recommends that Xcel use the same NTG value of 0.85 for LED lighting that it currently has in place for CFL lighting.	NO	Michaels sites the CA PUC stating a NTG of .8 however that information was not based on research; it was based on a default value in the CA DEER database. The evaluation report states: "Similar to energy efficiency fixtures, extremely low incidence and upstream distribution made it impossible to verify installation rates and NTGR estimates for the rebated LED measures. As a result the ex-ante value was retained for installation rate (100%) and the default value from DEER was used for the NTGR estimate (0.80)." -p.67. http://www.energydataweb.com/cpucFiles/18/FinalUpstreamLightingEvaluationReport_2.pdf Michaels also uses the WI Focus on Energy as a benchmark with a NTG of .6. The research was implemented by Cadmus using the Price Response Model. The .6 is not a NTG value but merely a free ridership value. Also the Price Response Model was used in the 2012 MN Home Lighting Program Evaluation and was found to have a number of issues including the fact that model is not able to accurately measure the impact of advertising and spillover. In the same report Cadmus was not able to develop a NTG recommendation for LED bulbs because of the number of bulbs sold was too small. Michaels also uses the 2011 NV Energy Evaluation report. The report was completed by ADM and focused on CFLs. There are a few issues with the report: it was done in 2011 which is the year that LED bulbs were introduced to the residential market. The market has changed substantially and this report is not a relevant to what is currently happening in the market. The LED sales that were evaluated totaled 5 796 bulbs which is an extremely small sample of bulbs and no specific LED remarks were made discussing the NTG ratio. Thirdly in reviewing the report it did not include LED specific questions to accurately determine the LED specific NTG ratio. The NTG questions were combined for CFLs and LEDs. https://www.nvenergy.com/company/rates/filings/rp/NPC_IRP/images/vol_13%20.pdf LED sales within the Home Lighting program account for 1-2% of total sales. It is extremely unlikely that the free ridership and spillover would equal 15% on such a new product. Public Service plans to implement a Program Evaluation in 2015. Xcel Energy recommends a NTG for LED bulbs of 100% until the Program Evaluation has been completed.
Residential	HPwES	Attic Insulation	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Air Sealing and Weather-stripping	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Wall Insulation	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	CFL	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Refrigerator Recycling	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	ES Refrigerator	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	EMC Furnace Fan	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Dishwasher	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Clothes washer	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Evap Cooling	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Evap Cooling	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Evap Cooling	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		

Residential	HPwES	New Home Install High Efficiency Energy Star AC CEE Tier 1	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	New Home Install High Efficiency Energy Star AC CEE Tier 2	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	New Home Install High Efficiency Energy Star AC CEE Tier 3	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	New Home Provide Quality Install of New AC 3 T 13 SEER	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	New Home Provide Quality Install of New AC 3 T 14.5 SEER	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	New Home Provide Quality Install of New AC 3 T 15 SEER	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	New Home Provide Quality Install of New AC 3 T 16 SEER	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Install High Efficiency AC with Quality Installation Trade In	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Install High Efficiency AC with Quality Installation Trade In	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	Install High Efficiency AC with Quality Installation Trade In	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	GSHP Heating	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES	GSHP Cooling	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES (gas)	Setback Thermostat	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES (gas)	Furnace	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES (gas)	Boiler	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	HPwES (gas)	Water Heater	0.94	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Heating System Rebate	Furnace 92 AFUE	0.94	Recommend keeping current NTG value	N/A	N/A	N/A	No	NTG incorrectly quoted as 94% pulled from wrong program (Home Performance with ENERGY STAR). NTG has been 77% since 2008. Does Michael's wish to re-examine 77% NTG?
Residential	Heating System Rebate	Furnace 94 AFUE	0.94	Recommend keeping current NTG value	N/A	N/A	N/A	No	NTG incorrectly quoted as 94% pulled from wrong program (Home Performance with ENERGY STAR). NTG has been 77% since 2008. Does Michael's wish to re-examine 77% NTG?
Residential	Heating System Rebate	Boiler 84 AFUE	0.94	Recommend keeping current NTG value	N/A	N/A	N/A	No	NTG incorrectly quoted as 94% pulled from wrong program (Home Performance with ENERGY STAR). NTG has been 77% since 2008. Does Michael's wish to re-examine 77% NTG?
Residential	Insulation Heating Effects	Attic Insulation	0.89	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Insulation Heating Effects	Air Sealing and Weather-stripping	0.89	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Insulation Heating Effects	Wall Insulation	0.89	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Refrigerator Recycling	Refrigerator Recycling - Secondary	0.61	Not enough evidence to support a change to the NTG value	N/A	N/A	N/A		
Residential	Refrigerator Recycling	Refrigerator Recycling - Primary	0.53	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Refrigerator Recycling	Refrigerator Recycling - Freezer	0.53	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Saver Switch	A/C	1	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	School Education Kits	CFL	1	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Water Heater Rebate (gas)	0.62 Hot Water Heater	0.9	Not enough evidence to support a change to the NTG value	N/A	N/A	N/A		
Residential	Water Heater Rebate (gas)	0.65 Hot Water Heater	0.9	Not enough evidence to support a change to the NTG value	N/A	N/A	N/A		
Residential	Water Heater Rebate (gas)	0.67 Hot Water Heater	0.9	Recommend keeping current NTG value	N/A	N/A	N/A		
Residential	Water Heater Rebate (gas)	0.82 Tankless Hot Water Heater	0.9	Recommend keeping current NTG value	N/A	N/A	N/A		

Program Type	Messure	Description	Current NTG	Recommendation	Recommended NTG value	Delta NTG	Rational	Net Energy Response Adopt Recommendation? Yes/No	Net Energy Response Rationale/Explanation
Bus ness	Comp essed A	Ave age Study - Eff c ency	0.87	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Comp essed A	No A. Loss Di a n Values	0.87	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Comp essed A	New VFD Comp essio n - 50 hp	0.87	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Comp essed A	Replacement VFD Comp essio n - 50 hp	0.87	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Compute - Eff c ency	Desktop PC - Ene gy Sta. 5.0 w th 80 plus B onze level power supply	0.88	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Compute - Eff c ency	Desktop PC - Ene gy Sta. 5.0 w th 80 plus 5 lve level power supply	0.88	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Compute - Eff c ency	Desktop PC - Ene gy Sta. 5.0 w th 80 plus Gold level power supply	0.88	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Compute - Eff c ency	Desktop PC - Ene gy Sta. 5.0 w th 80 plus Plat num level power supply	0.88	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Compute - Eff c ency	Th n-cl ont o. 2z -o cl ent sollot on 1 dev ce pe 1 desktop	0.92	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	RTUs	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	Sp l Systems - 5.4 tons	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	Cond Un t > 5.4 tons	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	Water - abs ce Heat Pump	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	BTAC	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	Ch lle - Sc -o ll Sc -ew	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	Cent. Taget Ch ll er	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	A - cooled Ch ll er	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	Advanced Evapo at ve Coole	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	Ch lle - VSD	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	Water - de econom ze	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Cool ng Eff c ency	Cool ng Stud es	0.80	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	Heat ng Eff c ency (Gas)	Hot Water - Bo le - Plan A 85%	0.97	Recommend Chang ng the NTG value	0.86	0.11			This messu e p oves fo ebates fo eplacement of a hot water bo le , o nsta lat on of a new hot water bo le - whe e one was net o gn l y esset, fo ce ta n bo le s w th g eate than 85 pe cent eff c ent bo le s. The cu - ent NTG value s use du ng the 2012/13 p o g am yea , and suppl ed n the post-settlement deemed sav rgs wo kbo
Bus ness	Heat ng Eff c ency (Gas)	Hot Water - Bo le - Plan A 92%	0.97	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Heat ng Eff c ency (Gas)	Hot Water - Bo le - Plan B 85%	0.97	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Heat ng Eff c ency (Gas)	Fu nace g eate - than 150,000 BTU/h and g. eate - than 92% eff c ency	0.77	Keep Cu - ent NTG Value	N/A	N/A	N/A		
Bus ness	Heat ng Eff c ency (Gas)	Fu nace g eate - than 150,000 BTU/h and g. eate - than 94% eff c ency	0.77	Keep Cu - ent NTG Value	N/A	N/A	N/A		
Bus ness	Heat ng Eff c ency (Gas)	Water - Heate s	0.97	Recommend Chang ng the NTG value	0.86	0.11			This messu e p oves fo ebates fo tankless o sto age tank water -heate s w th a m n mum eff c ency of 93 pe cent, among other c e a - the cu - ent NTG value s use du ng the 2012/13 p o g am yea , and suppl ed n the post-settlement deemed sav rgs wo kbo
Bus ness	Heat ng Eff c ency (Gas)	P pe Insulat on	0.61	Recommend Chang ng the NTG value	0.71	-0.10			This messu e p oves fo ebates fo the installat on of a pe nsulat on fo bo le o hot water p es. The cu - ent NTG value s use du ng the 2012/13 p o g am yea , and suppl ed n the post-settlement deemed sav rgs wo kboos s o 61. L ttle indust y da
Bus ness	Heat ng Eff c ency (Gas)	Bo le - Tune Ups	0.97	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Heat ng Eff c ency (Gas)	Makelate - Bo le - cont -o ll o - 5.1 yu -ndown, at o	0.97	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Heat ng Eff c ency (Gas)	Quidoo - a - esset cont -o ds	0.97	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Heat ng Eff c ency (Gas)	Stack damp s	0.97	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	Heat ng E ff c ency (Gas)	Seam t ap - eplacements	0.97	Not enough ev deuce to suppo t a change to the NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	T8 Ballasts, 4 ft. o - less, 3 and 2 lamp	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	T8 Ballasts, 4 ft. o - less, 3 and 4 lamp	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	T8 Ballasts, Length > 4 ft. and > 8 ft., 1 lamp	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	T8 Ballasts, Length > 4 ft. and > 8 ft., 2 lamp	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	T8 to T8 Delamp ng	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	T8 Opt on - out on 1 and 2 Lamp	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	T8 Opt on - out on 1 and 4 Lamp	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	T5 Ballasts 1 and 2 Lamp	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	T5 Ballasts 3 and 4 Lamp	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Compact Fluo -escent Lamps (CFL), less than 19W	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	CFL, 19 to 32 W	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	CFL, 33 to 56W	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Indust - al MuIt - CFL	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	HID, 151 to 250W	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	HID, 251 to 1000W	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Pulse-Sta t Metal Hal de. - 175W	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Pulse-Sta t Metal Hal de, 176W-319W	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Pulse-Sta t Metal Hal de, 320W-749W	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Pulse-Sta t Metal Hal de, 750W	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Pl a ng Gs - eages	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	H gh Bay Fluo -essents - eplac ng 250 Watt Metal Hal de	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	H gh Bay Fluo -essents - eplac ng 400 Watt Metal Hal de	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	H gh Bay Fluo -essents - eplac ng 750 Watt Metal Hal de	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	H gh Bay Fluo -essents - eplac ng 1000 Watt Metal Hal de	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Wall-mount occupancy senso	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Ce ng mount occupancy senso	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Photocont	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Ex t g et of t and eplacement	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Low Wattage T8 t lamps	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A	N/A		
Bus ness	L igh ng Ret of t	Integ. ated 25W Ce - am - t Metal Hal de	0.84	Recommend keep ng cu - ent NTG value	N/A	N/A </tr			

Business	Lighting New Construction	Based on Deemed Savings and replacing a 75W incandescent	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Lighting New Construction	Based on a weighted average of 39W, 70W, 100W and 130W Ceramic Metal Halide Systems installed instead of 100W, 250W, 300W and 500W Incandescent and Deemed Savings Data	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Lighting New Construction	Based on a weighted average of 175W and 250W Ceramic Metal Halide. Systems installed instead of 250W and 400W Mercury Vapor and Deemed Savings Data	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Lighting New Construction	Based on a weighted average of 320W, 350W, and 400W Ceramic Metal Halide. Systems installed instead of 400W Metal Halide and 1000W Mercury Vapor and Deemed Savings Data	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Motors and Drives	Plan A enhanced	0.65	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Motors and Drives	Plan B	0.65	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Motors and Drives	Plan B enhanced	0.65	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Motors and Drives	VFD	0.65	Recommend keeping current NTG value	N/A	N/A	N/A	No	Per the previous comprehensive evaluation, we believe the NTG should be raised to 70%, given the increased focus on small business customers.
Business	Motors and Drives	Motor Controls	0.95	Recommend Changing the NTG value	0.65	0.30	These rebates are offered for to provide Nola type controls. A Nola controller operates as an electronic soft starter with feedback from voltage and current sensors or other load sensors to reduce voltage during continuous operation at low loads. This reb	No	Michaels has not presented any studies or evidence supporting a NTG reduction. The measure is new and has not been adopted at all, so there is no free ridership.
Business	Motors and Drives	ECM on Evaporators	0.95	Recommend Changing the NTG value	0.65	0.30	This measure provides rebates for electrically commutated motors (ECMs) for refrigeration applications. Other measures in the Motors and Drives program, particularly VFDs, use a NTG value of 0.65, while the ECM measure applies a NTG value of 0.95. Many m	No	Michaels has not presented any studies or evidence supporting a NTG reduction. To the contrary, we have presented strong evidence that there was zero, or extremely low free ridership.
Business	Small Business Retrofit Lighting	High-efficiency fluorescent T8 fixtures—retrofits and lamp reduction (delamping)	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	Fluorescent T5 retrofits	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	Installing CFL lamps or fixtures	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	High-bay fluorescent fixtures	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	LED exit signs and	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	LED wall pack fixtures	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	Parking garage T8 lamps	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	Occupancy sensors, to name a few	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	ENERGY STAR®-qualified interior LED screw-in or pin-based lamps	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	ENERGY STAR®-qualified interior LED luminaires/downlights	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	Exterior LED canopy and soffit fixtures	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	Refrigerated LED Case Lighting for five and six foot doors	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		
Business	Small Business Retrofit Lighting	T12 to T8 optimization retrofits	0.84	Recommend keeping current NTG value	N/A	N/A	N/A		

➤ **Appendix G - Technical Reference Manual**

The Technical Reference Manual section contains the deemed savings technical assumption electronic files that are provided as part of the overall 2014 DSM Plan.

The deemed savings technical assumptions describe the calculation methodology and assumptions that will be used to determine actual savings, costs, and other values for each product rebate as it is processed. These calculation methodologies and assumptions are then applied to the population and the forecasted number of participants for each product, which is presented in the planning assumptions section of the 2014 DSM Plan. The planning assumptions are essentially estimates of the energy consumption impacts and other measure-specific factors for each product, and are used to conduct the benefit-cost analysis for products in this Plan.

Product: Commercial Refrigeration

Prescriptive rebates will be offered for the installation of reach-in cases with doors, evaporator fan motor controls, night curtains on refrigerator and freezer cases, EC Motors for Refrigeration Evaporators, Anti-Sweat Heater Controls and/or replacement of standard refrigeration case doors with No Heat Case Doors, and replacement lighting equipment.

Algorithms:

Enclosed Reach-In Cases	
Enclosed Reach-in Case Electrical Demand	= $[(\text{Btuh_base} \times \text{LF} \times 1/\text{COP}) - (\text{Btuh_ee} \times \text{LF} \times 1/\text{COP})] / 3412$
Enclosed Reach-in Case Electrical Energy	= $[(\text{Btuh_base} \times \text{LF} \times 1/\text{COP}) - (\text{Btuh_ee} \times \text{LF} \times 1/\text{COP})] / 3412 \times \text{Hrs}$
Evaporative Fan Motor Controls	
Evaporator Fan Motor Control Electrical	= Baseline Fan Watts x (1-ESF) x LF
Evaporator Fan Motor Control Electrical	= Baseline Fan Watts x (1-ESF) x LF x Efficient Hours
Night Curtains	
Night Curtains Electrical Demand Savings	= $(\text{Btuh_base} \times \text{LF} \times 1/\text{COP}) / 3412 - (\text{Btuh_base} \times \text{LF} \times 1/\text{COP}) / 3412 = 0$
Night Curtains Electrical Energy Savings	= $(\text{Btuh_base} \times \text{LF} \times 1/\text{COP}) / 3412 \times \text{Hrs} \times (\text{Hours_base} - \text{Hours_ee})$
CHW Pre-Rinse	
CHW Pre-Rinse Electric (Customer kWh)	= $\text{EnergyToHeatWater} / \text{EF_electric} / \text{ConversionFactor}$
CHW Pre-Rinse Electric (Customer kW)	= Unit kWh Savings per Year / 8,760 hours
EnergyToHeatWater	= $\text{SpecificHeat} \times \text{Density} \times \text{WaterSaved} \times (\text{Tset} - \text{Tcold})$
WaterSaved	= $(\text{Flow_base} \times \text{Hours_base} - \text{Flow_eff} \times \text{Hours_eff}) \times \text{Days}$
EnergyToHeatWater	= $\text{SpecificHeat} \times \text{Density} \times \text{WaterSaved} \times (\text{Tset} - \text{Tcold})$
WaterSaved	= $(\text{Flow_base} \times \text{Hours_base} - \text{Flow_eff} \times \text{Hours_eff}) \times \text{Days}$
CHW-Aerator-Electric	
CHW Aerator Electric (Customer kWh)	= $\text{EnergyToHeatWater} / \text{EF_electric} / \text{ConversionFactor}$
CHW Aerator Electric (Customer kW)	= Unit kWh Savings per Year / 8,760 hours
WaterSaved	= $(\text{Flow_base} - \text{Flow_eff}) \times \text{TPD} / 60 \text{ min/hr} \times \text{Days}$
EnergyToHeatWater	= $\text{SpecificHeat} \times \text{Density} \times \text{WaterSaved} \times (\text{Tfaucet} - \text{Tcold})$
EPG	= $\text{Density} \times \text{SpecificHeat} \times (\text{Tfaucet} - \text{Tcold}) / (\text{ReEff} \times \text{ConversionFactor})$
Unit Dth Savings per Year	= $\text{EnergyToHeatWater} / \text{EF_gas} / \text{ConversionFactor}$
WaterSaved	= $(\text{Flow_base} - \text{Flow_eff}) \times \text{TPD} / 60 \text{ min/hr} \times \text{Days}$
EnergyToHeatWater	= $\text{SpecificHeat} \times \text{Density} \times \text{WaterSaved} \times (\text{Tfaucet} - \text{Tcold})$
Algorithms:	
Anti-Sweat Heater Controls kW Savings (Customer kW)	= $\text{ASHC_kWh} / \text{ASHC_Hours}$
Anti-Sweat Heater Controls kWh Savings (Customer kWh)	= $\text{ASHC_kWh} = \text{ASHC_Baseline_kW} \times \text{Refrigeration_Factor} \times \text{ASHC_Hours} \times \% \text{Off}$
Electronically Commutated Motor Electrical Demand Savings (Customer kW)	= $(\text{ECM_Baseline_Fan_Watts} - \text{ECM_Efficient_Fan_Watts}) \times \text{Refrigeration_Factor}$
Electronically Commutated Motor Electrical Demand Savings (Customer kWh)	= $(\text{ECM_Baseline_Fan_Watts} - \text{ECM_Efficient_Fan_Watts}) \times \text{Refrigeration_Factor} \times \text{ECM_Hours}$
No Heat Case Doors (Customer kW, NHD_kW)	= $(\text{NHD_Baseline_kW} - \text{NHD_Efficient_kW}) \times \text{Refrigeration_Factor}$
No Heat Case Doors (Customer kWh)	= $\text{NHD_kW} \times \text{NHD_Hours}$
Refrigeration_Factor	= Multiplier to include interactive effects of refrigeration energy to remove heat from the motor. Reduction in motor energy results in a reduction in refrigeration energy. = $1 + \text{R_H/COP}$ (See assumptions for values)
Electrical Demand Savings (Customer kW)	= $(\text{kW_Base} - \text{kW_EE}) \times \text{HVAC_cooling_kWsavings_factor}$

Electrical Energy Savings (Customer kWh/yr)	= (kW_Base - kW_EE) x Hrs x HVAC_cooling_kWhsavings_factor
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG
Variables:	
Common	
3412	= Conversion 1kWh = 3412 BTU
COP	= Coefficient of performance of compressor in the cooler/freezer. COP = 2.28 for cooler, COP = 1.43 for freezer (Reference. 1)
SpecificHeat	= Specific Heat of Water; 1.0 btu / (lb x °F)
TDLF	Transmission-Distribution Loss Factor = 6.5%, the percentage loss of electricity as it flows from the power plant to the customer, calculated using factors from Enhanced DSM Filing SRD-2.
LF	= Load Factor of refrigeration system. Assumed to be 0.90 (Reference 2)
SpecificHeat	= Specific Heat of Water, 1.0 btu / (lb x °F)
EF_gas	= Efficiency of gas water heater, 0.75 (Reference 3)
ConversionFactor	= 1,000,000 Btu/Dth (gas water heater)
Enclosed Reach-In Cases	
Btuh_base	= Btuh load of the existing Referencerigerated case. 1,500 btuh/ft for open cases (Reference 3)
Btuh_ee	= Btuh load of the high efficiency Referencerigerated case. 267 btuh/ft for medium temp (Reference 5)
Incremental cost	= Incremental cost of efficient measures = \$906.27, Reference 21.
Evaporative Fan Motor Controls	
Speed Reduction	= new speed as a percent of full speed; 10% (Reference 15)
Measure Life	= 15 years (Reference 1)
ESF	=Energy Savings Factor = (Speed Reduction) ^{2.5} = 0.32%
Baseline Fan Watts	=Average input watts for shaded pole motor; 95.08 (Reference 15)
Control Time	=percent of time motor operates at reduced speed based on control setting; 30%
Efficient Hours	=Annual hours at reduced speed = baseline hours * control time
Incremental cost	= Incremental cost of efficient measures = \$119.75, Reference 1.
Night Curtains	
Btuh_base	= Btuh load of the existing Referencerigerated case. 1,500 btuh/ft for open cases (Reference 3)
C_inf	= Percentage of heat gain coming from infiltration. 69%. (Reference 1)
Hours_base	= Annual operating hours before the night curtains= 2920 (8 hr/day)
Hours_ee	= Annual operating hours after the night curtains = 1496
CF	= Coincidence Factor = 0
Measure Life	= 4 years (Reference 16)
Persistence Factor	= Percent of time the covers are used = 60%. (Reference 15)
O&M Savings	= (\$3.16) based on 60 seconds per 15 feet to install or remove curtains (.41 hrs/yr) at CO Minimum wage of \$7.78/hr
Incremental cost	= Incremental cost of efficient measures = \$37.54, Reference 21.
Anti-Sweat Heater Controls:	
ASHC_Baseline_kW	= Average anti-sweat heater kW per door without controls, Table 4 (Reference 23 and 24)
ASHC_Hours	= Hours per year for anti-sweat heaters, Table 4 (Reference 23)
CF	= Coincidence Factor, Table 4 (Reference 15)

%_Off	= Percent of time the anti-sweat heaters are turned off by the controller, Table 4 (Reference15)
Incremental cost	= Incremental cost of efficient measures; See Tables 4
EC Motors for Refrigeration Evaporators:	
ECM_Baseline_Fan_Watts	= Average input watts for shaded pole or permanent split capacitor motor, Table 3 (Reference 15)
ECM_Efficient_Fan_Watts	= Average input watts for efficient motor, Table 3 (Reference 15)
ECM_Hours	= Hours per year (freezer subtracts defrost time), Table 3 (Reference 15)
Incremental cost	= Incremental cost of efficient measures; See Table 3
No Heat Case Doors:	
NHD_Baseline_kW	= Average kW for a standard case door, Table 5 (Reference 23 and 24)
NHD_Efficient_kW	= Average kW for a no heat case door, Table 5 (Reference 2)
NHD_Hours	= Hours per year for no heat case doors, Table 5 (Reference 2)
NHD_kW	= No heat case doors kW savings
R_H	= Residual Heat fraction; estimated percentage of the heat produced by the heaters or motors that remains in the freezer or cooler case and must be removed by the refrigeration unit. = 100% for evaporator motors and 35% for anti-sweat heaters and no heat doors
Coincidence Factor	= Probability that peak demand savings will coincide with peak utility system demand = 100%
Measure Life	= Length of time the measure will be operational: 15 years for EC Motors, (Reference 17); 12 years for ASHC (Reference 21); 10 years for No Heat Case Doors (Reference 20).
NTG	Net-To-Gross = 100%
Incremental cost	= Incremental cost of efficient measures; See Table 5
Lighting:	
Hrs	= Annual Operating Hours. Hours to be obtained from Table 7. The type of facility is to be supplied by the customer.
kW_Base	= Baseline fixture wattage (kW per fixture) determined from stipulated fixture wattages from Standard Fixture information. Fixture type provided by customer. Lighting Efficiency Deemed Table 4
kW_EE	= High Efficiency fixture wattage (kW per fixture) determined from stipulated fixture wattages from Standard Fixture information. Fixture type provided by customer. Lighting Efficiency Deemed Table 4
HVAC_cooling_kWhsavings_factor	= Cooling system energy savings factor resulting from efficient lighting from Table 6. Reduction in lighting energy results in a reduction in cooling energy, if the customer has air conditioning. Existence of air conditioning to be provided by customer.
HVAC_cooling_kW savings_factor	= Cooling system demand savings factor resulting from efficient lighting from Table 6. Reduction in lighting demand results in a reduction in cooling demand, if the customer has air conditioning. Existence of air conditioning to be provided by customer.
HVAC_heating_kW savings_factor	= Heating system penalty factor resulting from efficient lighting from Table 6. Reduction in lighting demand results in an increase in heating usage, if the customer has gas heating. (Reference 31).
CF	= Coincidence Factor, the probability that peak demand of the lights will coincide with peak utility system demand. CF will be determined based on customer provided building type in table 7.
Measure Life	= Length of time the lighting equipment will be operational, see Table 8 for Measure Lifetimes
Baseline Cost	= Cost of the baseline technology. For Retrofit, the cost is \$0.00 since the baseline is to continue to operate the existing system. For New Construction, the cost is that of the lower efficiency option. Costs by (Reference 31) and vendors.
High Efficiency Cost	= Cost of the High Efficiency technology. Costs given in Lighting Efficiency Deemed Table 4 (Reference 31) and vendors.
kW connected	Total connected fixture load, determined as the sum of stipulated fixture wattages from Lighting Efficiency Deemed Table 4.
NTG	Net-to-gross = 84% for prescriptive measures (Reference 5) and 96% for Custom Efficiency Lighting and Lighting Redesign based on the additional influence.
Incremental operation and maintenance cost	= Other annual savings or costs associated with the electrical savings. For Lighting, this consists of additional natural gas for heating. Methodology given by Reference 29.

Required inputs from customer/contractor:

Evaporative Fan Motor Controls

Capacity (tons) of Refrigeration Unit

CHW Pre-Rinse

Gas or electric water heater, customer ZIP code

CHW-Aerator

Gas or electric water heater, customer ZIP code

For Electronically Commutated Evaporator

Size of motor

Yes

Application of motor (Display Case or Walk-in)

Yes

Case or Walk-in temperature (Medium Temp or Low Temp)

Yes

For Walk-in's: Fan diameter (<= 15 inches or >15 inches)

Yes

Cost

For Anti-Sweat Heaters:

Number of doors controlled

Yes

Number of controllers

Yes

Cost

For No Heat Doors:

Number of doors replaced

Yes

Door kW

Yes

Cost

Yes

Lighting

Number of Fixtures

Yes

Lighting equipment type

Yes

Building type

Yes

Existence of air conditioning

Yes

Verified during M&V:

Assumptions:

Enclosed Reach-In Cases

Existing case must be either a freezer or cooler multi-deck case.

Existing specialty, self-contained, and island cases do not qualify.

This measure is for replacement of open cases with new cases that include a case door.

Replacement cases must have doors, be tied into a central refrigeration system, and be purchased new.

Night Curtains

Install night curtains on open refrigerated cases to reduce heat transfer and mixing of air inside and outside the case.

Applies to professionally-installed, "permanent", low emissivity (reflective) night curtain products only. (per linear foot)

EC Motors

Each motor is replaced with the same size on a 1 for 1 basis.

Rebates do not apply to rewound or repaired motors.

Lighting

- Each replacement lighting fixture is going in on a one-for-one basis for existing fixtures. New construction fixtures are put in on a one-for-one basis instead of lower efficiency options.

- In the Technical Assumptions, one will note that the Operating Hours does not appear, but rather a modified version. the methodology defines kW Savings on the basis of difference In kW with the HVAC Cooling Demand factor.

Table 1: Average Water Mains Temperatures (Ref. 6).

Location	Temperature (°F)
Denver, CO	57.6
Golden, CO	55.6
Grand Junction, CO	59.7

Table 2: Deemed Annual Hot Water Use by Building Type (Ref. 6)

Building Type	Days Per Year
Large Office	250
Fast Food Restaurant	365
Sit-Down Restaurant	365
Grocery	365
Elementary School	200
Jr. High/High School/College	200
Health	365
Hotel	365
Other Commercial	250
Average	304

The following building types were considered not to apply to this measure: Small Office, Retail, Warehouse and Motel.

Table 3: Baseline Watts, Efficient Watts, Operating Hours and Incremental Cost for EC Motors by Application (Reference 15 and 18)

Motor Application	ECM_Baseline_Fan_Watts	ECM_Efficient_Fan_Watts	ECM_Hours	ECM Incremental Cost
EC Motors - Medium Temp Display Case	71	24	8,672	\$ 88.00
EC Motors - Low Temp Display Case	81	27	8,672	\$ 88.00
EC Motors - Medium Temp Walk-in, Evap fan <= 15" Diameter	136	44	8,585	\$ 180.00
EC Motors - Low Temp Walk-in, Evap fan <= 15" Diameter	154	50	8,585	\$ 180.00
EC Motors - Medium Temp Walk-in, Evap fan > 15" Diameter	138	69	8,585	\$ 180.00
EC Motors - Low Temp Walk-in, Evap fan > 15" Diameter	156	78	8,585	\$ 180.00

Table 4: Baseline kW, % Off, Operating Hours and Incremental Cost for Anti-Sweat Heater Controls by Application (Reference 23 and 24)

Anti-Sweat Heater Controls	ASHC_Baseline_kW	%_Off	ASHC_Hours	Incremental Cost	CF
Medium Temp Display Case	0.105	97%	8,760	\$ 180.00	97%
Low Temp Display Case	0.191	97%	8,760	\$ 180.00	97%

Table 5: Baseline Watts, Efficient Watts, Operating Hours and Incremental Cost for No Heat Case Doors by Application (Reference 2, 23 and 24)

No Heat Case Doors	NHD_Baseline_kW	NHD_Efficient_kW	NHD_Hours	NHD Incremental Cost
Medium Temp Display Case	0.121	0.000	8,760	\$ 275.00
Low Temp Display Case	0.238	0.000	8,760	\$ 800.00

Table 6: HVAC Interactive Factors (Reference 29)

HVAC system	HVAC_cooling_kWhsavings_factor	HVAC_cooling_kWsavings_factor or	Heating Penalty
Heating only	1.00	1.00	-0.00054027
Heating and cooling	1.11	1.33	-0.00054027
Cooler Door Retrofit to LED Secondary Benefits Factor	1.41	1.41	0.000000
Freezer Door Retrofit to LED Secondary Benefits Factor	1.59	1.59	0.000000

Table 7: Coincident Peak Demand Factors and Annual Operating Hours by Building Type (Reference 28 and 30)

Building Type	CF	Annual Operating Hours
24-Hour Facility	94%	8234
College	71%	5010
Cooler Door Retrofit to LED	94%	8760
Elemen./Second. School	73%	2080
Freezer Door Retrofit to LED	94%	8760
Grocery (All) / Big Box Retail (larger than 50,000 SF)	94%	5478
Health	84%	3392
Hospital	84%	4532
Hotel/Motel	51%	2697
Manufacturing	96%	5913
Night Time Exterior (LED Canopy/Soffit Lights Only)	0%	4380
Office	78%	3435
Other/Misc.	96%	2278
Restaurant	94%	4156
Retail	94%	3068
Safety or Code Required (Including Exit Signs)	100%	8760
Traffic Signals	50%	4380
Warehouse	96%	2388

Table 8: Measure Lifetimes in Years (Reference 31 and 15)

Measure	Lifetime in Years
LED Interior Lamps	12
LED Interior Fixtures	20
Low Wattage T8 Lamps	8
Ballasted CFLs	18
Integrated 25W Ceramic Metal Halide	7
T8 Lighting Systems	18
T5 Lighting Systems	18
Lighting Controls	18

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DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Compressed Air Efficiency

Description:

Custom and prescriptive rebates will be offered under the compressed air product. Prescriptive rebates are available for Variable Frequency Drive Compressors that are less than 50 hp, no air loss drain valves, cycling refrigerated dryers, mist eliminator filters, and dewpoint demand control for heatless dessicant regenerative dryers. Other measures may receive rebates through the Custom Efficiency product. Each custom efficiency project will be analyzed individually by Xcel Energy. Engineering variables required for the analysis will be obtained from the customer or vendor. Analysis will be based on standard engineering methodologies.

Algorithms:

VFD Comp Electrical Demand Savings (Customer kW)	= $HP \times Service\ Factor \times 0.746 \times (\% \text{ Load}_b / Motor_Eff_b - \% \text{ Load}_h / Motor_Eff_h)$
VFD Comp Electrical Energy Savings (Customer kWh)	= Demand Savings (Customer kW) x VFD_Hours
No Loss Air Drains Electrical Energy Savings (Customer kWh)	= Number of Drains x kW per Drain x Drain Hours
No Loss Air Drains Electrical Demand Savings (Customer kW)	= Number of Drains x kW per Drain
Cycling Dryer Electrical Energy Savings (Customer kWh)	=Historical system information gathered through four years of compressed air study data was utilized to estimate savings. Based on dryer size, an average connected system flowrate was determined. Savings due to the reduction in average operating kW for the cycling dryer are proportional to the average flowrate divided by the dryer rated flowrate. See Table 1 for savings results.
Cycling Dryer Electrical Demand Savings (Customer kW)	=Historical system information gathered through four years of compressed air study data was utilized to estimate savings. Based on dryer size, an average connected system flowrate was determined. Savings due to the reduction in average operating kW for the cycling dryer are proportional to the average flowrate divided by the dryer rated flowrate. See Table 1 for savings results.
Mist Eliminator Filter Electrical Energy Savings (Customer kWh)	=Historical system information gathered through four years of compressed air study data was utilized to estimate savings. Based on filter size, an average connected system flowrate and compressor discharge pressure were determined. Savings are due to the reduction in compressor discharge pressure resulting from a smaller pressure drop across the dryer. See Table 2 for savings results.
Mist Eliminator Filter Electrical Demand Savings (Customer kW)	=Historical system information gathered through four years of compressed air study data was utilized to estimate savings. Based on filter size, an average connected system flowrate and compressor discharge pressure were determined. Savings are due to the reduction in compressor discharge pressure resulting from a smaller pressure drop across the dryer. See Table 2 for savings results.
Dewpoint Demand Control Electrical Energy Savings (Customer kWh)	=Historical system information gathered through four years of compressed air study data was utilized to estimate savings. Based on dryer size, an average connected system flowrate was determined. Savings are due to the reduction in required purge air to regenerate the dessicant bed. See Table 3 for savings results.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Dewpoint Demand Control Electrical Demand Savings (Customer kW)	=Historical system information gathered through four years of compressed air study data was utilized to estimate savings. Based on dryer size, an average connected system flowrate was determined. Savings are due to the reduction in required purge air to regenerate the dessicant bed. See Table 3 for savings results.
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Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

Variables:

HP	= HP of new Compressor provided by the customer
Service Factor	= Service factor of the motor, we will use 1.1 (Reference 1)
0.746	= Standard conversion from HP to kW.
% Load_b	= Average percent loading for baseline compressor = 0.8802 as calculated on %BHP to %Flow tab
% Load_h	= Average percent loading for VFD compressor = 0.6105 as calculated on %BHP to %Flow tab
Motor_Eff_b	= Efficiency of existing compressor motor as determine in Table 4 using customer provided HP.
Motor_Eff_h	= Efficiency of new compressor motor as determine in Table 4 using customer provided HP.
VFD_Hours	= Operating hours of compressors from Table 4.
Drain_Hours	= Operating hours of compressed air systems. We will use 5823 hours which is an average of completed CO custom compressed air project hours.
Number of Drains	= Number of drains replaced will be provided by the customer
kW_per Drain	= kW savings per drain, we will use 0.517 kW per calculations on Forecast NLAD tab.
TDLF	Transmission-Distribution Loss Factor = 6.5%, the percentage loss of electricity as it flows from the power plant to the customer, calculated using factors from Enhanced DSM Filing SRD-2
CF_VFD	= Coincidence Factor - Probability that the measure peak demand reduction will occur at the same time as the grid peak demand, we will use 88.8% for small VFD compressors based on historic small VFD compressor projects in MN and CO.
CF_NLAD	= Coincidence Factor - Probability that the measure peak demand reduction will occur at the same time as the grid peak demand, we will use 69.1% for No Loss Air Drains based on historic custom compressed air projects in CO.
NTG	Net-to-gross = We will use 87% for Compressed Air projects (Reference 2)
Incremental operation and maintenance cost	= 0 - conservative approach, taking no credit for improved mean time between failure.
Incremental Cost of Efficient Equipment	= Incremental cost of efficient measures from Table 2. Compared to the do-nothing option.

Inputs:

Provided by Customer:

Size of Compressor
Number of Drains
Whether compressor is new or a replacement

Verified during M&V:

Yes
Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Assumptions:

VFD Compressors < 50 hp

Compressed air system in which VFD compressor is installed must have a capacity < 50hp.

Existing compressor was a non-reciprocating load/no load type with a minimum of 1 gallon of storage per cfm capacity, or modulation with or without unload.

No Loss Air Drains

Compressor must be one of the following:

Load/no-Load with at least 5 gal/CFM of storage (180 CFM compressor would need to have 5*180=900 gallons of storage or more)

Variable Speed Drive compressor

Variable Displacement/Capacity compressor

Centrifugal compressors in their efficient trim range without any blowoff to atm.

Cycling Dryer

Rated Flowrate of Dryer is equal to the connected system peak flowrate

Non-cycling dryer load factor of 100% (Reference 3)

Mist Eliminator Filter

Rated Flowrate of filter is equal to the connected system peak flowrate

Baseline filter pressure drop of 4 psig (Reference 3)

Efficient filter pressure drop of 0.75 psig (Reference 3)

Dewpoint Demand Control

Rated Flowrate of Dryer is equal to the connected system peak flowrate

Uncontrolled dryer purge rate of 17% (Reference 3)

Tables:

Table 1: Energy Savings and Costs For Cycling Dryers (Reference 4 & 7)

Dryer CFM	Customer kW	Customer kWh	Incremental Cost	Incremental O&M
75	0.194	1,316	\$426	\$0
100	0.383	2,599	\$616	\$0
125	0.447	3,042	\$659	\$0
150	0.565	3,851	\$779	\$0
200	0.512	3,502	\$1,361	\$0
250	0.852	5,853	\$1,189	\$0
300	1.012	6,990	\$1,288	\$0
400	1.386	9,689	\$1,407	\$0
500	1.465	10,400	\$1,460	\$0
600	1.721	12,427	\$752	\$0
700	2.213	16,298	\$1,399	\$0
800	2.171	16,342	\$1,592	\$0
1000	2.451	19,381	\$2,926	\$0
1200	2.219	18,562	\$3,791	\$0
1600	0.208	1,822	\$3,573	\$0
2000	0.455	3,989	\$6,154	\$0
2400	1.340	11,741	\$3,498	\$0

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 2: Energy Savings and Costs for Mist Eliminator Filters (Reference 4 & 7)

Filter CFM	Customer kW	Customer kWh	Incremental Cost	Incremental O&M
125	0.376	2,554	\$3,397	\$0
250	0.590	4,046	\$3,230	\$0
500	0.936	6,603	\$3,691	\$0
800	1.497	11,034	\$4,862	\$0
1100	2.059	15,927	\$5,307	\$0
1500	2.808	23,167	\$6,621	\$0
1900	3.556	31,073	\$8,568	\$0

Mist Eliminator Filter prices are from various anonymous retailer and vendor quotes

Table 3: Energy Savings and Costs for Dewpoint Demand Control (Reference 4 & 7)

Dryer CFM	Customer kW	Customer kWh	Incremental Cost	Incremental O&M
90	2.807	19,046	\$3,148	\$0
120	3.579	24,324	\$3,176	\$0
160	4.469	30,449	\$3,210	\$0
200	5.285	36,120	\$3,515	\$0
250	6.092	41,810	\$3,286	\$0
300	6.834	47,120	\$3,335	\$0
400	8.201	57,168	\$3,375	\$0
500	9.857	69,549	\$3,438	\$0
600	11.820	84,539	\$3,438	\$0
800	15.787	116,331	\$3,473	\$0
1000	19.714	150,000	\$3,858	\$0
1250	24.662	195,517	\$3,678	\$0
1500	29.570	243,985	\$3,725	\$0
2000	39.427	345,381	\$3,861	\$0

Dewpoint Demand Control prices are from various anonymous retailer and vendor quotes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4. Motor Efficiencies from NEMA

Compressor HP	Motor Description	Plan A Baseline Motor Efficiency	Plan B Existing Compressor Motor Efficiency	Plan A and Plan B New Compressor Motor Efficiency	Operating Hours
10	10 HP 1800 RPM ODP	89.5%	89.5%	89.5%	2,131
15	15 HP 1800 RPM ODP	91.0%	91.0%	91.0%	2,131
20	20 HP 1800 RPM ODP	91.0%	91.0%	91.0%	2,131
25	25 HP 1800 RPM ODP	91.7%	91.7%	91.7%	3,528
30	30 HP 1800 RPM ODP	92.4%	92.4%	92.4%	3,528
40	40 HP 1800 RPM ODP	93.0%	93.0%	93.0%	3,528

Plan A Existing Compressor Motor Efficiency and New Compressor Motor Efficiency values are from NEMA EPAC motors

Operating hours from completed MN and CO custom projects 2007-2008

Compressor hours from United States Industrial Electric Motor Systems Market Opportunities Assessment, EERE, US DOE, Dec 2002 - Source for operating hours for industrial motors and source for load factor (Table 1-18 and 1-19)

Table 5. Incremental Costs for Efficient Measures

	Replacement Program (Plan B)	New Program (Plan A)
10 HP VFD Compressor	\$10,841	\$2,577
15 HP VFD Compressor	\$14,018	\$2,694
20 HP VFD Compressor	\$16,879	\$3,609
25 HP VFD Compressor	\$19,561	\$5,149
30 HP VFD Compressor	\$24,357	\$7,212
40 HP VFD Compressor	\$27,429	\$7,468
No Loss Air Drain	\$448	

Compressor prices are the average price from three retailers plus \$1500 for installation as calculated on VFD info tab

NLAD price is average of nine retailers prices as calculated on Forecast NLAD tab

References:

- (1) Service factor (1.1) from Compressed Air & Gas Institute (CAGI) standards comparing Nameplate HP to actual BHP @ 100% Full rated pressure and flow
- (2) National Energy Efficiency Best Practices Report (<http://www.eebestpractices.com>)
- (3) Historic compressed air product experience
- (4) Analysis of Compressed Air Study participants 2008 - 2011
- (5) National Electric Manufacturers Association. Motor efficiency standards from Pre-EPAAct 2005 and after.
- (6) United States Industrial Electric Motor Systems Market Opportunities Assessment. US DOE, Dec 2002, Appendix B2
- (7) Various anonymous retailer and vendor quotes

Changes from 2012-2013 Filing

Added measures for cycling dryers, dew point demand controls, and mist eliminators.

Updated kW_per_drain from 0.53 to 0.517 based on recommendation from Michaels Engineering to adjust coefficient flow of orifice.

Updated % flow B and % flow H from updates performance curves in Best Practices for Compressed Air Systems

Updated Plan B motor efficiency to the current EPACT nominal full load efficiency based on ME recommendation

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Program: Computer Efficiency

Description:

Manufacturer incentives will be offered for desktop computers that are either Energy Star or 80 Plus labeled. Incentives are administered via Ecos Plug Load Solutions PLS. Prescriptive rebates offered for end-use customers for installing VDI (Virtual Desktop Infrastructure) devices, also known as "Thin Client" systems instead of new PCs. PC Power Management is a prescriptive measure for an office-type occupancy which will provide customers with rebates for installing centralized PC power management software.

Algorithms:

General:

Electrical Energy Savings (Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Generator kW)	= Customer kW x CF / (1-TDLF)
Peak Coincident kW at the Customer (PC_KW_CUST)	= Customer kW x CF

Upstream Manufacturer Incentives:

Electrical Demand Savings (Customer kW)	= (Baseline Computer kW - Efficient PS Computer kW) * Cooling kW factor
Electrical Energy Savings (Customer kWh)	= (Baseline Computer kWh - Efficient PS Computer kWh) * Cooling kWh factor
Baseline Computer kW	= Baseline Computer kWh / 8760 = 51.3 watts
Baseline Computer kWh	= UEC * PC Frequency = 449 kwh

Desktop PC Virtualization:

Electrical Demand Savings (Customer kW)	= Baseline Computer kW - Virtualized kW * Cooling kW factor
Electrical Energy Savings (Customer kWh)	= Baseline Computer kWh - Virtualized kWh * Cooling kWh factor
Baseline Computer kW	= Baseline Computer kWh / 8760 = 37.1 watts
Baseline Computer kWh	= UEC * PC Frequency = 325 kwh
Virtualized kW	= VDI kW + Incremental Server kW
Virtualized kWh	= Virtualized kW x hours

Network PC Power Management

Electrical Demand Savings (Customer kW)	= (kW_Base - kW_EE) x Cooling kW factor
Electrical Energy Savings (Customer kWh)	= (kW_Base - kW_EE) x Hours x Cooling kWh factor
Baseline Electrical Demand (kW_Base)	= kWh_Base / Hours
Proposed Electrical Demand (kW_EE)	= kWh_EE / Hours

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Variables:

General:

TDLF	Transmission Distribution Loss Factor = 6.50%, the percentage loss of electricity as it flows from the power plant to the customer.
Cooling kW factor	Average annual demand of cooling system necessary to cool the heat gain from the equipment (Reference 13). Front Range = 1.33, Western Slope = 1.33, Mountain = 1.33
Cooling kWh factor	= Average annual energy of cooling system necessary to cool the heat gain from the equipment in Colorado (Reference 13). Front Range = 1.13, Western Slope = 1.137, Mountain = 1.099
Heating Penalty Factor (Dth/kWh)	= Average annual energy of heating system necessary to compensate for the negative heat gain associated with the more efficient equipment (Reference 13). Front Range = -0.000504027, Western Slope = -0.000504027, Mountain = -0.000702273
CF	Coincidence Factor = 100% for Upstream Manufacturer Incentives, 100% for Desktop PC Virtualization, & 0% for PC Power Management
PC Frequency	PC Frequency of Operating Patterns = Assumed % of the population that enables power management software in one of four available configurations (power management enabled, computer turned off; power management not enabled, computer turned off; power management enabled, computer left on; power management not enabled, computer left on (Reference 4); this is used to estimate average kWh usage over the entire population. Values are listed in Table 2.
UEC	Unit Energy Consumption = Sum of the products of the wattages and the annual hours in the four states of operation (active, idle, sleep, off) = (Active Wattage * Active Annual Hours of Operation)+(Idle Wattage * Idle Annual Hours of Operation)+(Sleep Wattage * Sleep Annual Hours of Operation)+(Off Wattage*Off Annual Hours of Operation) = Wattages are shown in Table 1 and Hours in each state are shown in Table 2. UEC for each computer model is shown in Table 3

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Inputs:

Upstream Manufacturer Incentives:

Qty.	# of computers with a more efficient power supply
------	---

Desktop PC Virtualization:

Qty.	# of VDI (thin client) devices installed instead of a desktop PC computer
VDI kW	kW of VDI product (provided by the customer)

Network PC Power Management

Qty.	# of computers to be equipped with network power management control
------	---

Assumptions:

Upstream Manufacturer Incentives:

Hours	Hours of Operation = Determined by dividing the average kWh by the average kW (Assumption 2)
Measure Life	= 5 years for desktop computers (Reference 1)
Incremental Costs	Cost of high efficiency model over baseline model as listed in Table 1.
Net-to-Gross	Calculated by applying a market penetration % to the wattage and kilowatt-hour savings amount at the four efficiency levels. Values are shown in Table 4 below, we will use 68% for all measures for simplification.
O&M savings	The additional costs associated with the additional heating costs due to the reduced heat generation from the equipment is also treated as O & M penalty (reference 13)

Desktop PC Virtualization:

Incremental Server kW	Server load per installed VDI device = Total average server Watts (273W) / 68 desktops per server = 4.01 Watts (Reference 9)
Hours	Hours of Operation of efficient equipment = VDI equipment assumed to be on 8,760 hours per year
Measure Life	10 years (Reference 10)
Incremental Costs	Cost of higher efficiency option over baseline option = \$117 (Ref 6)
Net-to-Gross	Calculated by applying a market penetration % of the efficient computer power supplies to the wattage and kilowatt-hour savings amount at five baseline levels. If our program was not in place, some of the customers that bought VDI boxes would have bought desktop computers at ESTAR 5 or higher. = 88%
O&M savings	Operation and Maintenance savings are assumed to be 1/2 hour per year per desktop, O/S licenses (specific for virtualization) assumed to be \$12/year per desktop. The additional costs associated with the additional heating costs due to the reduced heat generation from the equipment is also treated as O & M penalty (Reference 13)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Network PC Power Management	
kW_Base	Average weighted computer kW WITHOUT centralized power management. (See Table 5)
kWh_Base	Average weighted computer kWh WITHOUT centralized power management. (See Table 5)
kW_EE	Average weighted computer kW WITH centralized power management. (See Table 5)
kWh_EE	Average weighted computer kWh WITH centralized power management. (See Table 5)
Hours	Annual Operating Hours = 8,760. (See Table 6)
Measure Life	Length of time software will be utilized = 6 years (Reference 19)
Baseline Cost	Cost of the baseline technology. This is \$0 since the baseline is to continue to operate the existing system.
Incremental Efficiency Cost	Cost of the High Efficiency technology = average of various vendor products = \$15.00 (Reference 15)
Net-to-Gross	= 88% to align with the Computer Efficiency program
O&M savings	Other annual savings or costs associated with the electrical savings. For PC Power Management, this consists of additional natural gas costs for heating. (Reference 13) There are also annual re-licensing fees associated with the product. Average year 1 set up fee from manufacturer: \$1.05 per computer. Average annual O&M fees from manufacturer = \$2.74 per PC. (Reference 15).

Table 1: Desktop Computer Wattages

	Avg Active Watts (W)	Idle (W)	Sleep (W)	Off /Standby (W)	Incremental Cost (reference 5)	Notes
Desktop Computer						
Baseline Aggregate: ES 3.0	97.48	71.20	4.14	2.05		Reference 2
ES 5.0 or 80 Plus Qualified	97.48	46.20	2.45	1.47		Reference 5
ES 5.0 or 80 Plus Bronze Qualified	92.60	43.70	2.45	1.47	\$9.00	Reference 5
ES 5.0 or 80 Plus Silver Qualified	89.68	42.32	2.45	1.47	\$14.00	Reference 5
ES 5.0 or 80 Plus Gold Qualified	87.73	41.40	2.45	1.47	\$16.00	Reference 5
ES 5.0 or 80 Plus Platinum Qualified	85.78	40.48	2.45	1.47	\$22.00	Reference 5

Table 2: Annual Hours in each Operational State and Frequency of PC Operation Patterns (PC Frequency)

Computer State	Active (Hrs/year)	Idle (Hrs/year)	Sleep (Hrs/year)	Standby / Off (Hrs/year)	PC Frequency
Power managed (local), turned off	175	5,011	431	3,143	11.7%
Not power managed (local), turned off	175	5,422	0	3,143	66.3%
Power managed (local), left on	175	5,687	2,898	0	3.3%
Not power managed (local), left on	175	8,585	0	0	18.7%

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 3: Energy and Demand Savings (Reference 1-5)

	UEC	Computer Watts	Computer kWh/yr	Cooling Watts	Cooling Peak kWh	Customer kW Savings	Customer kWh Savings	Heating Dth Penalty
Desktop Computer								
Baseline: ES 3.0	NA	51.3	449.0	16.91	58			
ES 4.0 or 80 Plus Qualified	1223	33.8	296.5	11.17	39	0.0232	172	
ES 5.0 or 80 Plus Bronze Qualified	1163	32.2	281.8	10.62	37	0.0254	189	-0.09
ES 5.0 or 80 Plus Silver Qualified	1127	31.2	273.1	10.29	35	0.0267	199	-0.10
ES 5.0 or 80 Plus Gold Qualified	1102	30.5	267.2	10.07	35	0.0276	205	-0.10
ES 5.0 or 80 Plus Platinum Qualified	1078	29.8	261.4	9.85	34	0.0285	212	-0.10

Table 4: Net-to-Gross Calculation: Upstream Manufacturer Incentives (Desktops)

	CO Market Penetration % (ref 12)	Net Customer kW Saved	Net Customer kWh Saved	NTG
Desktop Computer				
ES 5.0 or 80 Plus Qualified	20.00%			
ES 5.0 or 80 Plus Bronze Qualified	7.50%	0.0168	125	66.1%
ES 5.0 or 80 Plus Silver Qualified	0%	0.0181	135	67.8%
ES 5.0 or 80 Plus Gold Qualified	7.50%	0.0190	141	68.8%
ES 5.0 or 80 Plus Platinum Qualified	0%	0.0199	148	69.8%
Average:				68.00%

Table 5: Computer Annual kWh and Average kW (Reference 14, 18)

	No centralized PC Power		With centralized PC Power		% of Program Participation
	kWh Base	kW Base	kWh EE	kW EE	
Desktop PC					
ENERGY STAR 3.0 Aggregate Desktop PC	449.00	0.0513	155.16	0.0177	13.33%
ENERGY STAR 4.0 Desktop PC	322.07	0.0368	120.59	0.0138	28.67%
ENERGYSTAR 5.0 Desktop PC	297.65	0.0340	106.26	0.0121	58.00%
Aggregate of Society	324.83	0.0371	116.89	0.0133	100.00%

Table 6: Hours of Operation (Reference 14, 16, 17 & Table 2 - for non-network aggregate operation.)

Desktop PC	Active	Idle	Sleep	Off
Not network power managed, left on	175	8,150	435	0
Not network power managed, turned off	175	5,377	65	3,143
Network power managed, left on	175	1,631	6,954	0
Network power managed turned off	175	1,631	431	6,523

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

References:

1. Koomey, J., M. Cramer, M.A. Piette and J. Eto. 1995. "Efficiency Improvements in U.S. Office Equipment: Expected Policy Impacts and Uncertainties." Lawrence Berkeley Laboratory. LBL-37383. December. Table 3.
2. Energy Star Calculator Tool; LBNL 2007 or Energy Star Specification
3. Hours of operation for desktop computers from office desktops/laptops and office monitors from Piette, M. A., M. Cramer, J. Eto and J. Koomey. 1995. "Office Technology Energy Use and Savings Potential in New York." Prepared for the NY State Energy R&D Authority and Con-Ed by LBNL. Lawrence Berkeley Laboratory. LBL-36752. January 1995. p. 4-2
4. LBNL Estimate based on Reference 3
5. Ecos Consulting information from manufacturers
6. Vendor data; see "Ref Cost-PC Virt" worksheet
7. Baseline desktop PC cost assumed at \$600; info from the internet indicates a PC with keyboard averages between \$300-\$1,000 or \$650; assumed the keyboard is \$50 of that (Ref 6)
8. Costhelper.com
9. Server Wattages from Custom Efficiency program participant; average wattage of 42 models
10. 10-year life for thin-client and zero-client based on conversation with MN vendor Nowmicro
11. Assumed server utilization rate of 80% of nameplate capacity based on custom efficiency projects in MN and CO 2008-2011
12. ECOVA - May 2013
13. Based upon Rundquist Method Calculation (Matches Colorado Commercial Lighting Program)
14. Ecos Consulting (now Ecova), 2009
15. Various Equipment Vendors
16. Measured Energy Savings and Performance of Power-Managed Personal Computers and Monitors, 1996, Lawrence Berkeley National Laboratory
17. PC and Monitor Night Status: Power Management Enabling and Manual Turn-off, 1998, Lawrence Berkeley National Laboratory
18. ENERGY STAR, 2012
19. Xcel Energy Custom Efficiency projects

Changes from 2012-2013 Filing

1. Modify Upstream Manufacturer Incentive baseline computer properties
2. Modify Desktop PC Virtualization baseline computer properties
3. Modify Cooling kWh factor variable
4. Modify Heating penalty factor variable
5. Modify Upstream Manufacturer Incentive measure life
6. Modify Upstream Manufacturer Incentive net-to-gross
7. Modify Desktop PC Virtualization net-to-gross
8. Update Table 1 - Active Watts, Idle Watts, Sleep Watts, Incremental Cost
9. Update Table 2 - Active Hours, Idle Hours
10. Update Table 3 - Entire Table
11. Update Table 4 - Entire Table
12. Update Table 5 - Entire Table
13. Update Table 6 - Active Hours, Idle Hours

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Cooling Efficiency

Prescriptive rebates will be offered for new cooling equipment. Rebates for most measures are dependent on size and on meeting a minimum efficiency. Additional rebates are available for better efficiencies than the minimum qualifying efficiencies.

Prescriptive rebates will be offered for the installation of EC Motors for Refrigeration Evaporators and/or Anti-Sweat Heater Controls.

Custom rebates are available for cooling-related improvements that are not covered by the aforementioned prescriptive rebates. These would include such applications as heat recovery.

Algorithms:

Conversions

Energy Efficiency Ratio kW/ton	= Seasonal Energy Efficiency Ratio x 0.85 (the factor 0.85 applies to all equipment but water-source heat pumps, for which the factor is 1.0.)
Energy Efficiency Ratio	= 12 / Energy Efficiency Ratio
Energy Efficiency Ratio	= 3.412 x Coefficient of Performance
For Rooftop Units, Water Source Heat Pumps, Split Systems, Condensing Units	
Cooling Electrical Energy Savings (Customer kWh)	= Size x EFLH x (12/SEER Standard - 12/SEER Eff)
Cooling Electrical Demand Savings (Customer kW)	= Size x (12/EER Standard - 12/EER Eff)
For Chillers	
Cooling Electrical Energy Savings (Customer kWh)	= Size x EFLH x (IPLV Standard - IPLV Eff)
Cooling Electrical Demand Savings (Customer kW)	= Size x (FLV Standard - FLV Eff)
For Centrifugal Chillers	
FLV standard	=FLV ARI / (6.174722-0.303668*T_var+0.00629466*T_var^2-0.000045780*T_var^3)
IPLV standard	=IPLV ARI / (6.174722-0.303668*T_var+0.00629466*T_var^2-0.000045780*T_var^3)
Temperature Variable, T var	=Chiller Lift + CWTD
CWTD	=Condenser Water Temperature Difference, degrees F. = (24 + (FLV ARI x 6.83) / (Condenser Water Flow GPM / Cooling Full Load Capacity Tons)
For VFDs on Centrifugal Chillers	
Cooling Electrical Energy Savings (Customer kWh)	= Size x EFLH x (IPLV Baseline - IPLV VFD Eff)
Cooling Electrical Demand Savings (Customer kW)	= Size x (FLV Baseline - FLV VFD Eff)
For Plate and Frame Heat Exchangers	
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Cooling Electrical Energy Savings (Customer kWh)	= (FPHX_Coeff_A * T_WB_Onset^2 + FPHX_Coeff_B * T_DB_Balance^2 + FPHX_Coeff_C * T_WB_Onset * T_DB_Balance + FPHX_Coeff_D * T_WB_Onset + FPHX_Coeff_E * T_DB_Balance + FPHX_Coeff_F) * EFLHsegment / FPHX_Coeff_G * Chiller IPLV Existing / 0.6 * HX_Tons / 100
Cooling Electrical Demand Savings (Customer kW)	= Cooling Electrical Energy Savings / 8760
Average Energy Cost	= [kWh savings * (\$/Annual kWh) + Max kW Savings * Equivalent Month of Demand Savings * (\$/Annual kWh)] / kWh Savings
For Direct Evaporative Pre-cooling for Air Cooled Condensers (DEPACC)	
Cooling Electrical Energy Savings (Customer kWh)	= Tons x EFLH x EFLH_Factor x kW_per_ton_Eff_Avg
Cooling Electrical Demand Savings (Customer kW)	= Tons x kW_per_ton_Eff_Peak
Incremental O&M Cost	= Incremental_O&M_Cost_Factor x EFLH x EFLH_Factor x Tons
Anti-Sweat Heater Controls kW Savings (Customer kW)	= ASHC_kWh/ASHC_Hours
Anti-Sweat Heater Controls kWh Savings (Customer kWh)	= ASHC_kWh = ASHC_Baseline_kW x Refrigeration_Factor x ASHC_Hours x %Off
Electronically Commutated Motor Electrical Demand Savings (Customer kW)	= (ECM_Baseline_Fan_Watts - ECM_Efficient_Fan_Watts) x Refrigeration_Factor
Electronically Commutated Motor Electrical Demand Savings (Customer kWh)	= (ECM_Baseline_Fan_Watts - ECM_Efficient_Fan_Watts) x Refrigeration_Factor x ECM_Hours

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

For All Products

Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

General Water & Air Cooling Variables:

Size	= The equipment capacity in tons, provided by customer
EFLH	= Equivalent Full Load Hours. The equivalent number of hours that the equipment would be running at full load over the course of the year. Values are shown in Table 2 for different building types and locations, to be provided by the customer.
kW_per_ton_Eff	= Efficiency in kilowatts per ton for the evaporative cooler; kW provided by the customer, tons to be as calculated as defined within this worksheet.
SEER_Standard	= Seasonal Energy Efficiency Ratio in Btu/Wh of standard equipment, based upon the minimum acceptable efficiency defined by International Energy Conservation Code, 2009. Value determined from table 1 based on customer provided equipment type and size.
SEER_Eff	= Seasonal Energy Efficiency Ratio in Btu/Wh of High Efficiency equipment that the customer will install, provided by customer.
EER_Standard	= EER of standard equipment, based upon the minimum acceptable efficiency defined by the International Energy Conservation Code, 2009, for a specific type of equipment and size. Table 1.
EER_Eff	= EER of High Efficiency that the customer will install, provided by customer.
FLV_Standard	= Full load cooling efficiency in kW/ton of standard equipment, based upon the minimum acceptable efficiency defined by International Energy Conservation Code, 2009, Tables 503.2.3(8,9,10) for selected centrifugal chiller type, size, condensing and chilled water temperature, and condenser flow rate (provided by customer). Table 1, excerpt. NOTE: For non-centrifugal chillers, FLV_Standard is the value in IECC Table 503.2.3(7), without variation for condenser and chilled water temperatures and condenser water flow rate.
FLV_ARI (same as IPLV_ARI)	= IECC minimum acceptable FLV (or IPLV) at the ARI standard rated condition of 85 F condensing water temperature, 44 F chilled water temperature, and 3 gpm. The IECC has assigned the same values for FLV and IPLV for centrifugal chillers.
Chiller Lift	= The entering condensing water temperature minus the leaving chilled water temperature, supplied by the customer.
FLV_VFD_Baseline	= Full Load Value cooling efficiency in kW/ton, representing the efficiency of existing chiller with a VFD at 95% load, provided by customer.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

FLV_VFD_Eff	= Full Load Value cooling efficiency in kW/ton, representing the efficiency of existing chiller without a VFD at 95% load, provided by customer.
IPLV_VFD_Baseline	= Integrated Part Load Value (representing the average efficiency over a range of loaded states) cooling efficiency in kW/ton of existing chiller without a VFD, provided by customer.
IPLV_VFD_EFF	= Integrated Part Load Value (representing the average efficiency over a range of loaded states) cooling efficiency in kW/ton of existing chiller with VFD, provided by customer.
FLV_Eff	= Full Load Value cooling efficiency in kW/ton, representing the efficiency at design conditions, provided by customer.
IPLV_Standard	= Integrated Part Load Value (representing the average efficiency over a range of loaded states) cooling efficiency in kW/ton of standard equipment, based upon the minimum acceptable efficiency defined by International Energy Conservation Code, 2009 for chiller type and size (type and size provided by customer). Table 1
IPLV_Eff	= Integrated Part Load Value (representing the average efficiency over a range of loaded states) cooling efficiency in kW/ton of High Efficiency equipment, provided by customer.
CF	= Coincidence Factor, the probability that peak demand of the motor will coincide with peak utility system demand. 0.90 will be used for prescriptive rebates except VFD Chillers and Plate and Frame heat exchangers (Reference 1). For VFD Chillers we will use 0%. For Plate and Frame heat exchangers we will use 0% because this technology is used when temperatures are at or below 65 F.
Measure Life	Measure life is taken at 15 years for all prescriptive RTU and PTAC cooling equipment and 20 years for all other cooling equipment. (Reference 2). Custom measure lifetime derived from past projects.
TDLF	=Transmission-Distribution (Demand) Loss Factor = 6.50%, the percentage loss of electricity as it flows from the power plant to the customer during peak system demand. (The Transmission Distribution Loss Factor for Demand)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

NTG	Net-to-gross = We will use 80% for cooling projects (Reference 6), with the exception of 87% for custom cooling projects and 100% for Anti-Sweat Heater and ECM measures.
Incremental operation and maintenance cost	= \$0 for all cooling system types.
Baseline Cost of Equipment	The cost of equipment that would exactly meet code requirements.
Incremental Cost of Equipment	=The incremental cost of equipment above the code requirements, typically expressed on a dollar per ton basis.
For Direct Evaporative Pre-cooling for Air Cooled Condensers (DEPACC)	
kW_per_ton_Eff_Avg	= 258 kWh/ ton / 1574 DEPACC Operating hours = 0.164 kW/ton Efficiency improvement of incumbent air-cooled condensers in kW per ton resulting from installation of condenser evaporative pre- cooler averaged for annual cooling hours.
EFLH_Factor	= DEPACC_Operating_Hours_Office / EFLH for Front Range Office = 1.428
DEPACC_Operating_Hours_Office	= 1574 hrs/yr Estimated annual hours of operation of the DEPACC system for an office in the Front Range. Used to scale DEPACC operating hours to A/C EFLH by segment
kW_per_ton_Eff_Peak	= 0.328 kW/ton Efficiency improvement of incumbent air-cooled condensers in kW per ton resulting from installation of condenser evaporative pre- cooler at summer cooling design conditions: 1% design temperatures @ DIA = 92°F DB and 60°F WB
Measure Life	Measure life is taken at 20 years for all prescriptive cooling equipment. (Reference 2). Custom measure lifetime derived from past projects.
Incremental_O&M_Cost_Factor	= (\$1.98 / Ton) / 1574 DEPACC Hours = \$0.0012579 / ton-hour Factor used to calculate Incremental annual non-energy Operations and Maintenance cost / ton-hr for water usage.
Baseline Cost of Equipment	= \$0 because the baseline option is to do nothing.
Incremental Cost of Equipment	= Tons x Incremental cost of DEPACC equipment from Table 3. Table 3 is expressed on a cost per ton basis.
Tons	Tons of cooling shown on the rated faceplate of the existing cooling equipment.
DEPACC_Baseline_RTU_kW/ton	1.17 kW/ton based on modeled unit at Denver design conditions.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

For Anti-Sweat Heater Controls:	
ASHC Baseline kW	= Average anti-sweat heater kW per door without controls, Table 5 (Reference 23 and 24)
ASHC Hours	= Hours per year for anti-sweat heaters, Table 5 (Reference 23)
CF	= Coincidence Factor, Table 5 (Reference 15)
%_Off	= Percent of time the anti-sweat heaters are turned off by the controller, Table 5 (Reference 15)
Measure Life	= Length of time the measure will be operational: 12 years for ASHC (Reference 21)
COP	= Coefficient of performance of compressor in the cooler/freezer. COP = 2.28 for cooler, COP = 1.43 for freezer (ref. 14)
EC Motors for Refrigeration Evaporators:	
ECM_Baseline_Fan_Watts	= Average input watts for shaded pole or permanent split capacitor motor, Table 4 (Reference 15)
ECM_Efficient_Fan_Watts	= Average input watts for efficient motor, Table 4 (Reference 15)
ECM_Hours	= Hours per year (freezer subtracts defrost time), Table 4 (Reference 15)
Coincidence Factor	= Probability that peak demand savings will coincide with peak utility system demand = 100%
Measure Life	= Length of time the measure will be operational: 15 years for EC Motors, (Reference 17)
For Plate and Frame Heat Exchangers	
T_WB_Onset	Onset Wet Bulb Temperature provided by the customer
T_DB_Balance	Building Balance Point Temperature, the outside air dry bulb temperature at which there is no cooling load customer input for all Market Segments except Process Loads and Data Center Loads (20 °F default); Not used for Process and Data Center because their load is assumed constant and independent of OSA DB temperature
T_DB_Design	Design Temperature for cooling, taken to be 93 °F
EFLH _{segment}	= Equivalent Full Load Hours. The equivalent number of hours that the equipment would be running at full load over the course of the year. Values are shown in Table 2 for customer provided building type and location.
OADB	Outside Air Dry Bulb Temperature (°F)
FPHX_Coeff_A through FPHX_Coeff_G	= Values for the coefficients based on customer Market Segment are provided in Table 6. Coefficients resulted from a multivariable data regression analysis to estimate the energy savings based on Flat Plate HX Onset Wetbulb Temperature and the building balance point for a FPHX sized to offset 100 tons building load. The resulting savings are scaled based on market segment hours and customer provided HX tons as part of the overall FPHX formula above.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

HX_Tons	= Expected load in Tons that the FPHX will displace when conditions are met to start HX and shut down chiller (i.e. OSA conditions are at T_WB_Onset). Provided by Customer.
Chiller_IPLV_Existing	= Integrated Part Load Value (in kW/ton) for the existing chiller plant provided by the customer.
hours(OADB)	Number of hours in for that OADB bin from TMY3 data for the location
Added Tower kW/ton	Average additional power use of the Cooling Tower due to the installation of the heat exchanger (tower fans will need to run more to bring down the water temperature to meet the cooling load directly as opposed to providing condenser water for the chiller) assumed to be 0.01 kW/ton (Ref 7). this is built into the regression analysis and part of the estimated savings.

Provided by Customer:

- Cooling equipment type
- Climate zone
- Building type
- Cooling equipment size (tons or CFM)
- Cooling equipment efficiency (SEER, EER, or FLV, IPLV in kW/ton, kW - dependent

Verified during M&V:

- Yes
- Yes
- Yes
- Yes
- Yes

For Centrifugal Chillers (in addition to above):

- Condenser water entering temperature
- Chilled water leaving temperature
- Condenser water flow in gpm

- Yes
- Yes
- Yes

For VFDs on Centrifugal Chillers

- Chiller IPLV [kW/ton]
- Onset Wet-bulb Temperature for the Heat Exchanger [°F]
- Heat Exchanger tonnage [tons]
- Building balance point temperature [°F] $T_{balance}$
- Cooling load at onset wet-bulb temp [tons] $Load_{onset}$
- Market segment

Provided by Customer For Plate & Frame Heat Exchangers (in addition to above):

- Chiller IPLV [kW/ton]
- Onset Wet-bulb Temperature for the Heat Exchanger [°F]
- Heat Exchanger tonnage [tons]
- Building balance point temperature [°F] $T_{balance}$
- Cooling load at onset wet-bulb temp [tons] $Load_{onset}$
- Market segment

For DEPACC:

Provided by Customer:

Verified during M&V:

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Cooling equipment type	Yes
Climate zone	Yes
Building type	Yes
Cooling equipment size (tons)	Yes
For Electronically Commutated Evaporator Fan Motors:	Verified during M&V:
Size of motor	Yes
Application of motor (Display Case or Walk-in)	Yes
Case or Walk-in temperature (Medium Temp or Low Temp)	Yes
For Walk-in's: Fan diameter (<= 15 inches or >15 inches)	Yes
Cost	
For Anti-Sweat Heaters:	
Number of doors controlled	Yes
Number of controllers	Yes
Cost	

Assumptions:

- Each piece of cooling equipment is going in instead of a machine of the same size that only met minimum International Energy Conservation Code, 2009
- Prescriptive rebates are not given for backup cooling equipment.
- Small units assumed to have electric strip heat in the units. See note c in IECC table 503.2.3(1)
- Condensing unit SEER comes from IECC Table 503.2.3(6), units >11.2 tons. Most condensing units are larger than 11.3 tons. IECC assumes the same values as Rooftop units (11.9) for smaller condensing units.
- To convert equipment from a Seasonal Energy Efficiency Ratio (SEER) to an Energy Efficiency Ratio (EER), multiply SEER by 0.85. The conversion factor of 0.85 a generally accepted factor for converting from SEER to EER. Once EER is obtained, convert EER to kW/ton using the following equation: kW/ton = 12/EER. To convert kW/ton to kW, multiply by tons.

Assumptions (heat exchangers):

- No other airside or waterside economizers are in operation

- Projects will not have peak kW savings as wet bulb temp will be too high to provide a reasonable chill water supply temperature during peak summer periods.
- Heat exchanger is installed in parallel with the chiller and will use existing cooling towers when in operation.

Assumptions for DEPACC:

- Average size unit to be 150 tons
- Qualifying evaporative cooling units must have a minimum Media Saturation Effectiveness of 75% and above. The units must be installed with a remote thermostat, outside air temp sensor and a periodic purge water control if sump is used.

- Units should have outdoor air, humidity and controls to determine Operation of spray nozzles to wet media. If sump is used periodic purge control would need to be installed.
- Condenser fan energy costs due to DEPACC media are not expected to increase measurably due to media decreasing condenser fan cfm.
- Denver Water 2013 estimated rates <http://www.denverwater.org/BillingRates/RatesCharges/2013ApprovedRates/> at \$4.50/1000 gal
- DEPACC manufacturer's estimate of water consumed by the evaporative pre-condensing system .28 gallons per tonHr of cooling

EC Motors

Each motor is replaced with the same size on a 1 for 1 basis.
Rebates do not apply to rewound or repaired motors.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

**Table 1. Deemed Baseline Efficiencies (IECC 2009)
EQUIPMENT MINIMUM BASELINE EFFICIENCIES REQUIRED BY CODE, AND INCREMENTAL COSTS ASSOCIATED WITH EXPECTED HIGHER**

Equipment	Equipment Classification	SEER	EER	FLV (kW/ton)	IPLV (kW/ton)	Incremental Cost per Ton, \$/ton
Rooftop Units & Split Systems less than 5.4 tons	Standard Efficiency	13.00	11.05			
	High Efficiency					100
Rooftop Units Condensing Units & Split Systems 5.5-11.3 tons	Standard Efficiency	12.90	11.00			
	High Efficiency					100
Rooftop Units & Split Systems 11.4-19.9 tons & Condensing Units > 11.4 tons	Standard Efficiency	12.70	10.80			
	High Efficiency					100
Rooftop Units & Split Systems 20-63.3 tons	Standard Efficiency	9.50	9.80			
	High Efficiency					100
Rooftop Units greater than 63.3 tons	Standard Efficiency	9.20	9.50			
	High Efficiency					100
Water-source Heat Pumps	Standard Efficiency	12.00	12.00			
	High Efficiency					196
PTAC	Standard Efficiency	10.40	8.86			
	High Efficiency					247
scroll/screw chiller < 75 tons	Standard Efficiency			0.780	0.630	
	High Efficiency					128

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

scroll/screw chiller >=75 to < 150 tons	Standard Efficiency			0.775	0.615	
	High Efficiency					128
scroll/screw chiller >=150 to <300 tons	Standard Efficiency			0.680	0.580	
	High Efficiency					70
scroll/screw chiller >= 300 tons	Standard Efficiency			0.620	0.540	
	High Efficiency					70
Centrifugal Chillers < 150 tons	ARI rated Efficiency			0.634	0.596	
	High Efficiency					177
Centrifugal Chillers >= 150 to < 300 tons	ARI rated Efficiency			0.634	0.596	
	High Efficiency					177
Centrifugal Chillers >=300 tons to < 600 tons	ARI rated Efficiency			0.576	0.549	
	High Efficiency					177
Centrifugal Chillers >= 600 tons	ARI rated Efficiency			0.570	0.539	
	High Efficiency					177
Air-Cooled Chillers - < 150 tons	Standard Efficiency	12.500	9.562			
	High Efficiency					127
Air-Cooled Chillers - >= 150 tons	Standard Efficiency	12.750	9.562			
	High Efficiency					127
VFD's for Chillers	Existing Chiller Efficiency			Customer Provided	Customer Provided	
	Existing Chiller with VFD Efficiency			Customer Provided	Customer Provided	\$71.88/ton

NOTES

- * bold values indicates direct sourcing to IECC 2009, tables 503.2.3(x), otherwise estimated by multiplying SEER by 0.85 to get EER, or dividing EER by .85 to
- * High Efficiency SEER and EER values are supplied by Customer.
- * ARI rated efficiency is converted to Standard efficiency as per Tables 503.2.3(8, 9, or 10)
- * Values for Centrifugal Chillers assumed to be at ARI rating conditions of 85 degrees condensing temperature, 44 degrees chilled water temperature, and 3 gpm
- * Values for PTAC from IECC 2009 formula, Table 503.2.3(3) for Cooling Mode, Replacements.
- * Chiller categories are now aligned with the IECC 2009.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 2. Equivalent Full Load Hours by Building Type - Market segment hours scaled from Minnesota OES data (Reference 8) with Office value calculated for Denver and Grand Junction Typical Meteorological Year data. Distributions developed from CBECS data (Reference 4)

Building Type / Market Segment	Front Range EFLH	Western Slope EFLH	Mountain EFLH
Education - Community College	725	844	449
Education - Secondary School	456	531	282
Education - University	981	1,142	607
Health/Medical - Clinic	833	969	515
Health/Medical - Hospital	1,616	1,880	999
Lodging	1,356	1,578	839
Office	1,102	1,283	682
Retail	975	1,135	603
Data Centers	8,760	8,760	8,760
Process Loads	5,840	5,840	5,840

EFLH*- Zone 1 (Front Range/Denver); Zone 2 (Western State as represented by Grand Junction) and Zone 3 (Mountain Areas as represented by Alamosa)

Table 3. DEPACC Incremental Cost (Ref 11)

System Tons		\$/ton
40	\$	248.27
80	\$	219.91
120	\$	209.23
160	\$	202.80
320	\$	190.49

Notes:

Ref files: (Large computer files available for reference) (Ref 11)

Xcel DEPACC Notes 111312 R2.docx

EproModel 150ksf OfficeData Center 010313REV 7.xlsx

EnergyPro http://www.energysoft.com/main/page_energypro_ep_information.html

EnergyPRo User's Manual, EnergyPro Version 5 by EnergySoft, LLC July 2011 p. 120

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Baseline Watts, Efficient Watts, Operating Hours and Incremental Cost for EC Motors by Application (Reference 15 and 18)

Motor Application	ECM_Baseline_Fan_Watts	ECM_Efficient_Fan_W	ECM_Hours	ECM_Incremental
EC Motors - Medium Temp Display Case	71	24	8,672	\$ 88.00
EC Motors - Low Temp Display Case	81	27	8,672	\$ 88.00
EC Motors - Medium Temp Walk-in, Evap fan <= 15" Diameter	136	44	8,585	\$ 180.00
EC Motors - Low Temp Walk-in, Evap fan <= 15" Diameter	154	50	8,585	\$ 180.00
EC Motors - Medium Temp Walk-in, Evap fan > 15" Diameter	138	69	8,585	\$ 180.00
EC Motors - Low Temp Walk-in, Evap fan > 15" Diameter	156	78	8,585	\$ 180.00

Table 5: Baseline kW, % Off, Operating Hours and Incremental Cost for Anti-Sweat Heater Controls by Application (Reference 23 and 24)

Anti-Sweat Heater Controls	ASHC Baseline kW	% Off	ASHC_Hours	ASH Incremental Cost	CF
Medium Temp Display Case	0.105	97%	8,760	\$ 180.00	97%
Low Temp Display Case	0.191	97%	8,760	\$ 180.00	97%

Table 6: Plate and Frame Savings Formula Coefficients

	FPHX_Coeff_A	FPHX_Coeff_B	FPHX_Coeff_C	FPHX_Coeff_D	FPHX_Coeff_E	FPHX_Coeff_F	FPHX_Coeff_G
Education - Community College	63.90742	(12.19881)	14.05119	(4,276.72576)	(607.35490)	91,089.4560	1,102
Education - Secondary School	63.90742	(12.19881)	14.05119	(4,276.72576)	(607.35490)	91,089.4560	1,102
Education - University	63.90742	(12.19881)	14.05119	(4,276.72576)	(607.35490)	91,089.4560	1,102
Health/Medical - Clinic	63.90742	(12.19881)	14.05119	(4,276.72576)	(607.35490)	91,089.4560	1,102
Health/Medical - Hospital	63.90742	(12.19881)	14.05119	(4,276.72576)	(607.35490)	91,089.4560	1,102
Lodging	63.90742	(12.19881)	14.05119	(4,276.72576)	(607.35490)	91,089.4560	1,102
Office	63.90742	(12.19881)	14.05119	(4,276.72576)	(607.35490)	91,089.4560	1,102
Retail	63.90742	(12.19881)	14.05119	(4,276.72576)	(607.35490)	91,089.4560	1,102
Process Cooling	(13.07128)	-	-	6,719.50733	-	(115,947.8608)	5,840
Data Center	(19.60692)	-	-	10,079.26100	-	(173,921.7911)	8,760

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Changes from 2012

Added mountain climate zones

Incorporated the new Direct Evaporative Pre-cooling for Air Cooled Condensers (DEPACC) into the program

Added EC Motors for Refrigerated Cases

Added Anti-sweat Heater Controls

Removed Advanced Evaporative Coolers

FPHX savings developed as a multi-variate regression based on 100 ton HX load at Onset. Formula scales to customer load and market segment hours.

References

1. NYSERDA (New York State Energy Research and Development Authority); NY Energy \$mart Programs Deemed Savings Database - Source for coincidence factor
2. ASHRAE, 2007, Applications Handbook, Ch. 36, table 4, Comparison of Service Life Estimates
3. Arkansas Deemed Savings Quick Start Program Draft Report Commercial Measures Final Report - source of equivalent full load hour methodology for
4. CBECS (Commercial Buildings Energy Consumption Survey), 2003 - Total Floor space of Cooled Buildings by Principal Building Activity -
5. Derived by Eugene Scales and Associates
6. NTG factor from PA Consulting Group, '*Xcel Energy Process and Impact Evaluation for the Colorado Business Cooling Efficiency Program*,
7. Dan Dettmers, University of WI, Madison, HVAC&R Center
8. 2007 ASHRAE Applications, Chapter 51 Evaporative Cooling Page 51.3: Indirect Evaporative Cooling Systems for comfort Cooling -
9. Evap cooler average delta T is calculated by taking 80% of the average delta between dry bulb and wet bulb temperature for May through September 6:00 am
10. Data from historic Xcel Energy Custom Efficiency cooling tower projects
11. **Cypress, Ltd.**
14. Energy Savings Potential and R&D Opportunities for Commercial Refrigeration, Final Report; Submitted to: U.S. Department of Energy, Energy Efficiency and
15. Monitored data from Custom Efficiency projects
17. Comprehensive Process and Impact Evaluation of the (Xcel Energy) Colorado Motor and Drive Efficiency Program, FINAL, March 28, 2011, TetraTech
18. ECM incremental costs are from Southern California Edison Work Paper WPSCNRRN0011: Evaporator Fan Motors
21. DEER 2008
22. A Study of Energy Efficient Solutions for Anti-Sweat Heaters. Southern California Edison RTTC. December 1999
23. Pennsylvania PUC Technical Reference Manual, June 2011
24. SCE Workpaper WPSCNRRN0009, Revision 0, Anti-Sweat Heat (ASH) Controls, October 15, 2007

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Custom Efficiency

Description:

Customer may apply for rebate under the Custom Efficiency product for gas or electric projects not listed under prescriptive rebate products. Each Custom Efficiency project will be analyzed individually by Xcel Energy. Technical variables required for the analysis will be obtained from the customer or vendor. Analysis will be based on standard engineering methodologies.

Algorithms:

Electrical energy savings and electrical demand savings will be calculated based on the project specific details. Each project will undergo an engineering review in accordance with standard engineering practices. The review will be in accordance with the calculation methodologies detailed in the prescriptive products where applicable.

Variables:

Operation and Maintenance Savings will be calculated for each specific project based on project details.
Measure lifetime will be calculated for each specific project based on project details.
Incremental equipment cost will be calculated for each specific project based on project details.

Inputs:

All variables for each project (equipment wattage, equipment efficiency, hours of operation, etc.) will be calculated for each specific project based on project details.

Assumptions:

A net-to-gross factor of 87% will be used for electric custom projects, referenced National Energy Efficiency Best Practices Report (<http://www.eebestpractices.com>) A net-to-gross factor of 93% will be used for custom gas projects which assumes 1/2 of the free rider rate for electric because gas products are new offerings in Colorado.

Tables:

None

References:

None

Changes from 2012-2013 Filing

None

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Data Center Efficiency

Description:

This is a custom product. Customers may apply for rebates under the Data Center Efficiency product for projects not listed under prescriptive rebate products. Each Data Center efficiency project will be analyzed individually by Xcel Energy. Technical variables required for the analysis will be obtained from the customer or vendor. Analysis will be based on standard engineering methodologies.

Algorithms:

Electrical energy savings and electrical demand savings will be calculated based on the project-specific details. Each project will undergo an engineering review in accordance with standard engineering practices. Where prescriptive elements exist, the review will be in accordance with the calculation methodologies detailed in the prescriptive products.

Variables:

Operation and Maintenance Savings will be calculated for each specific project based on project details.

Measure lifetime will be calculated for each specific project based on project details.

Incremental equipment cost will be calculated for each specific project based on project details.

Inputs:

All variables for each project (equipment wattage, equipment efficiency, hours of operation, etc.) will be calculated for each specific project

Assumptions:

A net-to-gross factor of 100% will be used for Data Center projects that follow the study path. A net-to-gross factor of 87% will be used for custom measures implemented in data centers to be consistent with the Custom product. Prescriptive products not associated with the study track will utilize the net-to-gross value indicated in their end use.

Tables:

None

References:

None

Changes from 2012-2013 Filing

1. Break out Custom Measure line into four line items: Study Identified Custom & Prescriptive, Non-Study Identified Custom and Prescriptive.
2. NTG derivation is identified on Deemed Sheet and indicated on Forecast Summary.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Business Energy Feedback Pilot

Description:

Pilot will employ energy use feedback to customer groups and measure the difference in energy use between participants that receive Business Energy Reports and a similarly sized control group that does not. The pilot will include small business customers with both gas and electric service from Xcel Energy.

Algorithms:

Electrical Energy Savings (Customer kWh)	= (Group_Consumption - Group_Rebate_Product_Participation) * Control_Group - (Group_Consumption - Group_Rebate_Product_Participation) * Test_Group; kWh as determined through multi-variate regression analysis with a fixed effect.
Electrical Demand Savings (Customer kW)	= Customer kWh / 8760; Actual kW demand is determined with actual load data from participants, Business load curve data and system coincident data after the fact
Natural Gas Energy Savings (Customer Dth)	= (Group_Consumption - Group_Rebate_Product_Participation) * Control_Group - (Group_Consumption - Group_Rebate_Product_Participation) * Test_Group

Variables:

Test_Group_A	Group of participating gas & electric customers receiving periodic paper reports of feedback on their energy use.
Test_Group_B	Group of participating gas & electric customers receiving internet delivered reports and web feedback on their energy use.
Control_Group	Uninformed random sample of gas & electric customers receiving no specific information or treatment from this program of similar size to Participant group.
Group_Consumption	Gross consumption for each group (A, B or Control), kWh and Dth resulting from multi-variate regression analysis of participant and control.
Group_Rebate_Product_Participation	Energy savings generated by participation in our rebate products for both Test and Control groups, kWh and Dth. Rebated product participation from other products, (e.g. rebate for installing new lighting fixtures), are savings that will be included in the regression analysis and deducted from the pilot results if statistically significant. DSM Product participation from other Public Service DSM products will come from the Company database.
Calculation methodology	Calculations of energy use are in units of average energy use/customer-yr.
Coincidence Factor (CF)	The weighted average probability that conservative electric behaviors will occur during the peak period hours in the print and email groups. To be measured by the contractor.
NTG	Net to Gross = 100%
TDLF	Transmission Distribution Loss Factor = 6.5%
Total number of hours in one year	= 8760
Measure Life	Measure life is assumed to be 1.0 year.
O&M savings	Operation and Maintenance savings are assumed to be zero.

Needed from Customer/Vendor/Administrator for Calculations:

Results of ongoing multi-variate regression analysis from vendor for Participant and Control groups

References:

None

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Business New Construction

Description:

This is a custom product including electric and gas measures. This product relies heavily on expert consultants in the design process; however, we will perform independent project review in accordance with standard engineering methods. Customer may apply for rebate under the New Construction product.

Algorithms:

Electrical and gas energy savings and electrical demand savings will be calculated based on the project-specific details. Each project will undergo an engineering review in accordance with standard engineering practices. Prescriptive items within the project will be handled through their respective deemed products.

Variables:

Net To Gross	Electric 90% for the EDA tracks and 93% for the Energy Efficient Buildings track. Gas EDA NTG is 99% and Gas Energy Efficient Building track is 97%. Product requirements are well above code, so we feel free-ridership will be negligible. As code requirements increase, NTG will be increased correspondingly.
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Assumptions:

Operation and Maintenance Savings will be calculated for each specific project based on project details.
Life of product is 20 years for gas and electric measures.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: EMS Efficiency

This is a custom product including both gas and electric measures. Customer may apply for rebate under the EMS product. Each EMS project will be analyzed individually by Xcel Energy. Technical variables required for the analysis will be obtained from the customer or vendor. Analysis will be based on good engineering practices and standards.

Calculations:

Electrical and gas energy savings and electrical demand savings will be calculated based on the project-specific details. Each project will undergo an engineering review in accordance with standard engineering practices. Where prescriptive elements exist, the review will be in accordance with the calculation methodologies detailed in the prescriptive products.

Assumptions:

A net-to-gross factor of 87% will be used for electric measures and a net-to-gross factor of 90% will be used for gas EMS projects.

A transmission distribution loss factor of **6.50%** will be used for EMS projects.

Operation and Maintenance Savings will be calculated for each specific project based on project details.

Life of product is 15 years.

Changes from 2013

Gas net-to-gross is reduced to 90% to align with other programs

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Heating Efficiency

Prescriptive rebates will be offered for Hot Water Boilers (Condensing and non-condensing), Commercial Water Heaters and various heating system improvements.

Algorithms:

BTUH_upgraded	= Input BTUH for the upgraded boiler or water heater to generate the same output as existing boiler or water heater that is being retrofitted = $BTUH_{existing} \times EFFb/EFFh$
BTUH_base	= Input BTUH for the baseline boiler or water heater to generate the same output as the new high efficient boiler or water heater = $BTUH_{new} \times EFFh/EFFb$
New Boiler Savings (Dth)	= $(BTUH_{base} - BTUH_{new}) \times Hrs / 1,000,000$
Furnace Savings (Gross Dth)	= $Alt \times ((BTUH_{new} \times EFFh/EFFb) - BTUH_{new}) \times Hrs / 1,000,000$
Boiler Tune Up savings (Gross Dth)	= $((BTUH \times EFFh/EFFb) - BTUH) \times Hrs / 1,000,000$
Outdoor Air Reset savings (Gross Dth)	= $(BTUH - (BTUH \times EFFb/EFFh)) \times Hrs / 1,000,000$
Stack Dampers savings (Gross Dth)	= $(BTUH - (BTUH \times EFFb/EFFh)) \times Hrs / 1,000,000$
Modulating Burner Controls savings (Gross Dth)	= $(BTUH - (BTUH \times EFFb/EFFh)) \times Hrs / 1,000,000$
O2 Trim Control savings (Gross Dth)	= $(BTUH - (BTUH \times EFFb/EFFh)) \times Hrs / 1,000,000$
Steam Traps savings (Gross Dth)	= $Leak_Rate \times Leak_Hours \times BTU_per_Pound / EFFb/1,000,000$
New Water Heater Savings (Dth)	= $BTUH_{New} \times Eff_Rating_High / (BTUH_{Input} \times Eff_Rating_High + Other_Water_Heater_BTUH_{Input} \times Eff_Rating_Standard) \times \{density \times C_p \times Volume_Daily_SqFt_Usage \times Days_Year \times SqFt_Served \times (T_setpoint - T_supply)\} \times (1 / Eff_Rating_Standard - 1 / Eff_Rating_High) + [(SL_{base} - SL_{new}) \times 8760 \text{ hours}] \times (1 \text{ MMBTU} / 1,000,000 \text{ BTU})$
Pipe Insulation Savings (Dth)	= $LF \times Hrs \times (BTU_per_foot_U - BTU_per_foot_I) \times Existing / EFFb$
DeltaT	= $(T_{fluid} - T_{ambient})$
BTU_per_Foot	= $[Coef0 + (Coef1 \times \Delta T) + (Coef2 \times \Delta T^2) + (Coef3 \times \Delta T^3)] / EFFb$ The U or I designation after the name indicates Uninsulated or Insulated.
Custom Boiler savings (Dth)	Gas energy savings and any associated savings or increase in electrical energy will be calculated based on the project specific details. Each project will undergo an engineering review in accordance with standard engineering practices. The review will be in accordance with the calculation methodologies detailed in the prescriptive products where applicable.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Variables:

BTUH_new	= Rated boiler or water heater Input BTUH nameplate data for the new boiler or water heater.
BTUH_existing	= Rated boiler or water heater Input BTUH nameplate data for the existing boiler or water heater that is being replaced or retrofitted with OA Reset dampers, Modulating Burner Controls, Tabulators or O2 Trim Controls.
Eff_Rating_High	= The rated efficiency of the new water heater, provided by the customer
Eff_Rating_Standard	= The minimum water heater thermal efficiency allowed by the federal standard = 80%
Volume_Daily_SqFt_Usage	=The daily usage of hot water by market segment per sq. ft. (Table 9)
Days_Year	= Days per year of hot water usage by market segment (Table 9)
T_setpoint	= Water heater setpoint = 140 deg F (Reference 11)
T_supply	= Cold water temperature = 58 deg F (Reference 11)
Other_Water_Heater_BTUH_Input	=The total input in btu/hr of all existing water heater that will remain in service
Hrs	= 659 hrs/yr for space heating only boilers = 2,190 hrs/yr for domestic hot water only boilers = 1,443 hrs/yr for space heating & domestic hot water boilers Pipe insulation hours are given in Table 2. = 950 hrs/yr for commercial furnaces
Alt	= Altitude Adjustment factor to adjust the sea level manufacturer's rated input for altitude effects = 0.891
SL_Hrs	= Standby loss hours for commercial water heaters = 8,760 hrs/yr
EFFb	= Efficiency of Baseline equipment. Refer Table 1 below
EFFh	= Efficiency for higher efficiency equipment. Refer Table 1 below.
SL_base	= Standby Losses for baseline storage water heater = 13.21 BTUH per gallon of storage (Ref 13)
SL_new	= Standby Losses for efficient water heater = 8.90 BTUH per gallon of storage (ref 13)
Leak_Hours	= Annual hours boiler lines are pressurized = 6000 hours
Leak_Rate	=Leakage rate, pounds of steam per hour. High Pressure = 11, Low Pressure = 5 (Reference 5)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

BTU_Per_Pound	<p><u>Low Pressure Applications:</u> = 1164 BTU per pound for lost to atmosphere, 964 BTU per pound lost to condensate. Assume 50/50 mix = 1064 BTU per pound. (Reference 5)</p> <p><u>High Pressure Applications:</u> = 1181 BTU per pound for lost to atmosphere, 981 BTU per pound lost to condensate. Assume 50/50 mix = 1081 BTU per pound. (Reference 5)</p>
LF	= Linear feet of insulation installed, provided by the customer.
Coef	= Heat loss polynomial equation coefficient. The number represents the power to which DeltaT is raised. Values for insulation/pipe combinations allowed in the product are listed in Table 7. Coefficients will be selected based on the pipe diameter, R (or k) value and insulation thickness provided by the customer.
k	= Thermal conductivity, btu-in/hr-ft ² -F
R-Value	= Thermal Resistance, (1/k)*thickness(inches)
T _{fluid}	= Average temperature of the fluid in the pipe receiving insulation in degrees F, provided by the customer.
T _{ambient}	= Average temperature of the space surrounding the pipe. We will ask the customer if the pipe is in a conditioned space or outside. We will use 70 degrees for conditioned spaces and 51 degrees for outside domestic hot water (full year average) and 44 degrees for outside space heating (average excluding June-September) which are the average TMY3 temperatures for Colorado.
Existing	= Pipe insulation savings multiplier to determine credit if existing deteriorated insulation is being replaced. We will use 1 if no existing insulation is present and 0.25 if existing insulation is being replaced.
1,000,000	= Conversion from BTU to Dth
Measure Life	= Length of time the boiler equipment will be operational = See table 8.
Incremental Cost	= Refer to Tables 3 to 6
NTG	Net-to-gross = 86% Per 2011 Cadmus Program Evaluation and Michaels Energy Review.

Needed from Customer/Vendor/Administrator for Calculations:

For boilers:

Boiler size rated at sea level (BTUH)

New boiler type (Non-Condensing or Condensing)

Boiler Use (Space heating and/or water heating)

Additional Information for Plan B boilers:

Efficiency of boiler being replaced

Current State of Colorado Inspection certificate indicating the age and active status of the boiler

For steam traps:

High or low pressure

Incremental cost

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

For all but boilers, steam traps, and pipe insulation:

Boiler size (BTUH)

Implemented measure

Incremental cost

For Insulation:

Linear feet of insulation added

Nominal diameter of pipe

Thickness of insulation

Insulation R-Value or thermal conductivity (k)

Average fluid temperature

Pipe location (conditioned space or not)

Pipe use (Space heating and/or water heating)

Was existing insulation replaced

Incremental cost

For Water Heaters:

Building type

Square footage served by water heater

Storage capacity (gallons); 0 if tankless

BTUH input

Other Water Heater BTUH Input

Thermal efficiency rating

For Furnaces:

New furnace size (BTUH)

New furnace efficiency

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Assumptions:

- Each boiler is replaced with the same size on a 1 for 1 basis.
 - Only boilers used for space and/or domestic water heating can receive prescriptive rebates; other boilers must go through Custom Efficiency.
 - Climate zone assumed to be Denver for all boilers and water heaters
 - Thermal Efficiency as defined in ASHRAE 90.1-2007 indicates the total efficiency of the boiler equal to 100% fuel energy minus all losses.
 - The full load efficiency of condensing boiler is assumed to be 92%. For savings calculations, part load efficiency of 96.2% was used.
 - The full load efficiency of the baseline Plan B boiler is assumed to be 78%. For savings calculations, the actual nameplate efficiency provided by the customer will be
 - Standby losses are from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) database based on a 100 gallon tank.
 - Standby losses are equal for the baseline and efficient storage type water heaters and cancel out.
 - Each furnace is replaced with the same size on a 1 for 1 basis.
 - Prescriptive rebates are only given for furnaces put into service, rebates are not given for backup furnaces.
 - Service life of typical furnace is 20 years (per FEMP), 15 years used in the calculations. Reference 10
 - Furnaces must have a minimum efficiency of 92% AFUE for a rebate, and 94% AFUE or higher efficiency will receive a larger rebate.
 - The baseline efficiency for the furnace is based on 2009 IECC, minimum of 78%.
 - Efficiency of all furnaces is Annual Fuel Utilization Efficiency ("AFUE")
 - For 175,000 Btu/h hot water boilers: 100% of capacity used for space heating. For 500,000-4,000,000 Btu/h boilers: 50% of capacity used for space heating, 50% of capacity used for hot water.
- *Condensing boiler efficiencies at part loads were taken from AERCO International Inc Thermal Efficiency curve for condensing boilers.
- Prescriptive rebates are only given for boilers put into service, rebates are not given for backup boilers. Even though we do not rebate backup boilers, our assumed hours have been conservatively reduced to 65% of the predicted hours to account for boiler redundancy.
 - Steam boiler has condensate return.
 - Assumed savings for boiler tune-up = 2% for non condensing boiler. This is an average value of the two years, 4% initial to no savings at the end of the two years. Life of product is 2 years. DOE states up to 5%.
 - Assumed savings for outdoor air reset on non condensing boilers = 3%. Life of product is 20 years. The Natural Gas consortium states up to 5% savings
 - Assumed savings for installing Stack dampers on non condensing boilers = 1%. Life of product is 20 years. Canada energy council, up to 4%
 - Assumed savings for modulating burner controls on non condensing boilers = 3%. Life of product is 20 years. The Natural Gas consortium states up to 4% savings
 - Assumed savings for O2 trim controls on non condensing boilers = 2%. Life of product is 20 years. The Natural Gas consortium states of 2 to 4% savings
 - For boilers: Though the BTU input and output are affected by altitude, the efficiency stays the same, so the elevation effect is not considered.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 1: Heating Equipment Efficiencies		
	Baseline Efficiency (EFFb)	Efficient Efficiency (EFFh)
New Boilers (Non-Condensing)	80.00%	85.00%
New Boilers (Condensing)	80.00%	96.20%
Replacement Boilers (Condensing)	78.00%	96.20%
Boiler Tune Up	78.00%	80.00%
Outdoor Air Reset	80.00%	83.00%
Stack Dampers	80.00%	81.00%
Modulating Burner Controls	80.00%	83.00%
O2 Trim Control	80.00%	82.00%
Steam Traps	80.00%	N/A
Commercial Furnaces	78.00%	92.00%
Water Heaters	80.00%	96.00%
Pipe Insulation	80.00%	N/A

Table 2: Hours for Pipe Insulation			
Use of Pipe	Location	Pipe Insulation Hours	Explanation
Domestic Hot Water	Inside	5,584	Hours when outside temp is above building balance point. Heat loss from pipe is wasted
Domestic Hot Water	Outside	8,760	Domestic hot water available year round, outside temp is always less than 120 F.
Space Heating	Inside	2,622	Hours when boiler is running but outdoor temp is above building balance point
Space Heating	Outside	6,000	Hours that boiler is running

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 3: Hot water boiler costs, Vendor supplied, Engineered Products

Boiler Nameplate Capacity	Non-condensing		Condensing	Incremental	Incremental	Incremental
	Baseline	High Efficient - Non Condensing	High Efficient - Condensing	Baseline to High Efficient - Non Condensing	Baseline to High Efficient - Condensing	Plan B Replacement High Efficient - Condensing
175,000 Btuh	\$3,000	\$3,500	\$4,600	\$500	\$1,600	\$6,613
500,000 Btuh	\$5,000	\$9,000	\$11,200	\$4,000	\$6,200	\$16,951
1,000,000 Btuh	\$7,300	\$11,700	\$15,000	\$4,400	\$7,700	\$26,502
2,000,000 Btuh	\$12,000	\$17,000	\$26,500	\$5,000	\$14,500	\$49,504
4,000,000 Btuh	\$24,000	\$34,000	\$53,000	\$10,000	\$29,000	\$99,008
6,000,000 Btuh	\$36,000	\$51,000	\$79,500	\$15,000	\$43,500	\$148,512
8,000,000 Btuh	\$48,000	\$68,000	\$106,000	\$20,000	\$58,000	\$198,016

Table 4

Baseline Equipment Sizing compared to New Construction Tankless

Customer Segment	Sizing multiplier for equivalent Storage System with 100 gallons of storage
Fast Food Restaurant	48%
Sit-Down Restaurant	54%
Elementary School	52%
Junior High School	88%
Motel	98%
Apartment Building	51%
Fitness Center	65%
Other	65%

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Incremental Cost per Nameplate Input BTUH for Storage Water Heater per 100 gallons of storage	
Customer Segment	\$/BTUH
Fast Food Restaurant	0.0326
Sit-Down Restaurant	0.0056
Elementary School	0.0056
Junior High School	0.0085
Motel	0.0056
Apartment Building	0.0340
Fitness Center	0.0085
Other	0.0144

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Incremental Cost per Nameplate Input BTUH for Tankless Water Heater	
Customer Segment	\$/BTUH
Fast Food Restaurant	0.0105
Sit-Down Restaurant	0.0044
Elementary School	0.0044
Junior High School	-0.0049
Motel	-0.0080
Apartment Building	0.0105
Fitness Center	0.0037
Other	0.0029

Table 5: Other Heating System Improvements	
Boiler Tune Up	Actual costs will be provided by customer
Outdoor Air Reset	Actual costs will be provided by customer
Stack Dampers > 750 Mbtuh	Actual costs will be provided by customer
Stack Dampers > 750 Mbtuh	Actual costs will be provided by customer
Modulating Burner Controls < 750 Mbtuh	Actual costs will be provided by customer
Modulating Burner Controls > 750 Mbtuh	Actual costs will be provided by customer
O2 Trim Control	Actual costs will be provided by customer
Steam Traps	Actual costs will be provided by customer
Pipe Insulation	Actual costs will be provided by customer

Table 6: Commercial Furnaces (Reference 3)	
Btu Input	Incremental Cost
60,000	\$804.95
70,000	\$782.26
80,000	\$775.83
90,000	\$785.68
100,000	\$811.80
115,000	\$893.02
120,000	\$912.86
125,000	\$948.29
140,000	\$1,079.00

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 7: Pipe Insulation polynomial equation coefficients and incremental cost

Pipe Nominal Diameter (inches)	Insulation Thickness (Inches)	Polynomial Coefficients, Uninsulated				Polynomial Coefficients, Insulated			
		Coef0	Coef1	Coef2	Coef3	Coef0	Coef1	Coef2	Coef3
0.50	1.0	-3.0374E+00	4.5690E-01	8.6645E-04	4.0333E-07	-1.4187E-01	9.4515E-02	9.5675E-05	2.0500E-07
0.50	1.5	-3.0374E+00	4.5690E-01	8.6645E-04	4.0333E-07	-9.3332E-02	7.8916E-02	7.4175E-05	1.7167E-07
0.75	1.0	-3.6084E+00	5.5068E-01	1.0738E-03	4.9833E-07	-1.8348E-01	1.1210E-01	1.1840E-04	2.4000E-07
0.75	1.5	-3.6084E+00	5.5068E-01	1.0738E-03	4.9833E-07	-1.1155E-01	9.0618E-02	8.7550E-05	1.9667E-07
1.00	1.0	-4.4355E+00	6.6986E-01	1.3218E-03	6.3167E-07	-1.9200E-01	1.1754E-01	1.2070E-04	2.5333E-07
1.00	1.5	-4.4355E+00	6.6986E-01	1.3218E-03	6.3167E-07	-1.1202E-01	9.8294E-02	9.6075E-05	2.1167E-07
1.25	1.0	-5.7434E+00	8.3004E-01	1.5980E-03	8.8500E-07	-2.9272E-01	1.4849E-01	1.5975E-04	3.1667E-07
1.25	1.5	-5.7434E+00	8.3004E-01	1.5980E-03	8.8500E-07	-1.3118E-01	1.0982E-01	1.0618E-04	2.3833E-07
1.50	1.0	-6.3813E+00	9.3332E-01	1.8326E-03	9.9000E-07	-2.7700E-01	1.5147E-01	1.5938E-04	3.2500E-07
1.50	1.5	-6.3813E+00	9.3332E-01	1.8326E-03	9.9000E-07	-1.6005E-01	1.2339E-01	1.2200E-04	2.6667E-07
2.00	1.0	-7.7082E+00	1.1384E+00	2.2752E-03	1.2350E-06	-3.3948E-01	1.7646E-01	1.8525E-04	3.8333E-07
2.00	1.5	-7.7082E+00	1.1384E+00	2.2752E-03	1.2350E-06	-2.0389E-01	1.4083E-01	1.3790E-04	3.0667E-07
2.50	1.5	-9.3690E+00	1.3590E+00	2.6993E-03	1.5500E-06	-1.7869E-01	1.4528E-01	1.4075E-04	3.1667E-07
2.50	2.0	-9.3690E+00	1.3590E+00	2.6993E-03	1.5500E-06	-1.3498E-01	1.2739E-01	1.1985E-04	2.7667E-07
3.00	1.5	-1.1275E+01	1.6288E+00	3.2514E-03	1.9067E-06	-2.6414E-01	1.8400E-01	1.8783E-04	3.9500E-07
3.00	2.0	-1.1275E+01	1.6288E+00	3.2514E-03	1.9067E-06	-1.7765E-01	1.5601E-01	1.5245E-04	3.3667E-07
4.00	1.5	-1.4044E+01	2.0490E+00	4.1818E-03	2.3833E-06	-3.3314E-01	2.2060E-01	2.2868E-04	4.7167E-07
4.00	2.0	-1.4044E+01	2.0490E+00	4.1818E-03	2.3833E-06	-2.3785E-01	1.8565E-01	1.8200E-04	4.0000E-07
5.00	1.5	-1.6652E+01	2.4856E+00	5.2152E-03	2.8167E-06	-4.5046E-01	2.6745E-01	2.7580E-04	5.8000E-07
5.00	2.0	-1.6652E+01	2.4856E+00	5.2152E-03	2.8167E-06	-2.9805E-01	2.2138E-01	2.1908E-04	4.7833E-07
6.00	1.5	-2.0439E+01	2.9514E+00	6.0177E-03	3.6500E-06	-6.1558E-01	3.1278E-01	3.1310E-04	6.9333E-07
6.00	2.0	-2.0439E+01	2.9514E+00	6.0177E-03	3.6500E-06	-3.4456E-01	2.4953E-01	2.4818E-04	5.3833E-07
8.00	1.5	-2.6767E+01	3.8025E+00	7.6705E-03	4.9667E-06	-6.9016E-01	3.7481E-01	3.9035E-04	8.1000E-07
8.00	2.0	-2.6767E+01	3.8025E+00	7.6705E-03	4.9667E-06	-1.4066E+00	3.3454E-01	9.9850E-05	1.1100E-06
10.00	1.5	-3.1882E+01	4.6589E+00	9.7102E-03	5.8167E-06	-8.7637E-01	4.4116E-01	4.4313E-04	9.7500E-07
10.00	2.0	-3.1882E+01	4.6589E+00	9.7102E-03	5.8167E-06	-5.2419E-01	3.5989E-01	3.6058E-04	7.7833E-07
12.00	1.5	-3.8751E+01	5.5187E+00	1.1240E-02	7.3333E-06	-1.0195E+00	5.1188E-01	5.2188E-04	1.1250E-06
12.00	2.0	-3.8751E+01	5.5187E+00	1.1240E-02	7.3333E-06	-5.6113E-01	4.1443E-01	4.3003E-04	8.8167E-07

Note:
 The updated coefficients were developed using the NAIMA 3E Plus 4.0 Software.
 The following assumptions were used:
 Base metal - Steel
 Insulation - 650F min. Fiber Pipe and Tank, Type II, C1393-00a
 Jacket Material - 0.13 Stainless Steel, new, cleaned
 Ambient Temperature -45F
 Wind Speed - 0mph
 Max Surface Temp - 140F
 System Application - Pipe Horizontal
 System Units - ASTM C585

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 8: Measure Lives		
Measure	Product Life (yrs)	Source of Information
Hot Water Boilers (Non-condensing)		
Hot Water Boiler - Non-condensing 175 MBTUH	20	Federal Energy Management Program
Hot Water Boiler - Non-condensing 500 MBTUH	20	Federal Energy Management Program
Hot Water Boiler - Non-condensing 1MMBTUH	20	Federal Energy Management Program
Hot Water Boiler - Non-condensing 2 MMBTUH	20	Federal Energy Management Program
Hot Water Boiler - Non-condensing 4 MMBTUH	20	Federal Energy Management Program
Hot Water Boiler - Non-condensing 6 MMBTUH	20	Federal Energy Management Program
Hot Water Boiler - Non-condensing 8, MMBTUH	20	Federal Energy Management Program
Hot Water Boilers (Condensing)		
Hot Water Boiler - Condensing 175 MBTUH	20	Federal Energy Management Program
Hot Water Boiler - Condensing 500 MBTUH	20	Federal Energy Management Program
Hot Water Boiler - Condensing 1 MMBTUH	20	Federal Energy Management Program
Hot Water Boiler - Condensing 2 MMBTUH	20	Federal Energy Management Program
Hot Water Boiler - Condensing 4 MMBTUH	20	Federal Energy Management Program
Hot Water Boiler - Condensing 6 MMBTUH	20	Federal Energy Management Program
Hot Water Boiler - Condensing 8 MMBTUH	20	Federal Energy Management Program
Commercial Furnaces	15	Federal Energy Management Program
Commercial Water Heaters		
Commercial Hot Water Heater - Condensing; 125 MBTUH	15	Federal Energy Management Program
Commercial Hot Water Heater - Condensing; 160 MBTUH	15	Federal Energy Management Program
Commercial Hot Water Heater - Condensing; 199 MBTUH	15	Federal Energy Management Program
Commercial Hot Water Heater - Condensing; 300 MBTUH	15	Federal Energy Management Program
Commercial Tankless Hot Water Heater - Non-condensing; 150 MBTUH	15	Federal Energy Management Program
Commercial Tankless Hot Water Heater - Non-condensing; 199 MBTUH	15	Federal Energy Management Program
Commercial Tankless Hot Water Heater - Non-condensing; 399 MBTUH	15	Federal Energy Management Program
Commercial Tankless Hot Water Heater - Non-condensing; 500 MBTUH	15	Federal Energy Management Program
Steam Traps		
Gas Boiler - Steam Traps - Low Pressure - average of 10 and 15 PSI	5	Internet
Gas Boiler - Steam Traps - High Pressure - average of 50 PSI and 65 PSI	5	Internet
Boiler Tune Ups	2	Federal Energy Management Program
Pipe Insulation		
Insulation - Hot Water System	7	Federal Energy Management Program
Insulation - Steam System	7	Federal Energy Management Program

Deemed Savings Technical Assumptions

Table 9: Annual Hot Water Use Data (Ref 11)

Building Type	Applicable Days/Year	Gallons / 1,000 ft ² / day
Small Office	250	2.3
Large Office	250	2.3
Fast Food Restaurant	365	549.2
Sit-Down Restaurant	365	816.0
Retail	365	2.0
Grocery	365	2.2
Warehouse	250	1.0
Elementary School	200	5.7
Jr. High/High School/College	200	17.1
Health	365	342.0
Motel	365	100.0
Hotel	365	30.8
Other Commercial	250	0.7
Industrial	Site Specific	Site Specific

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

References:

1. The baseline efficiency for new boilers is based on 2009 IECC, ASHRAE 90.1, and Federal Rule 10 CFR Part 431 [Docket No. EERE-2008-BT-STD-0013] RIN 1904-AB83 "Energy Conservation Program for Certain Industrial Equipment: Energy Conservation Standards and Test Procedures for Commercial Heating, Air-Conditioning, and Water-Heating Equipment"
2. The baseline efficiency for replacement hot water boilers is based on the baseline efficiency used in the DOE document "TECHNICAL SUPPORT DOCUMENT: ENERGY EFFICIENCY PROGRAM FOR COMMERCIAL AND INDUSTRIAL EQUIPMENT: EFFICIENCY STANDARDS FOR COMMERCIAL HEATING, AIRCONDITIONING, AND WATERHEATING EQUIPMENT" dated July 9, 2008
3. The baseline efficiency for baseline furnace (AFUE), as defined in the 2009 IECC. It is 78%.
4. Water heater efficiencies and standby losses are from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) database.
5. Leakage data from Energy Management Handbook, by Wayne Turner
6. Net-to-Gross factor for Boiler Efficiency was calculated using 1/2 of the free-rider factor for Cooling Efficiency.
7. Net-to-Gross factor for Pipe Insulation is assumed to be 61% based on the average of the NTG for SCG and PG&E in the 2006-2008 Evaluation Report for the Southern California Industrial and Agricultural Contract Group
8. Net-to-Gross factor from Summit Blue 2006 Midwest Residential market Assessments DSM Potential Study
9. The average baseline and high efficiency costs are based on the California DEER database.
10. Measure life from the Federal Energy Management Program (FEMP).
11. Minnesota DER Deemed Values
12. Arkansas Deemed Savings Quick Start Program Draft Report Commercial Measures Final Report, Nexant.
13. AHRI Directory of Certified Product Performance; average of Standby Loss in BTUH per gallon of storage calculated for units with 80% or less thermal efficiency for baseline unit and <96% thermal efficiency for efficient

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

unit

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Lighting Efficiency

Description:

Prescriptive rebates will be offered for replacement lighting equipment. New Construction rebates will be offered for new facilities or spaces overhauled for a new purpose. Custom Efficiency Lighting rebates are available for lighting-related improvement
Information in red type indicates an addition or change to the technical assumptions

Algorithms:

Electrical Demand Savings (Customer kW)	= (kW Base - kW EE) x HVAC cooling kW savings factor
Electrical Energy Savings (Customer kWh/yr)	= (kW Base - kW EE) x Hrs x HVAC cooling kWh savings factor
Natural Gas Savings (Dth)	= (kW Base - kW EE) x Hrs x HVAC heating penalty factor
kW saved	= kW Base - kW EE
Hrs_Baseline (Base)	= Hrs * HVAC cooling kWh savings factor / HVAC cooling kW savings factor
Hrs_Energy Efficient (EE)	= Hrs * HVAC cooling kWh savings factor / HVAC cooling kW savings factor
Stairwell Fixture with Integral Occupancy Sensor EE_H1	= Hours in State 1 of fixture usage = Hrs * (1-Percent_Time_Controlled)
Stairwell Fixture with Integral Occupancy Sensor EE_H2	= Hours in State 2 of fixture usage = Hrs - EE_H1
Stairwell Fixture with Integral Occupancy Sensor Base_Watt-Hrs	= Baseline Watt-Hours = Base kW * 1000 * Hrs
Stairwell Fixture with Integral Occupancy Sensor EE_Watt-Hrs	= High Efficiency Watt-Hours = (EE_W1 * EE_H1) + (EE_W2 * EE_H2)
Stairwell Fixture with Integral Occupancy Sensor kW EE	= Average calculated Wattage of two states of fixture usage = Base_kW - [(Base_Watt-Hrs - EE_Watt-Hrs) / (Hrs * 1000)] Calculated values shown in Deemed Fixture Table
Lighting Controls -Electrical Energy Savings (Customer kWh/yr)	=(kW connected) x (1-PAF) x Hrs x HVAC cooling kWh savings factor
Lighting Controls -Electrical Demand Savings (Customer kW)	=(kW connected) x (1-PAF) x HVAC cooling kW savings factor
Lighting Controls -Natural Gas Savings (Dth)	=(kW connected) x (1-PAF) x Hrs x HVAC heating penalty factor
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

Variables:

Hrs	= Annual Operating Hours. Hours to be obtained from Table 2. The type of facility is to be supplied by the customer.
kW_Base	= Baseline fixture wattage (kW per fixture) determined from deemed fixture table.
kW_EE	= High Efficiency fixture wattage (kW per fixture) determined from deemed fixture table
Stairwell Fixture with Integral Occupancy Sensor Hrs_full_power	= 263 per year
Stairwell Fixture with Integral Occupancy Sensor Hrs_dimmed	= 8497 per year
Stairwell Fixture with Integral Occupancy Sensor Percent_Time_Controlled	= 97% (Ref 8)
Stairwell Fixture with Integral Occupancy Sensor EE_W1	= Wattage in State 1 of fixture usage

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Variables (Continued):	
Stairwell Fixture with Integral Occupancy Sensor EE_W2	= Wattage in State 2 of fixture usage
HVAC_cooling_kWhsavings_factor	= Cooling system energy savings factor resulting from efficient lighting from Table 1. Reduction in lighting energy results in a reduction in cooling energy, if the customer has air conditioning. Existence of air
HVAC_cooling_kW savings_factor	= Cooling system demand savings factor resulting from efficient lighting from Table 1. Reduction in
HVAC_heating_kW savings_factor	= Heating system penalty factor resulting from efficient lighting. Reduction in lighting demand results in an increase in heating usage, if the customer has air conditioning. A value of -0.00088738 Dth/kWh given by (Reference 4).
CF	= Coincidence Factor, the probability that peak demand of the lights will coincide with peak utility system demand. CF will be determined based on customer provided building type in Table 2.
Measure Life	= Length of time the lighting equipment will be operational, see Table 3 for Measure Lifetimes
Baseline Cost	= Cost of the baseline technology. For Retrofit, the cost is 0 since the baseline is to continue to operate the existing system. For New Construction, the cost is given in the deemed fixture table. (Reference 4) and vendors.
High Efficiency Cost	= Cost of the High Efficiency technology. Costs given in Deemed Fixture Table (Reference 4, 8, 11) and vendors.
kW connected	Total connected fixture load, determined as the sum of stipulated fixture wattages from Deemed Fixture Table.
PAF	Stipulated power adjustment factor based on control type from Table 4.
TDLF	Transmission Distribution Loss Factor = 6.50% , the percentage loss of electricity as it flows from the power plant to the customer, calculated using factors from Enhanced DSM Filing SRD-2
NTG	Net-to-gross = 84% for prescriptive measures (Reference 5) and 96% for Custom Efficiency Lighting and Lighting Redesign based on the additional influence.
Incremental operation and maintenance cost	= Other annual savings or costs associated with the electrical savings. For Lighting, this consists of additional natural gas for heating. Methodology given by (Reference 2).
Adjustments for closely-related fixture combinations	Allow closely-related fixture combinations to be added to the DSTA and qualify for a prescriptive rebate if the technology pairings are in a range deemed viable by PSCo energy efficiency engineering or product management.
Higher wattage level or quantity of fixtures removed	Allow a higher level of wattage, or a higher number of fixtures, to be removed during a lighting retrofit if the customer so chooses.

Inputs:

Number of Fixtures
Lighting equipment type
Building type
Existence of air conditioning

Verified during M&V:

Yes
Yes
Yes
Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Assumptions:

- Each replacement lighting fixture is going in on a one-for-one basis for existing fixtures. New construction fixtures are put in on a one-for-one basis instead of lower efficiency options.
- In the Technical Assumptions, one will note that the Operating Hours does not appear, but rather a modified version. The methodology defines kW Savings on the basis of difference in kW with the HVAC Cooling demand factor. The Annual Energy Savings takes into account any heating that has to be added.

Table 1: HVAC Interactive Factors (Reference 2)

HVAC system	HVAC_cooling_kWh_savings_factor	HVAC_cooling_kW_savings_factor	HVAC_heating_penalty_factor
Heating only	1.00	1.00	-0.000540
Heating and cooling	1.11	1.33	-0.000540
LED Refrigerated Case Door	1.41	1.41	-
LED Freezer Case Door	1.59	1.59	-

Table 2: Coincident Peak Demand Factors and Annual Operating Hours by Building Type (Reference 1 and 3)

Building Type	CF	Annual Operating Hours
24-Hour Facility	94%	8234
Building Stairwells	91.7%	7292
College	76%	2348
Cooler Door Retrofit to LED	94%	8760
Freezer Door Retrofit to LED	94%	8760
Element./Second. School	31%	1632
Grocery (All) / Big Box Retail (larger than 50,000 SF)	87%	4660
Health	73%	3213
Hospital	80%	5182
Hotel/Motel	9%	914
Manufacturing	57%	4739
Night Time Exterior (LED Canopy/Soffit Lights, LED Exterior Wall Packs)	0%	4380
Office	61%	2567
Other/Misc.	63%	3521
Parking Garages, incl. LED Parking Garage Wall Packs	100%	8760
Restaurant	65%	3613
Retail	73%	2829
Safety or Code Required	100%	8760
Warehouse	54%	2316

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 3: Measure Lifetimes in Years (Reference 4, 8, 9, 10)

Measure	Lifetime in Years
Low Wattage T8 Lamps	6
T8 Lighting Systems	20
T5 Lighting Systems	20
Ballasted CFLs	20
Integrated 25W Ceramic Metal Halide	7
LED Retrofit Fixture	20
LED Screw In Retrofit Fixture	8
LED Screw In Lamp	12
LED Wall Pack fixtures	18
Lighting Controls	8
Stiarwell Fixtures with Occupancy Sensors	14.4

References

1. Arkansas Deemed Savings Quick Start Program Draft Report Commercial Measures Final Report, Nexant. CF and hours
2. HVAC Interactive Factors developed based on the Rundquist Simplified HVAC Interaction Factor method for Minnesota, presented on page 28 of the 11/93 issue of the ASHRAE Journal - "Calculating lighting and HVAC interactions".
3. Technical Reference User Manual No. 2004-31, Efficiency Vermont, 12/31/04. CF and Hours
4. Deemed Savings Database, Minnesota Department of Commerce Division of Energy Resources (DER), 2008. CF, Hours, kW, Costs, Measure life
5. Net-to-Gross factor from National Energy Efficiency Best Practices Study(<http://www.eebestpractices.com>)
6. Lighting Efficiency input wattage guide, Xcel Energy, July, 2008, kW
7. CL&P and UI program Savings Documentation modified for 3022 Daylight Hours in Denver CO
8. University of Minnesota Study, 2010
9. LED Lamp measure life based on average 2009 custom project LED life of 45,000 hours / weighted hours of operation average
10. LED Fixture measure life based on Xcel Energy Minnesota Lighting Efficiency Program average replacement fixture lifetime
11. LED Fixture costs based on Xcel Energy Custom Lighting Efficiency project costs

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-EB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-EB-XX-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-EB-XX-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-IB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-IB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-IB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-IB-XX-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-IB-XX-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-25-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-25-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-25-1-Fixt-EB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-25-1-Fixt-EB-XX-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-25-1-Fixt-EB-XX-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-100-1-Fixt-MB-XX-XX-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-150-1-Fixt-EB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	HPS-GEN-100-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	HPS-GEN-50-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	HPS-GEN-70-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-150-1-Fixt-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	MH-GEN-100-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	MV-GEN-100-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-50-1-Fixt-EB-XX-XX-XX	HPS-GEN-100-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-50-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-50-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-50-1-Fixt-EB-XX-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-50-1-Fixt-EB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-50-1-Fixt-EB-XX-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-70-1-Fixt-EB-XX-XX-XX	HPS-GEN-100-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-70-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-70-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-70-1-Fixt-EB-XX-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-70-1-Fixt-EB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-70-1-Fixt-EB-XX-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide 151-250W	CMH-GEN-175-1-Fixt-EB-XX-XX-XX	HPS-GEN-200-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 151-250W	CMH-GEN-175-1-Fixt-EB-XX-XX-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
Ceramic Metal Halide 151-250W	CMH-GEN-175-1-Fixt-EB-XX-XX-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 151-250W	CMH-GEN-175-1-Fixt-EB-XX-XX-XX	MV-GEN-250-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 151-250W	CMH-GEN-250-1-Fixt-EB-XX-XX-XX	HPS-GEN-400-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 151-250W	CMH-GEN-250-1-Fixt-EB-XX-XX-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 151-250W	CMH-GEN-250-1-Fixt-EB-XX-XX-XX	MV-GEN-400-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-320-1-Fixt-EB-XX-XX-XX	HPS-GEN-400-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-320-1-Fixt-EB-XX-XX-XX	HPS-GEN-750-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-320-1-Fixt-EB-XX-XX-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-320-1-Fixt-EB-XX-XX-XX	MV-GEN-400-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-350-1-Fixt-EB-XX-XX-XX	HPS-GEN-400-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-350-1-Fixt-EB-XX-XX-XX	HPS-GEN-750-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-350-1-Fixt-EB-XX-XX-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-350-1-Fixt-EB-XX-XX-XX	MV-GEN-400-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-400-1-Fixt-EB-XX-XX-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-400-1-Fixt-EB-XX-XX-XX	HPS-GEN-750-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-400-1-Fixt-EB-XX-XX-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-400-1-Fixt-EB-XX-XX-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
Ceramic Metal Halide 251W+	CMH-GEN-400-1-Fixt-EB-XX-XX-XX	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-EB-HE-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-EB-HE-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-EB-HE-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-MB-STD-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-MB-STD-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-MB-STD-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-EB-HE-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-EB-HE-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-EB-HE-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-MB-STD-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-MB-STD-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-MB-STD-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-1-1-Lamp-EB-HE-XX-XX	INX-GEN-3-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-1-1-Lamp-EB-HE-XX-XX	INX-GEN-4-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-1-1-Lamp-EB-HE-XX-XX	INX-GEN-5-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-1-1-Lamp-MB-STD-XX-XX	INX-GEN-3-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-1-1-Lamp-MB-STD-XX-XX	INX-GEN-4-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-1-1-Lamp-MB-STD-XX-XX	INX-GEN-5-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-EB-HE-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-EB-HE-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-MB-STD-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-MB-STD-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-EB-HE-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-EB-HE-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-MB-STD-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-MB-STD-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-EB-HE-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-MB-STD-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-2-1-Lamp-EB-HE-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-2-1-Lamp-EB-HE-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-2-1-Lamp-EB-HE-XX-XX	INX-GEN-5-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-2-1-Lamp-MB-STD-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-2-1-Lamp-MB-STD-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-2-1-Lamp-MB-STD-XX-XX	INX-GEN-5-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-3-1-Lamp-EB-HE-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-3-1-Lamp-EB-HE-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-3-1-Lamp-MB-STD-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-3-1-Lamp-MB-STD-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-4-1-Lamp-EB-HE-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-4-1-Lamp-EB-HE-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-4-1-Lamp-EB-HE-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-4-1-Lamp-MB-STD-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-4-1-Lamp-MB-STD-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-4-1-Lamp-MB-STD-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-5-1-Lamp-EB-HE-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-5-1-Lamp-EB-HE-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-5-1-Lamp-EB-HE-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-5-1-Lamp-MB-STD-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-5-1-Lamp-MB-STD-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-5-1-Lamp-MB-STD-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-6-1-Lamp-EB-HE-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-6-1-Lamp-EB-HE-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-6-1-Lamp-EB-HE-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-6-1-Lamp-MB-STD-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-6-1-Lamp-MB-STD-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-6-1-Lamp-MB-STD-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-6-1-Lamp-MB-STD-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-EB-HE-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-EB-HE-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-EB-HE-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-EB-HE-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-MB-STD-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-MB-STD-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-MB-STD-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-MB-STD-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-EB-HE-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-EB-HE-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-EB-HE-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-EB-HE-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-EB-HE-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-MB-STD-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-MB-STD-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-MB-STD-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-MB-STD-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-MB-STD-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-EB-HE-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-EB-HE-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-EB-HE-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-EB-HE-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-MB-STD-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-MB-STD-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-MB-STD-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-MB-STD-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-130-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-140-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-145-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-155-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-160-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-170-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-EB-HE-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-MB-STD-XX-XX	INX-GEN-180-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-EB-HE-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-MB-STD-XX-XX	INX-GEN-185-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-EB-HE-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-MB-STD-XX-XX	INX-GEN-190-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-EB-HE-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-MB-STD-XX-XX	INX-GEN-195-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-90-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-90-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-90-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-90-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-90-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	MV-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	PSMH-GEN-200-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	PSMH-GEN-200-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	PSMH-GEN-250-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	PSMH-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	MV-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	PSMH-GEN-200-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	PSMH-GEN-200-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	PSMH-GEN-250-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	PSMH-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	MV-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	PSMH-GEN-200-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	PSMH-GEN-200-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	PSMH-GEN-250-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	PSMH-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	MV-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	PSMH-GEN-200-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	PSMH-GEN-200-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	PSMH-GEN-250-1-Fixt-ESMB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	PSMH-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-NBF-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 2-3L T5HO or 4L T8	FT8-48-HBY-32-4-Fixt-EB-HE-NBF-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-84-6-Fixt-EB-HE-NBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-84-6-Fixt-EB-HE-NBF-XX	PSMH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT5-45.8-HBY-54-10-Fixt-EB-HE-XX-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT5-45.8-HBY-54-10-Fixt-EB-HE-XX-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT5-45.8-HBY-54-10-Fixt-EB-HE-XX-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT5-45.8-HBY-54-10-Fixt-EB-HE-XX-XX	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-NBF-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-NBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-NBF-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-NBF-XX	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-HBF-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-HBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-HBF-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-HBF-XX	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-LBF-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-LBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-LBF-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-LBF-XX	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-NBF-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-NBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-NBF-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-NBF-XX	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-84-8-Fixt-EB-HE-NBF-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-84-8-Fixt-EB-HE-NBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-84-8-Fixt-EB-HE-NBF-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-84-8-Fixt-EB-HE-NBF-XX	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX
HPS - 151 to 250W	HPS-GEN-200-1-Fixt-MB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
HPS - 151 to 250W	HPS-GEN-200-1-Fixt-MB-XX-XX-XX	MV-GEN-400-1-Fixt-MB-XX-XX-XX
HPS - 251W+	HPS-GEN-400-1-Fixt-MB-XX-XX-XX	INX-GEN-1000-1-Lamp-XX-XX-XX-XX
HPS - 251W+	HPS-GEN-400-1-Fixt-MB-XX-XX-XX	INX-GEN-1500-1-Lamp-XX-XX-XX-XX
HPS - 251W+	HPS-GEN-400-1-Fixt-MB-XX-XX-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-10-1-Fixt-XX-XX-XX-XX	HPS-WPE-35-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-10-1-Fixt-XX-XX-XX-XX	HPS-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-10-1-Fixt-XX-XX-XX-XX	MH-WPE-35-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-10-1-Fixt-XX-XX-XX-XX	MH-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-10-1-Fixt-XX-XX-XX-XX	MV-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-10-1-Fixt-XX-XX-XX-XX	PSMH-WPE-50-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-10-1-Fixt-XX-XX-XX-XX	PSMH-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-11-1-Fixt-XX-XX-XX-XX	HPS-WPE-35-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Exterior Wall Pack <= 25W	LED-WPE-16-1-Fixt-XX-XX-XX-XX	MH-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-16-1-Fixt-XX-XX-XX-XX	MH-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-16-1-Fixt-XX-XX-XX-XX	MV-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-16-1-Fixt-XX-XX-XX-XX	MV-WPE-75-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-16-1-Fixt-XX-XX-XX-XX	PSMH-WPE-50-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-16-1-Fixt-XX-XX-XX-XX	PSMH-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-16-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-16-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	HPS-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	MH-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	MV-WPE-75-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	HPS-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	MH-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	MV-WPE-75-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	HPS-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	MH-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	MV-WPE-75-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	HPS-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	MH-WPE-70-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	MV-WPE-75-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	MV-WPE-75-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	MH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	MV-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	HPS-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	MH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	MH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	MV-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	MV-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	MV-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	HPS-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	HPS-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	MH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	MH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	MV-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	HPS-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	HPS-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	HPS-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	MH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	MH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	MH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	MV-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-51-1-Fixt-XX-XX-XX-XX	HPS-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-51-1-Fixt-XX-XX-XX-XX	HPS-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-51-1-Fixt-XX-XX-XX-XX	MH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-51-1-Fixt-XX-XX-XX-XX	MH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-51-1-Fixt-XX-XX-XX-XX	MV-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-51-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-51-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-51-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	MH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	MV-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	HPS-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	HPS-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	HPS-WPE-310-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	MH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	HPS-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	HPS-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	HPS-WPE-310-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	MH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	HPS-WPE-310-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	HPS-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	MH-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	MV-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	PSMH-WPE-450-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-100-1-Fixt-XX-XX-XX-XX	PSMH-WPE-450-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-101-1-Fixt-XX-XX-XX-XX	HPS-WPE-310-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-101-1-Fixt-XX-XX-XX-XX	HPS-WPE-400-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Exterior Wall Pack 61W - 150W	LED-WPE-64-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-64-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-64-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	HPS-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	HPS-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	HPS-WPE-310-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	MH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-65-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	HPS-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	HPS-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	HPS-WPE-310-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	MH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-66-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	HPS-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	HPS-WPE-310-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	HPS-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	MH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	MH-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	MV-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	MV-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-67-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-68-1-Fixt-XX-XX-XX-XX	HPS-WPE-250-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-68-1-Fixt-XX-XX-XX-XX	HPS-WPE-310-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-68-1-Fixt-XX-XX-XX-XX	HPS-WPE-400-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	HPS-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	MH-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	MV-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	PSMH-WPE-450-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-98-1-Fixt-XX-XX-XX-XX	PSMH-WPE-450-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	HPS-WPE-310-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	HPS-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	MH-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	MV-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	PSMH-WPE-450-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 61W - 150W	LED-WPE-99-1-Fixt-XX-XX-XX-XX	PSMH-WPE-450-1-Fixt-MB-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-10-1-Fixt-XX-XX-XX-XX	INX-GEN-30-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-10-1-Fixt-XX-XX-XX-XX	INX-GEN-35-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-10-1-Fixt-XX-XX-XX-XX	INX-GEN-40-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-10-1-Fixt-XX-XX-XX-XX	INX-GEN-45-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-10-1-Fixt-XX-XX-XX-XX	INX-GEN-50-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-10-1-Fixt-XX-XX-XX-XX	INX-GEN-55-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-10-1-Fixt-XX-XX-XX-XX	INX-GEN-60-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-11-1-Fixt-XX-XX-XX-XX	INX-GEN-35-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-11-1-Fixt-XX-XX-XX-XX	INX-GEN-40-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-11-1-Fixt-XX-XX-XX-XX	INX-GEN-45-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-11-1-Fixt-XX-XX-XX-XX	INX-GEN-50-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-11-1-Fixt-XX-XX-XX-XX	INX-GEN-55-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-11-1-Fixt-XX-XX-XX-XX	INX-GEN-60-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-11-1-Fixt-XX-XX-XX-XX	INX-GEN-65-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-12-1-Fixt-XX-XX-XX-XX	INX-GEN-40-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-12-1-Fixt-XX-XX-XX-XX	INX-GEN-45-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-12-1-Fixt-XX-XX-XX-XX	INX-GEN-50-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-12-1-Fixt-XX-XX-XX-XX	INX-GEN-55-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-12-1-Fixt-XX-XX-XX-XX	INX-GEN-60-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-12-1-Fixt-XX-XX-XX-XX	INX-GEN-65-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-12-1-Fixt-XX-XX-XX-XX	INX-GEN-70-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-13-1-Fixt-XX-XX-XX-XX	INX-GEN-40-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-13-1-Fixt-XX-XX-XX-XX	INX-GEN-45-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-13-1-Fixt-XX-XX-XX-XX	INX-GEN-50-1-Fixt-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Interior Fixture <= 25W	LED-GEN-25-1-Fixt-XX-XX-XX-XX	INX-GEN-145-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-25-1-Fixt-XX-XX-XX-XX	INX-GEN-150-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-25-1-Fixt-XX-XX-XX-XX	INX-GEN-75-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-25-1-Fixt-XX-XX-XX-XX	INX-GEN-80-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-25-1-Fixt-XX-XX-XX-XX	INX-GEN-85-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-25-1-Fixt-XX-XX-XX-XX	INX-GEN-90-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-25-1-Fixt-XX-XX-XX-XX	INX-GEN-95-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-8-1-Fixt-XX-XX-XX-XX	INX-GEN-25-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-8-1-Fixt-XX-XX-XX-XX	INX-GEN-30-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-8-1-Fixt-XX-XX-XX-XX	INX-GEN-35-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-8-1-Fixt-XX-XX-XX-XX	INX-GEN-40-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-8-1-Fixt-XX-XX-XX-XX	INX-GEN-45-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-9-1-Fixt-XX-XX-XX-XX	INX-GEN-30-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-9-1-Fixt-XX-XX-XX-XX	INX-GEN-35-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-9-1-Fixt-XX-XX-XX-XX	INX-GEN-45-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-9-1-Fixt-XX-XX-XX-XX	INX-GEN-50-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-100-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-105-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-110-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-115-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-120-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-125-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-130-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-135-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-140-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-145-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-150-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-155-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-80-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-85-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-90-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-95-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-100-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-110-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-115-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-120-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-125-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-130-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-135-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-140-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-145-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-150-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-155-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-160-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-85-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-90-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-95-1-Fixt-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Interior Fixture 26W - 50W	LED-GEN-50-1-Fixt-XX-XX-XX-XX	INX-GEN-180-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-50-1-Fixt-XX-XX-XX-XX	INX-GEN-185-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-50-1-Fixt-XX-XX-XX-XX	INX-GEN-190-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-50-1-Fixt-XX-XX-XX-XX	INX-GEN-195-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-50-1-Fixt-XX-XX-XX-XX	INX-GEN-200-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-50-1-Fixt-XX-XX-XX-XX	INX-GEN-250-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-50-1-Fixt-XX-XX-XX-XX	INX-GEN-300-1-Fixt-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-1-1-Lamp-XX-XX-XX-XX	INX-GEN-3-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-1-1-Lamp-XX-XX-XX-XX	INX-GEN-4-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-1-1-Lamp-XX-XX-XX-XX	INX-GEN-5-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-1-1-Lamp-XX-XX-XX-XX	INX-GEN-6-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-2-1-Lamp-XX-XX-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-2-1-Lamp-XX-XX-XX-XX	INX-GEN-6-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-2-1-Lamp-XX-XX-XX-XX	INX-GEN-7-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-2-1-Lamp-XX-XX-XX-XX	INX-GEN-8-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-2-1-Lamp-XX-XX-XX-XX	INX-GEN-9-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-3-1-Lamp-XX-XX-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-3-1-Lamp-XX-XX-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-3-1-Lamp-XX-XX-XX-XX	INX-GEN-9-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-4-1-Lamp-XX-XX-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-4-1-Lamp-XX-XX-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-5-1-Lamp-XX-XX-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-5-1-Lamp-XX-XX-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-5-1-Lamp-XX-XX-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-5-1-Lamp-XX-XX-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-11-1-Lamp-XX-XX-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-11-1-Lamp-XX-XX-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-11-1-Lamp-XX-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-11-1-Lamp-XX-XX-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-11-1-Lamp-XX-XX-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-11-1-Lamp-XX-XX-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-11-1-Lamp-XX-XX-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-12-1-Lamp-XX-XX-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-12-1-Lamp-XX-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-12-1-Lamp-XX-XX-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-12-1-Lamp-XX-XX-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-12-1-Lamp-XX-XX-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-12-1-Lamp-XX-XX-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-12-1-Lamp-XX-XX-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-13-1-Lamp-XX-XX-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-13-1-Lamp-XX-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-13-1-Lamp-XX-XX-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-13-1-Lamp-XX-XX-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-13-1-Lamp-XX-XX-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-13-1-Lamp-XX-XX-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-13-1-Lamp-XX-XX-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-13-1-Lamp-XX-XX-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Interior Lamp 11W - 20W	LED-GEN-18-1-Lamp-XX-XX-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-18-1-Lamp-XX-XX-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-18-1-Lamp-XX-XX-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-18-1-Lamp-XX-XX-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-115-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-10-1-Lamp-XX-XX-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-10-1-Lamp-XX-XX-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-10-1-Lamp-XX-XX-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-10-1-Lamp-XX-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-10-1-Lamp-XX-XX-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-10-1-Lamp-XX-XX-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-10-1-Lamp-XX-XX-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-6-1-Lamp-XX-XX-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-6-1-Lamp-XX-XX-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-6-1-Lamp-XX-XX-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-6-1-Lamp-XX-XX-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-7-1-Lamp-XX-XX-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-7-1-Lamp-XX-XX-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-7-1-Lamp-XX-XX-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-7-1-Lamp-XX-XX-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-8-1-Lamp-XX-XX-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-8-1-Lamp-XX-XX-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-50-1-Fixt-XX-XX-XX-XX	FT12-60-GEN-75-1-Fixt-HO-XX-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-50-1-Fixt-XX-XX-XX-XX	FT12-72-GEN-85-1-Fixt-HO-XX-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-50-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-50-1-Fixt-XX-XX-XX-XX	FT8-72-GEN-66-1-Fixt-EB-HO-XX-XX
LED/LEC Exit Sign	LEC-EXT-0.25-1-Fixt-XX-XX-XX-XX	INX-EXT-30-1-Fixt-XX-XX-XX-XX
LED/LEC Exit Sign	LEC-EXT-0.25-1-Fixt-XX-XX-XX-XX	INX-EXT-40-1-Fixt-XX-XX-XX-XX
LED/LEC Exit Sign	LED-EXT-2-1-Fixt-XX-XX-XX-XX	INX-EXT-30-1-Fixt-XX-XX-XX-XX
LED/LEC Exit Sign	LED-EXT-2-1-Fixt-XX-XX-XX-XX	INX-EXT-40-1-Fixt-XX-XX-XX-XX
Parking Garage Low Wattage T8 4' lamps	FT8-48-GEN-25-1-Lamp-EB-HE-HBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-HBF-XX
Parking Garage Low Wattage T8 4' lamps	FT8-48-GEN-25-1-Lamp-EB-HE-LBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-LBF-XX
Parking Garage Low Wattage T8 4' lamps	FT8-48-GEN-25-1-Lamp-EB-HE-NBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-NBF-XX
Parking Garage Low Wattage T8 4' lamps	FT8-48-GEN-28-1-Lamp-EB-HE-HBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-HBF-XX
Parking Garage Low Wattage T8 4' lamps	FT8-48-GEN-28-1-Lamp-EB-HE-LBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-LBF-XX
Parking Garage Low Wattage T8 4' lamps	FT8-48-GEN-28-1-Lamp-EB-HE-NBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-NBF-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-2-Fixt-EB-HE-XX-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-2-Fixt-EB-HE-XX-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-2-Fixt-EB-HE-XX-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-2-Fixt-EB-HE-XX-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-2-Fixt-EB-HE-XX-XX	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-2-Fixt-EB-HE-XX-XX	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-2-Fixt-EB-HE-XX-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-2-Fixt-EB-HE-XX-XX	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-3-Fixt-EB-HE-XX-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-3-Fixt-EB-HE-XX-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-3-Fixt-EB-HE-XX-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-3-Fixt-EB-HE-XX-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-3-Fixt-EB-HE-XX-XX	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-3-Fixt-EB-HE-XX-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT5-45.8-PKG-54-3-Fixt-EB-HE-XX-XX	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-HBF-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-HBF-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-HBF-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-HBF-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-HBF-XX	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-HBF-XX	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-HBF-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-HBF-XX	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-LBF-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-LBF-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-LBF-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-LBF-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-LBF-XX	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-LBF-XX	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-LBF-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-LBF-XX	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-NBF-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-NBF-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-NBF-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-NBF-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-NBF-XX	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-NBF-XX	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-NBF-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-2-Fixt-EB-HE-NBF-XX	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-HBF-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-HBF-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-HBF-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-HBF-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-HBF-XX	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-HBF-XX	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-HBF-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-HBF-XX	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-LBF-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-LBF-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-LBF-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-LBF-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-LBF-XX	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-LBF-XX	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-LBF-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-LBF-XX	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX
Parking Garages 2 - 3 Lamp Fluorescent	FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-MB-XX-XX-XX	HPS-GEN-150-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-MB-XX-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-MB-XX-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-MB-XX-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-100-1-Fixt-MB-XX-XX-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-125-1-Fixt-MB-XX-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-125-1-Fixt-MB-XX-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-125-1-Fixt-MB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX	MH-GEN-175-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-150-1-Fixt-MB-XX-XX-XX	MV-GEN-175-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX	MV-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-175-1-Fixt-MB-XX-XX-XX	MV-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-70-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-ESMB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-ESMB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-ESMB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-ESMB-XX-XX-XX	MH-GEN-100-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-ESMB-XX-XX-XX	MV-GEN-75-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-MB-XX-XX-XX	HPS-GEN-70-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-MB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-MB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-MB-XX-XX-XX	MH-GEN-100-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-50-1-Fixt-MB-XX-XX-XX	MV-GEN-75-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-100-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-ESMB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-ESMB-XX-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-ESMB-XX-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-ESMB-XX-XX-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-ESMB-XX-XX-XX	MV-GEN-100-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-MB-XX-XX-XX	HPS-GEN-100-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-MB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-MB-XX-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-MB-XX-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-MB-XX-XX-XX	MH-GEN-150-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, <= 175W	PSMH-GEN-70-1-Fixt-MB-XX-XX-XX	MV-GEN-100-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-200-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-200-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-310-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-200-1-Fixt-ESMB-XX-XX-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-200-1-Fixt-MB-XX-XX-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-200-1-Fixt-MB-XX-XX-XX	HPS-GEN-310-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-200-1-Fixt-MB-XX-XX-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-250-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-250-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-310-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-250-1-Fixt-ESMB-XX-XX-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-250-1-Fixt-MB-XX-XX-XX	HPS-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-250-1-Fixt-MB-XX-XX-XX	HPS-GEN-310-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 176W-319W	PSMH-GEN-250-1-Fixt-MB-XX-XX-XX	MH-GEN-250-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-320-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-320-1-Fixt-ESMB-XX-XX-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-320-1-Fixt-ESMB-XX-XX-XX	MV-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-320-1-Fixt-MB-XX-XX-XX	HPS-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-320-1-Fixt-MB-XX-XX-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-320-1-Fixt-MB-XX-XX-XX	MV-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-350-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-350-1-Fixt-ESMB-XX-XX-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-350-1-Fixt-ESMB-XX-XX-XX	MV-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-350-1-Fixt-MB-XX-XX-XX	HPS-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-350-1-Fixt-MB-XX-XX-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-350-1-Fixt-MB-XX-XX-XX	MV-GEN-400-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-400-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-400-1-Fixt-ESMB-XX-XX-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-400-1-Fixt-ESMB-XX-XX-XX	PSMH-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-400-1-Fixt-MB-XX-XX-XX	HPS-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-400-1-Fixt-MB-XX-XX-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-400-1-Fixt-MB-XX-XX-XX	PSMH-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-450-1-Fixt-ESMB-XX-XX-XX	HPS-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-450-1-Fixt-ESMB-XX-XX-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-450-1-Fixt-ESMB-XX-XX-XX	PSMH-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-450-1-Fixt-MB-XX-XX-XX	HPS-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-450-1-Fixt-MB-XX-XX-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 320W-749W	PSMH-GEN-450-1-Fixt-MB-XX-XX-XX	PSMH-GEN-750-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 750W+	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX	MH-GEN-1500-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 750W+	PSMH-GEN-750-1-Fixt-MB-XX-XX-XX	HPS-GEN-1000-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 750W+	PSMH-GEN-750-1-Fixt-MB-XX-XX-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 750W+	PSMH-GEN-750-1-Fixt-MB-XX-XX-XX	MV-GEN-1000-1-Fixt-MB-XX-XX-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-5050	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-5050	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-5050	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-5050	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-5050	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-5050	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-70	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-70	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-70	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-70	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-70	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-70	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-75	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-75	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-75	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	FT8-48-SEN-32-2-Fixt-XX-XX-HBF-75	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-75	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-80	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-80	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-80	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-80	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-80	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-80	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-85	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-85	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-85	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-85	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-85	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-85	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-90	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-90	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-90	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-90	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-90	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-90	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-95	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-95	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-95	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-95	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-95	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
Stairwell Fixture with Integral Occupancy Sensor	LED-SEN-30-1-Fixt-XX-XX-XX-95	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
T8 4' Lamps - Low Wattage	FT8-48-GEN-25-1-Lamp-EB-HE-HBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-HBF-XX
T8 4' Lamps - Low Wattage	FT8-48-GEN-25-1-Lamp-EB-HE-LBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-LBF-XX
T8 4' Lamps - Low Wattage	FT8-48-GEN-25-1-Lamp-EB-HE-NBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-NBF-XX
T8 4' Lamps - Low Wattage	FT8-48-GEN-28-1-Lamp-EB-HE-HBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-HBF-XX
T8 4' Lamps - Low Wattage	FT8-48-GEN-28-1-Lamp-EB-HE-LBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-LBF-XX
T8 4' Lamps - Low Wattage	FT8-48-GEN-28-1-Lamp-EB-HE-NBF-HE	FT8-48-GEN-32-1-Lamp-EB-HE-NBF-XX
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX-RB	FT12-24-GEN-20-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-34-2-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-34-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-34-2-Fixt-MB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-40-2-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-40-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-40-2-Fixt-MB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX-RB	FT12-24-GEN-20-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-2-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-2-Fixt-MB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-2-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-2-Fixt-MB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX-RB	FT12-24-GEN-20-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-2-Fixt-EB-STD-XX-RB

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-3-Fixt-MB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-4-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-4-Fixt-MB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-3-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-3-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-3-Fixt-MB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-4-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-4-Fixt-MB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-110-2-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-110-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-110-2-Fixt-MB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-60-2-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-60-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-75-2-Fixt-EB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-75-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-95-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 1 and 2 Lamp	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-95-2-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-34-3-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-34-3-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-34-3-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-40-3-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-40-3-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-40-3-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-3-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-3-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-3-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-3-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-3-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-3-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-3-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-3-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-3-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-3-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-3-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-3-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-34-4-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-34-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX-RB	FT12-48-GEN-34-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-4-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-4-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-4-Fixt-EB-STD-XX-RB

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-4-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-4-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX-RB	FT12-96-GEN-110-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX-RB	FT12-96-GEN-110-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX-RB	FT12-96-GEN-60-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX-RB	FT12-96-GEN-75-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX-RB	FT12-96-GEN-75-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX-RB	FT12-96-GEN-95-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX-RB	FT12-96-GEN-95-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX-RB	FT12-96-GEN-95-2-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-4-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-34-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-4-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-48-GEN-40-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-110-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-110-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-110-2-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-60-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-60-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-75-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-75-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-95-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-95-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	FT12-96-GEN-95-2-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-4-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-34-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-4-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-4-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-48-GEN-40-4-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-110-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-110-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-110-2-Fixt-MB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-60-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-60-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-75-2-Fixt-EB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-75-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-95-2-Fixt-EB-STD-XX-RB

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-95-2-Fixt-ESMB-STD-XX-RB
T8 Optimization 3 and 4 Lamp	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	FT12-96-GEN-95-2-Fixt-MB-STD-XX-RB
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-1-Blst-EB-HE-HBF-XX	FT8-48-GEN-32-1-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-1-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-1-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-1-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-1-Blst-EB-STD-LBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-1-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-1-Blst-EB-STD-NBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-1-Blst-EB-HE-NBF-XX	FT8-48-GEN-32-1-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-1-Blst-EB-HE-NBF-XX	FT8-48-GEN-32-1-Blst-EB-STD-NBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-2-Blst-EB-HE-HBF-XX	FT8-48-GEN-32-2-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-2-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-2-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-2-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-2-Blst-EB-STD-LBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-2-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-2-Blst-EB-STD-NBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-2-Blst-EB-HE-NBF-XX	FT8-48-GEN-32-2-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 1 and 2 lamp	FT8-48-GEN-32-2-Blst-EB-HE-NBF-XX	FT8-48-GEN-32-2-Blst-EB-STD-NBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-3-Blst-EB-HE-HBF-XX	FT8-48-GEN-32-3-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-3-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-3-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-3-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-3-Blst-EB-STD-LBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-3-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-3-Blst-EB-STD-NBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-3-Blst-EB-HE-NBF-XX	FT8-48-GEN-32-3-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-3-Blst-EB-HE-NBF-XX	FT8-48-GEN-32-3-Blst-EB-STD-NBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-4-Blst-EB-HE-HBF-XX	FT8-48-GEN-32-4-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-4-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-4-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-4-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-4-Blst-EB-STD-LBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-4-Blst-EB-HE-LBF-XX	FT8-48-GEN-32-4-Blst-EB-STD-NBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-4-Blst-EB-HE-NBF-XX	FT8-48-GEN-32-4-Blst-EB-STD-HBF-XX
T8 Ballast, 2 ft to 4 ft., 3 and 4 lamp	FT8-48-GEN-32-4-Blst-EB-HE-NBF-XX	FT8-48-GEN-32-4-Blst-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	FT8-96-GEN-59-1-Lamp-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4: Deemed Fixture Table - Retrofit

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-3-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-LBF-XX
T8 to T8 Optimization	FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX	FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-10-1-Lamp-MB-STD-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-EB-HE-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-11-1-Lamp-MB-STD-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-1-1-Lamp-EB-HE-XX-XX	INX-GEN-5-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-1-1-Lamp-MB-STD-XX-XX	INX-GEN-5-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-EB-HE-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-12-1-Lamp-MB-STD-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-EB-HE-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-13-1-Lamp-MB-STD-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-EB-HE-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-14-1-Lamp-MB-STD-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-15-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-EB-HE-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-16-1-Lamp-MB-STD-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-EB-HE-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-17-1-Lamp-MB-STD-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-EB-HE-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-18-1-Lamp-MB-STD-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-2-1-Lamp-EB-HE-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-2-1-Lamp-MB-STD-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-3-1-Lamp-EB-HE-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-3-1-Lamp-MB-STD-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-4-1-Lamp-EB-HE-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-4-1-Lamp-MB-STD-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-5-1-Lamp-EB-HE-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-5-1-Lamp-MB-STD-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-6-1-Lamp-EB-HE-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-6-1-Lamp-MB-STD-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-EB-HE-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-7-1-Lamp-MB-STD-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-EB-HE-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-8-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-EB-HE-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
CFL <= 18W Pin Based	CFL-GEN-9-1-Lamp-MB-STD-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-EB-HE-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-19-1-Lamp-MB-STD-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-EB-HE-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-21-1-Lamp-MB-STD-XX-XX	INX-GEN-105-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-EB-HE-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-22-1-Lamp-MB-STD-XX-XX	INX-GEN-110-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-EB-HE-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-23-1-Lamp-MB-STD-XX-XX	INX-GEN-120-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 19-32W Pin Based	CFL-GEN-24-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-EB-HE-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-25-1-Lamp-MB-STD-XX-XX	INX-GEN-125-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-26-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-27-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-28-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-29-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-30-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-31-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-EB-HE-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-32-1-Lamp-MB-STD-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-100-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-33-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-34-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-35-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-36-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-37-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-38-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-EB-HE-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-39-1-Lamp-MB-STD-XX-XX	INX-GEN-175-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-EB-HE-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-40-1-Lamp-MB-STD-XX-XX	INX-GEN-165-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-41-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-42-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-43-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-44-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-45-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-EB-HE-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-46-1-Lamp-MB-STD-XX-XX	INX-GEN-200-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-47-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-48-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-49-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-50-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-51-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-52-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-53-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-54-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-55-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-56-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-57-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-58-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-59-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-60-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-61-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-62-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-63-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-EB-HE-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-64-1-Lamp-MB-STD-XX-XX	INX-GEN-250-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-65-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-66-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-67-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-68-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-69-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-70-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-71-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-72-1-Lamp-MB-STD-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-EB-HE-XX-XX	INX-GEN-300-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-73-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-74-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-75-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-76-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-EB-HE-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-77-1-Lamp-MB-STD-XX-XX	INX-GEN-350-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-78-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-79-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-EB-HE-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-80-1-Lamp-MB-STD-XX-XX	INX-GEN-400-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-81-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-82-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-83-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-84-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-85-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-86-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-87-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-88-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-89-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-90-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-90-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-91-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-92-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-93-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-94-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-95-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-96-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-97-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-98-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-EB-HE-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
CFL 33W+ Pin Based	CFL-GEN-99-1-Lamp-MB-STD-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-100-1-Fixt-MB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-150-1-Fixt-EB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-39-1-Fixt-EB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-70-1-Fixt-EB-XX-XX-XX	INX-GEN-500-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-IB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-25-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
High Bay Fluorescents 4-6L T5HO or 6-8L T8	FT5-45.8-HBY-54-4-Fixt-EB-HE-XX-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 4-6L T5HO or 6-8L T8	FT5-45.8-HBY-54-6-Fixt-EB-HE-XX-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 4-6L T5HO or 6-8L T8	FT8-48-HBY-32-6-Fixt-EB-HE-HBF-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 4-6L T5HO or 6-8L T8	FT8-48-HBY-32-6-Fixt-EB-HE-LBF-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 4-6L T5HO or 6-8L T8	FT8-48-HBY-32-6-Fixt-EB-HE-NBF-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 4-6L T5HO or 6-8L T8	FT8-48-HBY-32-8-Fixt-EB-HE-HBF-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 4-6L T5HO or 6-8L T8	FT8-48-HBY-32-8-Fixt-EB-HE-LBF-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 4-6L T5HO or 6-8L T8	FT8-48-HBY-32-8-Fixt-EB-HE-NBF-XX	MH-GEN-400-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT5-45.8-HBY-54-8-Fixt-EB-HE-XX-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-32-12-Fixt-EB-HE-HBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-32-12-Fixt-EB-HE-LBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-32-12-Fixt-EB-HE-NBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-32-14-Fixt-EB-HE-HBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-32-14-Fixt-EB-HE-LBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-32-14-Fixt-EB-HE-NBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-32-16-Fixt-EB-HE-HBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-32-16-Fixt-EB-HE-LBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-32-16-Fixt-EB-HE-NBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 6L T8VHO, 8L T5HO, 12-16L T8	FT8-48-HBY-84-6-Fixt-EB-HE-NBF-XX	MH-GEN-750-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT5-45.8-HBY-54-10-Fixt-EB-HE-XX-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-HBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-18-Fixt-EB-HE-NBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-HBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-LBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-32-20-Fixt-EB-HE-NBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
High Bay Fluorescents 8L T8VHO, 10L T5HO, 18-20L T8	FT8-48-HBY-84-8-Fixt-EB-HE-NBF-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Interior Fixture <= 25W	LED-GEN-10-1-Fixt-XX-XX-XX-XX	INX-GEN-50-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-11-1-Fixt-XX-XX-XX-XX	INX-GEN-55-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-12-1-Fixt-XX-XX-XX-XX	INX-GEN-60-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-13-1-Fixt-XX-XX-XX-XX	INX-GEN-65-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-14-1-Fixt-XX-XX-XX-XX	INX-GEN-70-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-15-1-Fixt-XX-XX-XX-XX	INX-GEN-75-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-16-1-Fixt-XX-XX-XX-XX	INX-GEN-80-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-17-1-Fixt-XX-XX-XX-XX	INX-GEN-85-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-18-1-Fixt-XX-XX-XX-XX	INX-GEN-90-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-19-1-Fixt-XX-XX-XX-XX	INX-GEN-95-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-20-1-Fixt-XX-XX-XX-XX	INX-GEN-100-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-21-1-Fixt-XX-XX-XX-XX	INX-GEN-105-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-22-1-Fixt-XX-XX-XX-XX	INX-GEN-110-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-23-1-Fixt-XX-XX-XX-XX	INX-GEN-115-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-24-1-Fixt-XX-XX-XX-XX	INX-GEN-120-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-25-1-Fixt-XX-XX-XX-XX	INX-GEN-125-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-8-1-Fixt-XX-XX-XX-XX	INX-GEN-40-1-Fixt-XX-XX-XX-XX
LED Interior Fixture <= 25W	LED-GEN-9-1-Fixt-XX-XX-XX-XX	INX-GEN-45-1-Fixt-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-1-1-Lamp-XX-XX-XX-XX	INX-GEN-5-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-2-1-Lamp-XX-XX-XX-XX	INX-GEN-10-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-3-1-Lamp-XX-XX-XX-XX	INX-GEN-15-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-4-1-Lamp-XX-XX-XX-XX	INX-GEN-20-1-Lamp-XX-XX-XX-XX
LED Interior Lamp <= 5W	LED-GEN-5-1-Lamp-XX-XX-XX-XX	INX-GEN-25-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-11-1-Lamp-XX-XX-XX-XX	INX-GEN-55-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-12-1-Lamp-XX-XX-XX-XX	INX-GEN-60-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-13-1-Lamp-XX-XX-XX-XX	INX-GEN-65-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-14-1-Lamp-XX-XX-XX-XX	INX-GEN-70-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-15-1-Lamp-XX-XX-XX-XX	INX-GEN-75-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-16-1-Lamp-XX-XX-XX-XX	INX-GEN-80-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-17-1-Lamp-XX-XX-XX-XX	INX-GEN-85-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-18-1-Lamp-XX-XX-XX-XX	INX-GEN-90-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-19-1-Lamp-XX-XX-XX-XX	INX-GEN-95-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-26-1-Fixt-XX-XX-XX-XX	INX-GEN-130-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-27-1-Fixt-XX-XX-XX-XX	INX-GEN-135-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-28-1-Fixt-XX-XX-XX-XX	INX-GEN-140-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-29-1-Fixt-XX-XX-XX-XX	INX-GEN-145-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-30-1-Fixt-XX-XX-XX-XX	INX-GEN-150-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-31-1-Fixt-XX-XX-XX-XX	INX-GEN-155-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-32-1-Fixt-XX-XX-XX-XX	INX-GEN-160-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-33-1-Fixt-XX-XX-XX-XX	INX-GEN-165-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-34-1-Fixt-XX-XX-XX-XX	INX-GEN-170-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-35-1-Fixt-XX-XX-XX-XX	INX-GEN-175-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-36-1-Fixt-XX-XX-XX-XX	INX-GEN-180-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-37-1-Fixt-XX-XX-XX-XX	INX-GEN-185-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-38-1-Fixt-XX-XX-XX-XX	INX-GEN-190-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-39-1-Fixt-XX-XX-XX-XX	INX-GEN-195-1-Fixt-XX-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Interior Fixture 26W - 50W	LED-GEN-40-1-Fixt-XX-XX-XX-XX	INX-GEN-200-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-41-1-Fixt-XX-XX-XX-XX	INX-GEN-200-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-42-1-Fixt-XX-XX-XX-XX	INX-GEN-200-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-43-1-Fixt-XX-XX-XX-XX	INX-GEN-200-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-44-1-Fixt-XX-XX-XX-XX	INX-GEN-200-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-45-1-Fixt-XX-XX-XX-XX	INX-GEN-200-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-46-1-Fixt-XX-XX-XX-XX	INX-GEN-250-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-47-1-Fixt-XX-XX-XX-XX	INX-GEN-250-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-48-1-Fixt-XX-XX-XX-XX	INX-GEN-250-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-49-1-Fixt-XX-XX-XX-XX	INX-GEN-250-1-Fixt-XX-XX-XX-XX
LED Interior Fixture 26W - 50W	LED-GEN-50-1-Fixt-XX-XX-XX-XX	INX-GEN-250-1-Fixt-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-10-1-Lamp-XX-XX-XX-XX	INX-GEN-50-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-6-1-Lamp-XX-XX-XX-XX	INX-GEN-30-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-7-1-Lamp-XX-XX-XX-XX	INX-GEN-35-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-8-1-Lamp-XX-XX-XX-XX	INX-GEN-40-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 6W - 10W	LED-GEN-9-1-Lamp-XX-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-15-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-16-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-17-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-18-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-19-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-20-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-21-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-22-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-23-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-24-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-25-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-26-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-27-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-28-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-29-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-30-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-31-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-32-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-33-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-34-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-35-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-36-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-37-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-38-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-39-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-40-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-41-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-42-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-43-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-44-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX
LED Ref and Frz Cases 5' or 6' doors	LED-CASE-45-1-Fixt-XX-XX-XX-XX	FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Interior Screw In Fixture New Construction	LED-ScrewIn-23.6-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-23.7-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-23.8-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-23.9-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.0-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.1-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.2-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.3-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.4-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.5-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.6-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.7-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.8-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-24.9-1-Lamp-LED-XX-XX-XX	INX-GEN-135-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-25.0-1-Lamp-LED-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.0-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.1-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.2-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.3-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.4-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.5-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.6-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.7-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.8-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-9.9-1-Lamp-LED-XX-XX-XX	INX-GEN-45-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide <=150W	CMH-GEN-50-1-Fixt-EB-XX-XX-XX	INX-GEN-150-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-EB-HE-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
CFL 19-32W Pin Based	CFL-GEN-20-1-Lamp-MB-STD-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-20-1-Fixt-IB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
Ceramic Metal Halide - Integrated 20W - 25W	CMH-GEN-25-1-Fixt-EB-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Lamp 11W - 20W	LED-GEN-20-1-Lamp-XX-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.0-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.1-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.2-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.3-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.4-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.5-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.6-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.7-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.8-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Interior Screw In Fixture New Construction	LED-ScrewIn-20.9-1-Lamp-LED-XX-XX-XX	INX-GEN-100-1-Lamp-XX-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 25W - 60W	LED-CSO-25-1-Fixt-XX-XX-XX-XX	PSMH-CSO-125-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 25W - 60W	LED-CSO-26-1-Fixt-XX-XX-XX-XX	PSMH-CSO-125-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 25W - 60W	LED-CSO-27-1-Fixt-XX-XX-XX-XX	PSMH-CSO-125-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 25W - 60W	LED-CSO-28-1-Fixt-XX-XX-XX-XX	MH-CSO-150-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 25W - 60W	LED-CSO-29-1-Fixt-XX-XX-XX-XX	MH-CSO-150-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-73-1-Fixt-XX-XX-XX-XX	PSMH-CSO-350-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-74-1-Fixt-XX-XX-XX-XX	PSMH-CSO-350-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-75-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-76-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-77-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-78-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-79-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-80-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-81-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-82-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-83-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-84-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-85-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-86-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-87-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-88-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-89-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-90-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-91-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-92-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-93-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-94-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-95-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-96-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-97-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-98-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Outdoor Canopy or Soffit lighting 61W - 150W	LED-CSO-99-1-Fixt-XX-XX-XX-XX	MH-CSO-400-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-10-1-Fixt-XX-XX-XX-XX	HPS-WPE-35-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-11-1-Fixt-XX-XX-XX-XX	HPS-WPE-35-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-12-1-Fixt-XX-XX-XX-XX	HPS-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-13-1-Fixt-XX-XX-XX-XX	HPS-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-14-1-Fixt-XX-XX-XX-XX	HPS-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-15-1-Fixt-XX-XX-XX-XX	HPS-WPE-50-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-16-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-17-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-18-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-19-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-20-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-21-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-22-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-23-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-24-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack <= 25W	LED-WPE-25-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-10-1-Fixt-XX-XX-XX-XX	HPS-WPE-35-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-11-1-Fixt-XX-XX-XX-XX	HPS-WPE-35-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-12-1-Fixt-XX-XX-XX-XX	HPS-WPE-50-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-13-1-Fixt-XX-XX-XX-XX	HPS-WPE-50-1-Fixt-MB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Parking Garage Wall Pack <= 25W	LED-WPG-14-1-Fixt-XX-XX-XX-XX	HPS-WPE-50-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-15-1-Fixt-XX-XX-XX-XX	HPS-WPE-50-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-16-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-17-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-18-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-19-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-20-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-21-1-Fixt-XX-XX-XX-XX	PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-22-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-23-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-24-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack <= 25W	LED-WPG-25-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-26-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-27-1-Fixt-XX-XX-XX-XX	PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-28-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-29-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-30-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-31-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-32-1-Fixt-XX-XX-XX-XX	PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-33-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-34-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-35-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-36-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-37-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-38-1-Fixt-XX-XX-XX-XX	PSMH-WPE-150-1-Fixt-MB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-39-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-40-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-41-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-42-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-43-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-44-1-Fixt-XX-XX-XX-XX	PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-45-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-46-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-47-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-48-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-49-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-50-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-51-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-52-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-53-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-54-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-55-1-Fixt-XX-XX-XX-XX	PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-56-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-57-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-58-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-59-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX
LED Exterior Wall Pack 26W - 60W	LED-WPE-60-1-Fixt-XX-XX-XX-XX	PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Deemed Fixture Table - New Construction

Prescriptive Measure	Post-Retrofit Efficient Fixture, Lamp or Lighting Control	Pre-Retrofit Baseline Fixture, Allowable Item to Remove
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-73-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-74-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-75-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-76-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-77-1-Fixt-XX-XX-XX-XX	PSMH-WPE-320-1-Fixt-MB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-78-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-79-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-80-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-81-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-82-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-83-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-84-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-85-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-86-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-87-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-88-1-Fixt-XX-XX-XX-XX	PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-89-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-90-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-91-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-92-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-93-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
Pulse-Start Metal Halide, 750W+	PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX	MH-GEN-1500-1-Fixt-MB-XX-XX-XX
Pulse-Start Metal Halide, 750W+	PSMH-GEN-750-1-Fixt-MB-XX-XX-XX	MH-GEN-1000-1-Fixt-MB-XX-XX-XX
T8 4' Lamps - Low Wattage	FT8-48-GEN-25-1-Lamp-EB-STD-NBF-STD	FT8-48-GEN-32-1-Lamp-EB-STD-NBF-XX
T8 4' Lamps - Low Wattage	FT8-48-GEN-28-1-Lamp-EB-STD-NBF-STD	FT8-48-GEN-32-1-Lamp-EB-STD-NBF-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-94-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-95-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-96-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-97-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-98-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX
LED Parking Garage Wall Pack 61W - 150W	LED-WPG-99-1-Fixt-XX-XX-XX-XX	PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-GEN-100-1-Lamp-EB-HE-XX-XX	0.106	\$ 112.24	Yes
CFL-GEN-100-1-Lamp-MB-STD-XX-XX	0.131	\$ 112.24	Yes
CFL-GEN-10-1-Lamp-EB-HE-XX-XX	0.011	\$ 76.35	Yes
CFL-GEN-10-1-Lamp-MB-STD-XX-XX	0.013	\$ 76.35	Yes
CFL-GEN-11-1-Lamp-EB-HE-XX-XX	0.012	\$ 76.35	Yes
CFL-GEN-11-1-Lamp-MB-STD-XX-XX	0.014	\$ 76.35	Yes
CFL-GEN-1-1-Lamp-EB-HE-XX-XX	0.001	\$ 76.35	Yes
CFL-GEN-1-1-Lamp-MB-STD-XX-XX	0.001	\$ 76.35	Yes
CFL-GEN-12-1-Lamp-EB-HE-XX-XX	0.013	\$ 76.35	Yes
CFL-GEN-12-1-Lamp-MB-STD-XX-XX	0.016	\$ 76.35	Yes
CFL-GEN-13-1-Lamp-EB-HE-XX-XX	0.014	\$ 76.35	Yes
CFL-GEN-13-1-Lamp-MB-STD-XX-XX	0.017	\$ 76.35	Yes
CFL-GEN-14-1-Lamp-EB-HE-XX-XX	0.015	\$ 76.35	Yes
CFL-GEN-14-1-Lamp-MB-STD-XX-XX	0.018	\$ 76.35	Yes
CFL-GEN-15-1-Lamp-EB-HE-XX-XX	0.016	\$ 76.35	Yes
CFL-GEN-15-1-Lamp-MB-STD-XX-XX	0.020	\$ 76.35	Yes
CFL-GEN-16-1-Lamp-EB-HE-XX-XX	0.017	\$ 76.35	Yes
CFL-GEN-16-1-Lamp-MB-STD-XX-XX	0.021	\$ 76.35	Yes
CFL-GEN-17-1-Lamp-EB-HE-XX-XX	0.018	\$ 76.35	Yes
CFL-GEN-17-1-Lamp-MB-STD-XX-XX	0.022	\$ 76.35	Yes
CFL-GEN-18-1-Lamp-EB-HE-XX-XX	0.019	\$ 76.35	Yes
CFL-GEN-18-1-Lamp-MB-STD-XX-XX	0.024	\$ 76.35	Yes
CFL-GEN-19-1-Lamp-EB-HE-XX-XX	0.020	\$ 76.35	Yes
CFL-GEN-19-1-Lamp-MB-STD-XX-XX	0.025	\$ 76.35	Yes
CFL-GEN-20-1-Lamp-EB-HE-XX-XX	0.021	\$ 76.35	Yes
CFL-GEN-20-1-Lamp-MB-STD-XX-XX	0.026	\$ 76.35	Yes
CFL-GEN-21-1-Lamp-EB-HE-XX-XX	0.022	\$ 76.35	Yes
CFL-GEN-21-1-Lamp-MB-STD-XX-XX	0.027	\$ 76.35	Yes
CFL-GEN-2-1-Lamp-EB-HE-XX-XX	0.002	\$ 76.35	Yes
CFL-GEN-2-1-Lamp-MB-STD-XX-XX	0.003	\$ 76.35	Yes
CFL-GEN-22-1-Lamp-EB-HE-XX-XX	0.023	\$ 76.35	Yes
CFL-GEN-22-1-Lamp-MB-STD-XX-XX	0.029	\$ 76.35	Yes
CFL-GEN-23-1-Lamp-EB-HE-XX-XX	0.024	\$ 76.35	Yes
CFL-GEN-23-1-Lamp-MB-STD-XX-XX	0.030	\$ 76.35	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-GEN-24-1-Lamp-EB-HE-XX-XX	0.025	\$ 76.35	Yes
CFL-GEN-24-1-Lamp-MB-STD-XX-XX	0.031	\$ 76.35	Yes
CFL-GEN-25-1-Lamp-EB-HE-XX-XX	0.026	\$ 76.35	Yes
CFL-GEN-25-1-Lamp-MB-STD-XX-XX	0.033	\$ 76.35	Yes
CFL-GEN-25-1-Lamp-XX-XX-XX-XX	0.025	\$ 9.50	Yes
CFL-GEN-26-1-Lamp-EB-HE-XX-XX	0.028	\$ 76.35	Yes
CFL-GEN-26-1-Lamp-MB-STD-XX-XX	0.034	\$ 76.35	Yes
CFL-GEN-27-1-Lamp-EB-HE-XX-XX	0.029	\$ 76.35	Yes
CFL-GEN-27-1-Lamp-MB-STD-XX-XX	0.035	\$ 76.35	Yes
CFL-GEN-28-1-Lamp-EB-HE-XX-XX	0.030	\$ 76.35	Yes
CFL-GEN-28-1-Lamp-MB-STD-XX-XX	0.037	\$ 76.35	Yes
CFL-GEN-28-1-Lamp-XX-XX-XX-XX	0.028	\$ 9.50	Yes
CFL-GEN-29-1-Lamp-EB-HE-XX-XX	0.031	\$ 76.35	Yes
CFL-GEN-29-1-Lamp-MB-STD-XX-XX	0.038	\$ 76.35	Yes
CFL-GEN-30-1-Lamp-EB-HE-XX-XX	0.032	\$ 76.35	Yes
CFL-GEN-30-1-Lamp-MB-STD-XX-XX	0.039	\$ 76.35	Yes
CFL-GEN-31-1-Lamp-EB-HE-XX-XX	0.033	\$ 76.35	Yes
CFL-GEN-31-1-Lamp-MB-STD-XX-XX	0.040	\$ 76.35	Yes
CFL-GEN-3-1-Lamp-EB-HE-XX-XX	0.003	\$ 76.35	Yes
CFL-GEN-3-1-Lamp-MB-STD-XX-XX	0.004	\$ 76.35	Yes
CFL-GEN-32-1-Lamp-EB-HE-XX-XX	0.034	\$ 76.35	Yes
CFL-GEN-32-1-Lamp-MB-STD-XX-XX	0.042	\$ 76.35	Yes
CFL-GEN-32-2-Lamp-EB-HE-XX-XX	0.068	\$ 76.35	Yes
CFL-GEN-32-2-Lamp-MB-STD-XX-XX	0.068	\$ 76.35	Yes
CFL-GEN-33-1-Lamp-EB-HE-XX-XX	0.035	\$ 76.35	Yes
CFL-GEN-33-1-Lamp-MB-STD-XX-XX	0.043	\$ 76.35	Yes
CFL-GEN-34-1-Lamp-EB-HE-XX-XX	0.036	\$ 76.35	Yes
CFL-GEN-34-1-Lamp-MB-STD-XX-XX	0.044	\$ 76.35	Yes
CFL-GEN-35-1-Lamp-EB-HE-XX-XX	0.037	\$ 76.35	Yes
CFL-GEN-35-1-Lamp-MB-STD-XX-XX	0.046	\$ 76.35	Yes
CFL-GEN-36-1-Lamp-EB-HE-XX-XX	0.038	\$ 76.35	Yes
CFL-GEN-36-1-Lamp-MB-STD-XX-XX	0.047	\$ 76.35	Yes
CFL-GEN-37-1-Lamp-EB-HE-XX-XX	0.039	\$ 76.35	Yes
CFL-GEN-37-1-Lamp-MB-STD-XX-XX	0.048	\$ 76.35	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-GEN-38-1-Lamp-EB-HE-XX-XX	0.040	\$ 76.35	Yes
CFL-GEN-38-1-Lamp-MB-STD-XX-XX	0.050	\$ 76.35	Yes
CFL-GEN-38-2-Lamp-EB-HE-XX-XX	0.074	\$ 76.35	Yes
CFL-GEN-38-2-Lamp-MB-STD-XX-XX	0.074	\$ 76.35	Yes
CFL-GEN-39-1-Lamp-EB-HE-XX-XX	0.041	\$ 76.35	Yes
CFL-GEN-39-1-Lamp-MB-STD-XX-XX	0.051	\$ 76.35	Yes
CFL-GEN-40-1-Lamp-EB-HE-XX-XX	0.042	\$ 76.35	Yes
CFL-GEN-40-1-Lamp-MB-STD-XX-XX	0.052	\$ 76.35	Yes
CFL-GEN-40-1-Lamp-XX-XX-XX-XX	0.040	\$ 7.00	Yes
CFL-GEN-41-1-Lamp-EB-HE-XX-XX	0.043	\$ 76.35	Yes
CFL-GEN-41-1-Lamp-MB-STD-XX-XX	0.054	\$ 76.35	Yes
CFL-GEN-4-1-Lamp-EB-HE-XX-XX	0.004	\$ 76.35	Yes
CFL-GEN-4-1-Lamp-MB-STD-XX-XX	0.005	\$ 76.35	Yes
CFL-GEN-42-1-Lamp-EB-HE-XX-XX	0.044	\$ 76.35	Yes
CFL-GEN-42-1-Lamp-MB-STD-XX-XX	0.055	\$ 76.35	Yes
CFL-GEN-42-2-Lamp-EB-HE-XX-XX	0.093	\$ 76.35	Yes
CFL-GEN-42-2-Lamp-MB-STD-XX-XX	0.093	\$ 76.35	Yes
CFL-GEN-43-1-Lamp-EB-HE-XX-XX	0.045	\$ 76.35	Yes
CFL-GEN-43-1-Lamp-MB-STD-XX-XX	0.056	\$ 76.35	Yes
CFL-GEN-44-1-Lamp-EB-HE-XX-XX	0.047	\$ 76.35	Yes
CFL-GEN-44-1-Lamp-MB-STD-XX-XX	0.057	\$ 76.35	Yes
CFL-GEN-45-1-Lamp-EB-HE-XX-XX	0.048	\$ 76.35	Yes
CFL-GEN-45-1-Lamp-MB-STD-XX-XX	0.059	\$ 76.35	Yes
CFL-GEN-46-1-Lamp-EB-HE-XX-XX	0.049	\$ 76.35	Yes
CFL-GEN-46-1-Lamp-MB-STD-XX-XX	0.060	\$ 76.35	Yes
CFL-GEN-47-1-Lamp-EB-HE-XX-XX	0.050	\$ 76.35	Yes
CFL-GEN-47-1-Lamp-MB-STD-XX-XX	0.061	\$ 76.35	Yes
CFL-GEN-48-1-Lamp-EB-HE-XX-XX	0.051	\$ 76.35	Yes
CFL-GEN-48-1-Lamp-MB-STD-XX-XX	0.063	\$ 76.35	Yes
CFL-GEN-49-1-Lamp-EB-HE-XX-XX	0.052	\$ 76.35	Yes
CFL-GEN-49-1-Lamp-MB-STD-XX-XX	0.064	\$ 76.35	Yes
CFL-GEN-50-1-Lamp-EB-HE-XX-XX	0.053	\$ 76.35	Yes
CFL-GEN-50-1-Lamp-MB-STD-XX-XX	0.065	\$ 112.54	Yes
CFL-GEN-51-1-Lamp-EB-HE-XX-XX	0.054	\$ 112.54	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-GEN-51-1-Lamp-MB-STD-XX-XX	0.067	\$ 112.54	Yes
CFL-GEN-5-1-Lamp-EB-HE-XX-XX	0.005	\$ 112.54	Yes
CFL-GEN-5-1-Lamp-MB-STD-XX-XX	0.007	\$ 112.54	Yes
CFL-GEN-52-1-Lamp-EB-HE-XX-XX	0.055	\$ 112.54	Yes
CFL-GEN-52-1-Lamp-MB-STD-XX-XX	0.068	\$ 112.54	Yes
CFL-GEN-53-1-Lamp-EB-HE-XX-XX	0.056	\$ 112.54	Yes
CFL-GEN-53-1-Lamp-MB-STD-XX-XX	0.069	\$ 112.54	Yes
CFL-GEN-54-1-Lamp-EB-HE-XX-XX	0.057	\$ 112.54	Yes
CFL-GEN-54-1-Lamp-MB-STD-XX-XX	0.071	\$ 112.54	Yes
CFL-GEN-55-1-Lamp-EB-HE-XX-XX	0.058	\$ 112.54	Yes
CFL-GEN-55-1-Lamp-MB-STD-XX-XX	0.072	\$ 112.54	Yes
CFL-GEN-56-1-Lamp-EB-HE-XX-XX	0.059	\$ 112.54	Yes
CFL-GEN-56-1-Lamp-MB-STD-XX-XX	0.073	\$ 112.54	Yes
CFL-GEN-57-1-Lamp-EB-HE-XX-XX	0.060	\$ 112.54	Yes
CFL-GEN-57-1-Lamp-MB-STD-XX-XX	0.074	\$ 112.54	Yes
CFL-GEN-58-1-Lamp-EB-HE-XX-XX	0.061	\$ 112.54	Yes
CFL-GEN-58-1-Lamp-MB-STD-XX-XX	0.076	\$ 112.54	Yes
CFL-GEN-59-1-Lamp-EB-HE-XX-XX	0.062	\$ 112.54	Yes
CFL-GEN-59-1-Lamp-MB-STD-XX-XX	0.077	\$ 112.54	Yes
CFL-GEN-60-1-Lamp-EB-HE-XX-XX	0.063	\$ 112.54	Yes
CFL-GEN-60-1-Lamp-MB-STD-XX-XX	0.078	\$ 112.54	Yes
CFL-GEN-61-1-Lamp-EB-HE-XX-XX	0.065	\$ 112.54	Yes
CFL-GEN-61-1-Lamp-MB-STD-XX-XX	0.080	\$ 112.54	Yes
CFL-GEN-6-1-Lamp-EB-HE-XX-XX	0.006	\$ 112.54	Yes
CFL-GEN-6-1-Lamp-MB-STD-XX-XX	0.008	\$ 112.54	Yes
CFL-GEN-62-1-Lamp-EB-HE-XX-XX	0.066	\$ 112.54	Yes
CFL-GEN-62-1-Lamp-MB-STD-XX-XX	0.081	\$ 112.54	Yes
CFL-GEN-63-1-Lamp-EB-HE-XX-XX	0.067	\$ 112.54	Yes
CFL-GEN-63-1-Lamp-MB-STD-XX-XX	0.082	\$ 112.54	Yes
CFL-GEN-64-1-Lamp-EB-HE-XX-XX	0.068	\$ 112.54	Yes
CFL-GEN-64-1-Lamp-MB-STD-XX-XX	0.084	\$ 112.54	Yes
CFL-GEN-65-1-Lamp-EB-HE-XX-XX	0.069	\$ 112.54	Yes
CFL-GEN-65-1-Lamp-MB-STD-XX-XX	0.085	\$ 112.54	Yes
CFL-GEN-66-1-Lamp-EB-HE-XX-XX	0.070	\$ 112.54	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-GEN-66-1-Lamp-MB-STD-XX-XX	0.086	\$ 112.54	Yes
CFL-GEN-67-1-Lamp-EB-HE-XX-XX	0.071	\$ 112.54	Yes
CFL-GEN-67-1-Lamp-MB-STD-XX-XX	0.088	\$ 112.54	Yes
CFL-GEN-68-1-Lamp-EB-HE-XX-XX	0.072	\$ 112.54	Yes
CFL-GEN-68-1-Lamp-MB-STD-XX-XX	0.089	\$ 112.54	Yes
CFL-GEN-69-1-Lamp-EB-HE-XX-XX	0.073	\$ 112.54	Yes
CFL-GEN-69-1-Lamp-MB-STD-XX-XX	0.090	\$ 112.54	Yes
CFL-GEN-70-1-Lamp-EB-HE-XX-XX	0.074	\$ 112.54	Yes
CFL-GEN-70-1-Lamp-MB-STD-XX-XX	0.091	\$ 112.54	Yes
CFL-GEN-71-1-Lamp-EB-HE-XX-XX	0.075	\$ 112.54	Yes
CFL-GEN-71-1-Lamp-MB-STD-XX-XX	0.093	\$ 112.54	Yes
CFL-GEN-7-1-Lamp-EB-HE-XX-XX	0.007	\$ 112.54	Yes
CFL-GEN-7-1-Lamp-MB-STD-XX-XX	0.009	\$ 112.54	Yes
CFL-GEN-72-1-Lamp-EB-HE-XX-XX	0.076	\$ 112.54	Yes
CFL-GEN-72-1-Lamp-MB-STD-XX-XX	0.094	\$ 112.54	Yes
CFL-GEN-73-1-Lamp-EB-HE-XX-XX	0.077	\$ 112.54	Yes
CFL-GEN-73-1-Lamp-MB-STD-XX-XX	0.095	\$ 112.54	Yes
CFL-GEN-74-1-Lamp-EB-HE-XX-XX	0.078	\$ 112.54	Yes
CFL-GEN-74-1-Lamp-MB-STD-XX-XX	0.097	\$ 112.54	Yes
CFL-GEN-75-1-Lamp-EB-HE-XX-XX	0.079	\$ 112.54	Yes
CFL-GEN-75-1-Lamp-MB-STD-XX-XX	0.098	\$ 112.54	Yes
CFL-GEN-76-1-Lamp-EB-HE-XX-XX	0.080	\$ 112.54	Yes
CFL-GEN-76-1-Lamp-MB-STD-XX-XX	0.099	\$ 112.54	Yes
CFL-GEN-77-1-Lamp-EB-HE-XX-XX	0.081	\$ 112.54	Yes
CFL-GEN-77-1-Lamp-MB-STD-XX-XX	0.101	\$ 112.54	Yes
CFL-GEN-78-1-Lamp-EB-HE-XX-XX	0.083	\$ 112.54	Yes
CFL-GEN-78-1-Lamp-MB-STD-XX-XX	0.102	\$ 112.54	Yes
CFL-GEN-79-1-Lamp-EB-HE-XX-XX	0.084	\$ 112.54	Yes
CFL-GEN-79-1-Lamp-MB-STD-XX-XX	0.103	\$ 112.54	Yes
CFL-GEN-80-1-Lamp-EB-HE-XX-XX	0.085	\$ 112.54	Yes
CFL-GEN-80-1-Lamp-MB-STD-XX-XX	0.104	\$ 112.54	Yes
CFL-GEN-81-1-Lamp-EB-HE-XX-XX	0.086	\$ 112.54	Yes
CFL-GEN-81-1-Lamp-MB-STD-XX-XX	0.106	\$ 112.54	Yes
CFL-GEN-8-1-Lamp-EB-HE-XX-XX	0.008	\$ 112.54	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-GEN-8-1-Lamp-MB-STD-XX-XX	0.010	\$ 112.54	Yes
CFL-GEN-82-1-Lamp-EB-HE-XX-XX	0.087	\$ 112.54	Yes
CFL-GEN-82-1-Lamp-MB-STD-XX-XX	0.107	\$ 112.54	Yes
CFL-GEN-83-1-Lamp-EB-HE-XX-XX	0.088	\$ 112.54	Yes
CFL-GEN-83-1-Lamp-MB-STD-XX-XX	0.108	\$ 112.54	Yes
CFL-GEN-84-1-Lamp-EB-HE-XX-XX	0.089	\$ 112.54	Yes
CFL-GEN-84-1-Lamp-MB-STD-XX-XX	0.110	\$ 112.54	Yes
CFL-GEN-85-1-Lamp-EB-HE-XX-XX	0.090	\$ 112.54	Yes
CFL-GEN-85-1-Lamp-MB-STD-XX-XX	0.111	\$ 112.54	Yes
CFL-GEN-86-1-Lamp-EB-HE-XX-XX	0.091	\$ 112.54	Yes
CFL-GEN-86-1-Lamp-MB-STD-XX-XX	0.112	\$ 112.54	Yes
CFL-GEN-87-1-Lamp-EB-HE-XX-XX	0.092	\$ 112.54	Yes
CFL-GEN-87-1-Lamp-MB-STD-XX-XX	0.114	\$ 112.54	Yes
CFL-GEN-88-1-Lamp-EB-HE-XX-XX	0.093	\$ 112.54	Yes
CFL-GEN-88-1-Lamp-MB-STD-XX-XX	0.115	\$ 112.54	Yes
CFL-GEN-89-1-Lamp-EB-HE-XX-XX	0.094	\$ 112.54	Yes
CFL-GEN-89-1-Lamp-MB-STD-XX-XX	0.116	\$ 112.54	Yes
CFL-GEN-90-1-Lamp-EB-HE-XX-XX	0.095	\$ 112.54	Yes
CFL-GEN-90-1-Lamp-MB-STD-XX-XX	0.118	\$ 112.54	Yes
CFL-GEN-91-1-Lamp-EB-HE-XX-XX	0.096	\$ 112.54	Yes
CFL-GEN-91-1-Lamp-MB-STD-XX-XX	0.119	\$ 112.54	Yes
CFL-GEN-9-1-Lamp-EB-HE-XX-XX	0.010	\$ 112.54	Yes
CFL-GEN-9-1-Lamp-MB-STD-XX-XX	0.012	\$ 112.54	Yes
CFL-GEN-92-1-Lamp-EB-HE-XX-XX	0.097	\$ 112.54	Yes
CFL-GEN-92-1-Lamp-MB-STD-XX-XX	0.120	\$ 112.54	Yes
CFL-GEN-93-1-Lamp-EB-HE-XX-XX	0.098	\$ 112.54	Yes
CFL-GEN-93-1-Lamp-MB-STD-XX-XX	0.121	\$ 112.54	Yes
CFL-GEN-94-1-Lamp-EB-HE-XX-XX	0.099	\$ 112.54	Yes
CFL-GEN-94-1-Lamp-MB-STD-XX-XX	0.123	\$ 112.54	Yes
CFL-GEN-95-1-Lamp-EB-HE-XX-XX	0.101	\$ 112.54	Yes
CFL-GEN-95-1-Lamp-MB-STD-XX-XX	0.124	\$ 112.54	Yes
CFL-GEN-96-1-Lamp-EB-HE-XX-XX	0.102	\$ 112.54	Yes
CFL-GEN-96-1-Lamp-MB-STD-XX-XX	0.125	\$ 112.54	Yes
CFL-GEN-97-1-Lamp-EB-HE-XX-XX	0.103	\$ 112.54	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-GEN-97-1-Lamp-MB-STD-XX-XX	0.127	\$ 112.54	Yes
CFL-GEN-98-1-Lamp-EB-HE-XX-XX	0.104	\$ 112.54	Yes
CFL-GEN-98-1-Lamp-MB-STD-XX-XX	0.128	\$ 112.54	Yes
CFL-GEN-99-1-Lamp-EB-HE-XX-XX	0.105	\$ 112.54	Yes
CFL-GEN-99-1-Lamp-MB-STD-XX-XX	0.129	\$ 112.54	Yes
CFL-ScrewIn-100-1-Lamp-Self-STD-XX-XX	0.100	\$ 6.79	Yes
CFL-ScrewIn-10-1-Lamp-Self-STD-XX-XX	0.010	\$ 6.79	Yes
CFL-ScrewIn-11-1-Lamp-Self-STD-XX-XX	0.011	\$ 6.79	Yes
CFL-ScrewIn-1-1-Lamp-Self-STD-XX-XX	0.001	\$ 6.79	Yes
CFL-ScrewIn-12-1-Lamp-Self-STD-XX-XX	0.012	\$ 6.79	Yes
CFL-ScrewIn-13-1-Lamp-Self-STD-XX-XX	0.013	\$ 6.79	Yes
CFL-ScrewIn-14-1-Lamp-Self-STD-XX-XX	0.014	\$ 6.79	Yes
CFL-ScrewIn-15-1-Lamp-Self-STD-XX-XX	0.015	\$ 6.79	Yes
CFL-ScrewIn-16-1-Lamp-Self-STD-XX-XX	0.016	\$ 6.79	Yes
CFL-ScrewIn-17-1-Lamp-Self-STD-XX-XX	0.017	\$ 6.79	Yes
CFL-ScrewIn-18-1-Lamp-Self-STD-XX-XX	0.018	\$ 6.79	Yes
CFL-ScrewIn-19-1-Lamp-Self-STD-XX-XX	0.019	\$ 6.79	Yes
CFL-ScrewIn-20-1-Lamp-Self-STD-XX-XX	0.020	\$ 6.79	Yes
CFL-ScrewIn-21-1-Lamp-Self-STD-XX-XX	0.021	\$ 6.79	Yes
CFL-ScrewIn-2-1-Lamp-Self-STD-XX-XX	0.002	\$ 6.79	Yes
CFL-ScrewIn-22-1-Lamp-Self-STD-XX-XX	0.022	\$ 6.79	Yes
CFL-ScrewIn-23-1-Lamp-Self-STD-XX-XX	0.023	\$ 6.79	Yes
CFL-ScrewIn-24-1-Lamp-Self-STD-XX-XX	0.024	\$ 6.79	Yes
CFL-ScrewIn-25-1-Lamp-Self-STD-XX-XX	0.025	\$ 6.79	Yes
CFL-ScrewIn-26-1-Lamp-Self-STD-XX-XX	0.026	\$ 6.79	Yes
CFL-ScrewIn-27-1-Lamp-Self-STD-XX-XX	0.027	\$ 6.79	Yes
CFL-ScrewIn-28-1-Lamp-Self-STD-XX-XX	0.028	\$ 6.79	Yes
CFL-ScrewIn-29-1-Lamp-Self-STD-XX-XX	0.029	\$ 6.79	Yes
CFL-ScrewIn-30-1-Lamp-Self-STD-XX-XX	0.030	\$ 6.79	Yes
CFL-ScrewIn-31-1-Lamp-Self-STD-XX-XX	0.031	\$ 6.79	Yes
CFL-ScrewIn-3-1-Lamp-Self-STD-XX-XX	0.003	\$ 6.79	Yes
CFL-ScrewIn-32-1-Lamp-Self-STD-XX-XX	0.032	\$ 6.79	Yes
CFL-ScrewIn-33-1-Lamp-Self-STD-XX-XX	0.033	\$ 6.79	Yes
CFL-ScrewIn-34-1-Lamp-Self-STD-XX-XX	0.034	\$ 6.79	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-ScrewIn-35-1-Lamp-Self-STD-XX-XX	0.035	\$ 6.79	Yes
CFL-ScrewIn-36-1-Lamp-Self-STD-XX-XX	0.036	\$ 6.79	Yes
CFL-ScrewIn-37-1-Lamp-Self-STD-XX-XX	0.037	\$ 6.79	Yes
CFL-ScrewIn-38-1-Lamp-Self-STD-XX-XX	0.038	\$ 6.79	Yes
CFL-ScrewIn-39-1-Lamp-Self-STD-XX-XX	0.039	\$ 6.79	Yes
CFL-ScrewIn-40-1-Lamp-Self-STD-XX-XX	0.040	\$ 6.79	Yes
CFL-ScrewIn-41-1-Lamp-Self-STD-XX-XX	0.041	\$ 6.79	Yes
CFL-ScrewIn-4-1-Lamp-Self-STD-XX-XX	0.004	\$ 6.79	Yes
CFL-ScrewIn-42-1-Lamp-Self-STD-XX-XX	0.042	\$ 6.79	Yes
CFL-ScrewIn-43-1-Lamp-Self-STD-XX-XX	0.043	\$ 6.79	Yes
CFL-ScrewIn-44-1-Lamp-Self-STD-XX-XX	0.044	\$ 6.79	Yes
CFL-ScrewIn-45-1-Lamp-Self-STD-XX-XX	0.045	\$ 6.79	Yes
CFL-ScrewIn-46-1-Lamp-Self-STD-XX-XX	0.046	\$ 6.79	Yes
CFL-ScrewIn-47-1-Lamp-Self-STD-XX-XX	0.047	\$ 6.79	Yes
CFL-ScrewIn-48-1-Lamp-Self-STD-XX-XX	0.048	\$ 6.79	Yes
CFL-ScrewIn-49-1-Lamp-Self-STD-XX-XX	0.049	\$ 6.79	Yes
CFL-ScrewIn-50-1-Lamp-Self-STD-XX-XX	0.050	\$ 6.79	Yes
CFL-ScrewIn-51-1-Lamp-Self-STD-XX-XX	0.051	\$ 6.79	Yes
CFL-ScrewIn-5-1-Lamp-Self-STD-XX-XX	0.005	\$ 6.79	Yes
CFL-ScrewIn-52-1-Lamp-Self-STD-XX-XX	0.052	\$ 6.79	Yes
CFL-ScrewIn-53-1-Lamp-Self-STD-XX-XX	0.053	\$ 6.79	Yes
CFL-ScrewIn-54-1-Lamp-Self-STD-XX-XX	0.054	\$ 6.79	Yes
CFL-ScrewIn-55-1-Lamp-Self-STD-XX-XX	0.055	\$ 6.79	Yes
CFL-ScrewIn-56-1-Lamp-Self-STD-XX-XX	0.056	\$ 6.79	Yes
CFL-ScrewIn-57-1-Lamp-Self-STD-XX-XX	0.057	\$ 6.79	Yes
CFL-ScrewIn-58-1-Lamp-Self-STD-XX-XX	0.058	\$ 6.79	Yes
CFL-ScrewIn-59-1-Lamp-Self-STD-XX-XX	0.059	\$ 6.79	Yes
CFL-ScrewIn-60-1-Lamp-Self-STD-XX-XX	0.060	\$ 6.79	Yes
CFL-ScrewIn-61-1-Lamp-Self-STD-XX-XX	0.061	\$ 6.79	Yes
CFL-ScrewIn-6-1-Lamp-Self-STD-XX-XX	0.006	\$ 6.79	Yes
CFL-ScrewIn-62-1-Lamp-Self-STD-XX-XX	0.062	\$ 6.79	Yes
CFL-ScrewIn-63-1-Lamp-Self-STD-XX-XX	0.063	\$ 6.79	Yes
CFL-ScrewIn-64-1-Lamp-Self-STD-XX-XX	0.064	\$ 6.79	Yes
CFL-ScrewIn-65-1-Lamp-Self-STD-XX-XX	0.065	\$ 6.79	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-ScrewIn-66-1-Lamp-Self-STD-XX-XX	0.066	\$ 6.79	Yes
CFL-ScrewIn-67-1-Lamp-Self-STD-XX-XX	0.067	\$ 6.79	Yes
CFL-ScrewIn-68-1-Lamp-Self-STD-XX-XX	0.068	\$ 6.79	Yes
CFL-ScrewIn-69-1-Lamp-Self-STD-XX-XX	0.069	\$ 6.79	Yes
CFL-ScrewIn-70-1-Lamp-Self-STD-XX-XX	0.070	\$ 6.79	Yes
CFL-ScrewIn-71-1-Lamp-Self-STD-XX-XX	0.071	\$ 6.79	Yes
CFL-ScrewIn-7-1-Lamp-Self-STD-XX-XX	0.007	\$ 6.79	Yes
CFL-ScrewIn-72-1-Lamp-Self-STD-XX-XX	0.072	\$ 6.79	Yes
CFL-ScrewIn-73-1-Lamp-Self-STD-XX-XX	0.073	\$ 6.79	Yes
CFL-ScrewIn-74-1-Lamp-Self-STD-XX-XX	0.074	\$ 6.79	Yes
CFL-ScrewIn-75-1-Lamp-Self-STD-XX-XX	0.075	\$ 6.79	Yes
CFL-ScrewIn-76-1-Lamp-Self-STD-XX-XX	0.076	\$ 6.79	Yes
CFL-ScrewIn-77-1-Lamp-Self-STD-XX-XX	0.077	\$ 6.79	Yes
CFL-ScrewIn-78-1-Lamp-Self-STD-XX-XX	0.078	\$ 6.79	Yes
CFL-ScrewIn-79-1-Lamp-Self-STD-XX-XX	0.079	\$ 6.79	Yes
CFL-ScrewIn-80-1-Lamp-Self-STD-XX-XX	0.080	\$ 6.79	Yes
CFL-ScrewIn-81-1-Lamp-Self-STD-XX-XX	0.081	\$ 6.79	Yes
CFL-ScrewIn-8-1-Lamp-Self-STD-XX-XX	0.008	\$ 6.79	Yes
CFL-ScrewIn-82-1-Lamp-Self-STD-XX-XX	0.082	\$ 6.79	Yes
CFL-ScrewIn-83-1-Lamp-Self-STD-XX-XX	0.083	\$ 6.79	Yes
CFL-ScrewIn-84-1-Lamp-Self-STD-XX-XX	0.084	\$ 6.79	Yes
CFL-ScrewIn-85-1-Lamp-Self-STD-XX-XX	0.085	\$ 6.79	Yes
CFL-ScrewIn-86-1-Lamp-Self-STD-XX-XX	0.086	\$ 6.79	Yes
CFL-ScrewIn-87-1-Lamp-Self-STD-XX-XX	0.087	\$ 6.79	Yes
CFL-ScrewIn-88-1-Lamp-Self-STD-XX-XX	0.088	\$ 6.79	Yes
CFL-ScrewIn-89-1-Lamp-Self-STD-XX-XX	0.089	\$ 6.79	Yes
CFL-ScrewIn-90-1-Lamp-Self-STD-XX-XX	0.090	\$ 6.79	Yes
CFL-ScrewIn-91-1-Lamp-Self-STD-XX-XX	0.091	\$ 6.79	Yes
CFL-ScrewIn-9-1-Lamp-Self-STD-XX-XX	0.009	\$ 6.79	Yes
CFL-ScrewIn-92-1-Lamp-Self-STD-XX-XX	0.092	\$ 6.79	Yes
CFL-ScrewIn-93-1-Lamp-Self-STD-XX-XX	0.093	\$ 6.79	Yes
CFL-ScrewIn-94-1-Lamp-Self-STD-XX-XX	0.094	\$ 6.79	Yes
CFL-ScrewIn-95-1-Lamp-Self-STD-XX-XX	0.095	\$ 6.79	Yes
CFL-ScrewIn-96-1-Lamp-Self-STD-XX-XX	0.096	\$ 6.79	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
CFL-ScrewIn-97-1-Lamp-Self-STD-XX-XX	0.097	\$ 6.79	Yes
CFL-ScrewIn-98-1-Lamp-Self-STD-XX-XX	0.098	\$ 6.79	Yes
CFL-ScrewIn-99-1-Lamp-Self-STD-XX-XX	0.099	\$ 6.79	Yes
CMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	0.118	\$ 222.00	
CMH-GEN-100-1-Fixt-MB-XX-XX-XX	0.128	\$ 222.00	
CMH-GEN-150-1-Fixt-EB-XX-XX-XX	0.168	\$ 222.00	
CMH-GEN-175-1-Fixt-EB-XX-XX-XX	0.189	\$ 290.00	
CMH-GEN-20-1-Fixt-EB-XX-XX-XX	0.020	\$ 57.00	
CMH-GEN-20-1-Fixt-IB-XX-XX-XX	0.020	\$ 57.00	
CMH-GEN-250-1-Fixt-EB-XX-XX-XX	0.275	\$ 290.00	
CMH-GEN-25-1-Fixt-EB-XX-XX-XX	0.025	\$ 57.00	
CMH-GEN-320-1-Fixt-EB-XX-XX-XX	0.349	\$ 292.00	
CMH-GEN-350-1-Fixt-EB-XX-XX-XX	0.380	\$ 292.00	
CMH-GEN-39-1-Fixt-EB-XX-XX-XX	0.045	\$ 222.00	
CMH-GEN-400-1-Fixt-EB-XX-XX-XX	0.435	\$ 298.00	
CMH-GEN-50-1-Fixt-EB-XX-XX-XX	0.050	\$ 222.00	
CMH-GEN-70-1-Fixt-EB-XX-XX-XX	0.070	\$ 222.00	
FT12-24-GEN-20-1-Fixt-ESMB-STD-XX-XX	0.021	\$ -	Yes
FT12-24-GEN-20-2-Fixt-ESMB-STD-XX-XX	0.053	\$ -	Yes
FT12-24-GEN-20-3-Fixt-ESMB-STD-XX-XX	0.064	\$ -	Yes
FT12-24-GEN-20-4-Fixt-ESMB-STD-XX-RB	0.083	\$ 57.00	Yes
FT12-24-GEN-20-4-Fixt-ESMB-STD-XX-XX	0.091	\$ -	Yes
FT12-36-GEN-30-1-Fixt-EB-STD-XX-XX	0.030	\$ -	Yes
FT12-36-GEN-30-1-Fixt-ESMB-STD-XX-XX	0.040	\$ -	Yes
FT12-36-GEN-30-2-Fixt-EB-STD-XX-XX	0.060	\$ -	Yes
FT12-36-GEN-30-2-Fixt-ESMB-STD-XX-XX	0.075	\$ -	Yes
FT12-36-GEN-30-3-Fixt-EB-STD-XX-XX	0.090	\$ -	Yes
FT12-36-GEN-30-3-Fixt-ESMB-STD-XX-XX	0.113	\$ -	Yes
FT12-36-GEN-30-4-Fixt-ESMB-STD-XX-XX	0.138	\$ -	Yes
FT12-48-GEN-34-1-Fixt-EB-STD-XX-XX	0.031	\$ -	Yes
FT12-48-GEN-34-1-Fixt-ESMB-STD-XX-XX	0.042	\$ -	Yes
FT12-48-GEN-34-1-Fixt-MB-STD-XX-XX	0.045	\$ -	Yes
FT12-48-GEN-34-2-Fixt-EB-STD-XX-RB	0.058	\$ 42.47	Yes
FT12-48-GEN-34-2-Fixt-EB-STD-XX-XX	0.060	\$ -	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
FT12-48-GEN-34-2-Fixt-ESMB-STD-XX-RB	0.068	\$ 42.47	Yes
FT12-48-GEN-34-2-Fixt-ESMB-STD-XX-XX	0.067	\$ -	Yes
FT12-48-GEN-34-2-Fixt-MB-STD-XX-RB	0.068	\$ 42.47	Yes
FT12-48-GEN-34-2-Fixt-MB-STD-XX-XX	0.084	\$ -	Yes
FT12-48-GEN-34-3-Fixt-EB-STD-XX-RB	0.085	\$ 55.55	Yes
FT12-48-GEN-34-3-Fixt-EB-STD-XX-XX	0.091	\$ -	Yes
FT12-48-GEN-34-3-Fixt-ESMB-STD-XX-RB	0.100	\$ 55.55	Yes
FT12-48-GEN-34-3-Fixt-ESMB-STD-XX-XX	0.104	\$ -	Yes
FT12-48-GEN-34-3-Fixt-MB-STD-XX-RB	0.100	\$ 55.55	Yes
FT12-48-GEN-34-3-Fixt-MB-STD-XX-XX	0.127	\$ -	Yes
FT12-48-GEN-34-4-Fixt-EB-STD-XX-RB	0.110	\$ 55.55	Yes
FT12-48-GEN-34-4-Fixt-EB-STD-XX-XX	0.119	\$ -	Yes
FT12-48-GEN-34-4-Fixt-ESMB-STD-XX-RB	0.131	\$ 55.55	Yes
FT12-48-GEN-34-4-Fixt-ESMB-STD-XX-XX	0.144	\$ -	Yes
FT12-48-GEN-34-4-Fixt-MB-STD-XX-RB	0.131	\$ 55.55	Yes
FT12-48-GEN-34-4-Fixt-MB-STD-XX-XX	0.156	\$ -	Yes
FT12-48-GEN-40-1-Fixt-EB-STD-XX-XX	0.038	\$ -	Yes
FT12-48-GEN-40-1-Fixt-ESMB-STD-XX-XX	0.041	\$ -	Yes
FT12-48-GEN-40-1-Fixt-MB-STD-XX-XX	0.051	\$ -	Yes
FT12-48-GEN-40-2-Fixt-EB-STD-XX-RB	0.058	\$ 42.47	Yes
FT12-48-GEN-40-2-Fixt-EB-STD-XX-XX	0.071	\$ -	Yes
FT12-48-GEN-40-2-Fixt-ESMB-STD-XX-RB	0.068	\$ 42.47	Yes
FT12-48-GEN-40-2-Fixt-ESMB-STD-XX-XX	0.087	\$ -	Yes
FT12-48-GEN-40-2-Fixt-MB-STD-XX-RB	0.068	\$ 42.47	Yes
FT12-48-GEN-40-2-Fixt-MB-STD-XX-XX	0.097	\$ -	Yes
FT12-48-GEN-40-3-Fixt-EB-STD-XX-RB	0.085	\$ 55.55	Yes
FT12-48-GEN-40-3-Fixt-EB-STD-XX-XX	0.107	\$ -	Yes
FT12-48-GEN-40-3-Fixt-ESMB-STD-XX-RB	0.100	\$ 55.55	Yes
FT12-48-GEN-40-3-Fixt-ESMB-STD-XX-XX	0.141	\$ -	Yes
FT12-48-GEN-40-3-Fixt-MB-STD-XX-RB	0.100	\$ 55.55	Yes
FT12-48-GEN-40-3-Fixt-MB-STD-XX-XX	0.135	\$ -	Yes
FT12-48-GEN-40-4-Fixt-EB-STD-XX-RB	0.110	\$ 55.55	Yes
FT12-48-GEN-40-4-Fixt-EB-STD-XX-XX	0.134	\$ -	Yes
FT12-48-GEN-40-4-Fixt-ESMB-STD-XX-RB	0.131	\$ 55.55	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
FT12-48-GEN-40-4-Fixt-ESMB-STD-XX-XX	0.172	\$ -	Yes
FT12-48-GEN-40-4-Fixt-MB-STD-XX-RB	0.131	\$ 55.55	Yes
FT12-48-GEN-40-4-Fixt-MB-STD-XX-XX	0.175	\$ -	Yes
FT12-48-Ubend-34-2-Fixt-EB-STD-XX-XX	0.060	\$ -	Yes
FT12-48-Ubend-34-2-Fixt-ESMB-STD-XX-XX	0.067	\$ -	Yes
FT12-48-Ubend-34-2-Fixt-MB-STD-XX-XX	0.084	\$ 41.45	Yes
FT12-48-Ubend-40-2-Fixt-EB-STD-XX-XX	0.071	\$ -	Yes
FT12-48-Ubend-40-2-Fixt-ESMB-STD-XX-XX	0.087	\$ 41.45	Yes
FT12-48-Ubend-40-2-Fixt-MB-STD-XX-XX	0.097	\$ -	Yes
FT12-60-GEN-75-1-Fixt-HO-XX-XX-XX	0.098	\$ -	Yes
FT12-72-GEN-85-1-Fixt-HO-XX-XX-XX	0.106	\$ -	Yes
FT12-96-GEN-110-1-Fixt-EB-STD-XX-RB	0.100	\$ 66.00	Yes
FT12-96-GEN-110-1-Fixt-EB-STD-XX-XX	0.119	\$ -	Yes
FT12-96-GEN-110-1-Fixt-ESMB-STD-XX-RB	0.100	\$ 66.00	Yes
FT12-96-GEN-110-1-Fixt-ESMB-STD-XX-XX	0.121	\$ -	Yes
FT12-96-GEN-110-1-Fixt-MB-STD-XX-RB	0.100	\$ 66.00	Yes
FT12-96-GEN-110-1-Fixt-MB-STD-XX-XX	0.140	\$ -	Yes
FT12-96-GEN-110-2-Fixt-EB-STD-XX-RB	0.160	\$ 72.00	Yes
FT12-96-GEN-110-2-Fixt-EB-STD-XX-XX	0.205	\$ -	Yes
FT12-96-GEN-110-2-Fixt-ESMB-STD-XX-RB	0.160	\$ 72.00	Yes
FT12-96-GEN-110-2-Fixt-ESMB-STD-XX-XX	0.238	\$ -	Yes
FT12-96-GEN-110-2-Fixt-MB-STD-XX-RB	0.160	\$ 72.00	Yes
FT12-96-GEN-110-2-Fixt-MB-STD-XX-XX	0.205	\$ -	Yes
FT12-96-GEN-60-1-Fixt-EB-STD-XX-RB	0.058	\$ 93.45	Yes
FT12-96-GEN-60-1-Fixt-EB-STD-XX-XX	0.067	\$ -	Yes
FT12-96-GEN-60-1-Fixt-ESMB-STD-XX-RB	0.065	\$ 93.45	Yes
FT12-96-GEN-60-1-Fixt-ESMB-STD-XX-XX	0.074	\$ -	Yes
FT12-96-GEN-60-2-Fixt-EB-STD-XX-RB	0.111	\$ 103.45	Yes
FT12-96-GEN-60-2-Fixt-EB-STD-XX-XX	0.105	\$ -	Yes
FT12-96-GEN-60-2-Fixt-ESMB-STD-XX-RB	0.120	\$ 103.45	Yes
FT12-96-GEN-60-2-Fixt-ESMB-STD-XX-XX	0.113	\$ -	Yes
FT12-96-GEN-60-4-Fixt-ESMB-STD-XX-RB	0.240	\$ 141.45	Yes
FT12-96-GEN-75-1-Fixt-EB-STD-XX-RB	0.058	\$ 93.45	Yes
FT12-96-GEN-75-1-Fixt-EB-STD-XX-XX	0.084	\$ -	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
FT12-96-GEN-75-1-Fixt-ESMB-STD-XX-RB	0.065	\$ 93.45	Yes
FT12-96-GEN-75-1-Fixt-ESMB-STD-XX-XX	0.094	\$ -	Yes
FT12-96-GEN-75-2-Fixt-EB-STD-XX-RB	0.111	\$ 103.45	Yes
FT12-96-GEN-75-2-Fixt-EB-STD-XX-XX	0.133	\$ -	Yes
FT12-96-GEN-75-2-Fixt-ESMB-STD-XX-RB	0.120	\$ 103.45	Yes
FT12-96-GEN-75-2-Fixt-ESMB-STD-XX-XX	0.145	\$ -	Yes
FT12-96-GEN-75-2-Fixt-MB-STD-XX-XX	0.145	\$ -	Yes
FT12-96-GEN-95-1-Fixt-ESMB-STD-XX-RB	0.065	\$ 93.45	Yes
FT12-96-GEN-95-1-Fixt-ESMB-STD-XX-XX	0.120	\$ -	Yes
FT12-96-GEN-95-1-Fixt-MB-STD-XX-RB	0.065	\$ 93.45	Yes
FT12-96-GEN-95-1-Fixt-MB-STD-XX-XX	0.125	\$ -	Yes
FT12-96-GEN-95-2-Fixt-EB-STD-XX-RB	0.111	\$ 103.45	Yes
FT12-96-GEN-95-2-Fixt-EB-STD-XX-XX	0.170	\$ -	Yes
FT12-96-GEN-95-2-Fixt-ESMB-STD-XX-RB	0.120	\$ 103.45	Yes
FT12-96-GEN-95-2-Fixt-ESMB-STD-XX-XX	0.203	\$ -	Yes
FT12-96-GEN-95-2-Fixt-MB-STD-XX-RB	0.120	\$ 103.45	Yes
FT12-96-GEN-95-2-Fixt-MB-STD-XX-XX	0.216	\$ -	Yes
FT5-45.8-GEN-28-1-Fixt-EB-HE-XX-XX	0.032	\$ 41.45	Yes
FT5-45.8-GEN-28-2-Fixt-EB-HE-XX-XX	0.063	\$ 93.45	Yes
FT5-45.8-GEN-28-3-Fixt-EB-HE-XX-XX	0.095	\$ 53.45	Yes
FT5-45.8-GEN-28-4-Fixt-EB-HE-XX-XX	0.126	\$ 56.45	Yes
FT5-45.8-GEN-54-1-Fixt-EB-HE-XX-XX	0.062	\$ 41.45	Yes
FT5-45.8-GEN-54-2-Fixt-EB-HE-XX-XX	0.117	\$ 53.45	Yes
FT5-45.8-HBY-54-10-Fixt-EB-HE-XX-XX	0.585	\$ 407.31	Yes
FT5-45.8-HBY-54-2-Fixt-EB-HE-XX-XX	0.117	\$ 192.88	Yes
FT5-45.8-HBY-54-3-Fixt-EB-HE-XX-XX	0.179	\$ 192.88	Yes
FT5-45.8-HBY-54-4-Fixt-EB-HE-XX-XX	0.234	\$ 293.31	Yes
FT5-45.8-HBY-54-5-Fixt-EB-HE-XX-XX	0.295	\$ 192.88	Yes
FT5-45.8-HBY-54-6-Fixt-EB-HE-XX-XX	0.358	\$ 260.00	Yes
FT5-45.8-HBY-54-8-Fixt-EB-HE-XX-XX	0.468	\$ 372.31	Yes
FT5-45.8-PKG-54-2-Fixt-EB-HE-XX-XX	0.117	\$ 192.88	Yes
FT5-45.8-PKG-54-3-Fixt-EB-HE-XX-XX	0.179	\$ 192.88	Yes
FT8-24-GEN-17-1-Fixt-EB-HE-HBF-XX	0.020	\$ 41.45	Yes
FT8-24-GEN-17-1-Fixt-EB-HE-HBF-XX-RB	0.020	\$ 30.90	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
FT8-24-GEN-17-1-Fixt-EB-HE-LBF-XX	0.013	\$ 41.45	Yes
FT8-24-GEN-17-1-Fixt-EB-HE-LBF-XX-RB	0.013	\$ 30.90	Yes
FT8-24-GEN-17-1-Fixt-EB-HE-NBF-XX	0.015	\$ 41.45	Yes
FT8-24-GEN-17-1-Fixt-EB-HE-NBF-XX-RB	0.015	\$ 30.90	Yes
FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX	0.039	\$ 41.45	Yes
FT8-24-GEN-17-2-Fixt-EB-HE-HBF-XX-RB	0.039	\$ 30.90	Yes
FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX	0.027	\$ 41.45	Yes
FT8-24-GEN-17-2-Fixt-EB-HE-LBF-XX-RB	0.027	\$ 30.90	Yes
FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX	0.030	\$ 41.45	Yes
FT8-24-GEN-17-2-Fixt-EB-HE-NBF-XX-RB	0.030	\$ 30.90	Yes
FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX	0.059	\$ 43.45	Yes
FT8-24-GEN-17-3-Fixt-EB-HE-HBF-XX-RB	0.059	\$ 30.90	Yes
FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX	0.040	\$ 43.45	Yes
FT8-24-GEN-17-3-Fixt-EB-HE-LBF-XX-RB	0.040	\$ 30.90	Yes
FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX	0.045	\$ 43.45	Yes
FT8-24-GEN-17-3-Fixt-EB-HE-NBF-XX-RB	0.045	\$ 30.90	Yes
FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX	0.078	\$ 38.17	Yes
FT8-24-GEN-17-4-Fixt-EB-HE-HBF-XX-RB	0.078	\$ 30.90	Yes
FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX	0.053	\$ 38.17	Yes
FT8-24-GEN-17-4-Fixt-EB-HE-LBF-XX-RB	0.053	\$ 30.90	Yes
FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX	0.060	\$ 38.17	Yes
FT8-24-GEN-17-4-Fixt-EB-HE-NBF-XX-RB	0.060	\$ 30.90	Yes
FT8-36-GEN-25-1-Fixt-EB-HE-HBF-XX	0.029	\$ 41.45	Yes
FT8-36-GEN-25-1-Fixt-EB-HE-LBF-XX	0.020	\$ 41.45	Yes
FT8-36-GEN-25-1-Fixt-EB-HE-NBF-XX	0.022	\$ 41.45	Yes
FT8-36-GEN-25-2-Fixt-EB-HE-HBF-XX	0.058	\$ 41.45	Yes
FT8-36-GEN-25-2-Fixt-EB-HE-LBF-XX	0.039	\$ 41.45	Yes
FT8-36-GEN-25-2-Fixt-EB-HE-NBF-XX	0.044	\$ 41.45	Yes
FT8-36-GEN-25-3-Fixt-EB-HE-HBF-XX	0.086	\$ 43.45	Yes
FT8-36-GEN-25-3-Fixt-EB-HE-LBF-XX	0.063	\$ 43.45	Yes
FT8-36-GEN-25-3-Fixt-EB-HE-NBF-XX	0.072	\$ 43.45	Yes
FT8-36-GEN-25-4-Fixt-EB-HE-HBF-XX	0.111	\$ 76.17	Yes
FT8-36-GEN-25-4-Fixt-EB-HE-LBF-XX	0.085	\$ 76.17	Yes
FT8-36-GEN-25-4-Fixt-EB-HE-NBF-XX	0.074	\$ 76.17	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
FT8-48-GEN-25-1-Fixt-EB-HE-HBF-XX	0.029	\$ 41.45	Yes
FT8-48-GEN-25-1-Fixt-EB-HE-LBF-XX	0.020	\$ 41.45	Yes
FT8-48-GEN-25-1-Fixt-EB-HE-NBF-XX	0.022	\$ 41.45	Yes
FT8-48-GEN-25-1-Lamp-EB-HE-HBF-HE	0.029	\$ 4.00	Yes
FT8-48-GEN-25-1-Lamp-EB-HE-LBF-HE	0.020	\$ 4.00	Yes
FT8-48-GEN-25-1-Lamp-EB-HE-NBF-HE	0.022	\$ 4.00	Yes
FT8-48-GEN-25-1-Lamp-EB-STD-HBF-STD	0.029	\$ 4.00	Yes
FT8-48-GEN-25-1-Lamp-EB-STD-LBF-STD	0.020	\$ 4.00	Yes
FT8-48-GEN-25-1-Lamp-EB-STD-NBF-STD	0.022	\$ 4.00	Yes
FT8-48-GEN-25-2-Fixt-EB-HE-HBF-XX	0.058	\$ 43.45	Yes
FT8-48-GEN-25-2-Fixt-EB-HE-LBF-XX	0.039	\$ 43.45	Yes
FT8-48-GEN-25-2-Fixt-EB-HE-NBF-XX	0.044	\$ 43.45	Yes
FT8-48-GEN-25-3-Fixt-EB-HE-LBF-XX	0.059	\$ 53.45	Yes
FT8-48-GEN-25-3-Fixt-EB-HE-NBF-XX	0.066	\$ 53.45	Yes
FT8-48-GEN-25-4-Fixt-EB-HE-HBF-XX	0.115	\$ 56.45	Yes
FT8-48-GEN-25-4-Fixt-EB-HE-LBF-XX	0.078	\$ 56.45	Yes
FT8-48-GEN-25-4-Fixt-EB-HE-NBF-XX	0.088	\$ 56.45	Yes
FT8-48-GEN-28-1-Fixt-EB-HE-HBF-XX	0.032	\$ 41.45	Yes
FT8-48-GEN-28-1-Fixt-EB-HE-LBF-XX	0.022	\$ 41.45	Yes
FT8-48-GEN-28-1-Fixt-EB-HE-NBF-XX	0.025	\$ 41.45	Yes
FT8-48-GEN-28-1-Lamp-EB-HE-HBF-HE	0.032	\$ 4.00	Yes
FT8-48-GEN-28-1-Lamp-EB-HE-LBF-HE	0.022	\$ 4.00	Yes
FT8-48-GEN-28-1-Lamp-EB-HE-NBF-HE	0.025	\$ 4.00	Yes
FT8-48-GEN-28-1-Lamp-EB-STD-HBF-STD	0.032	\$ 4.00	Yes
FT8-48-GEN-28-1-Lamp-EB-STD-LBF-STD	0.022	\$ 4.00	Yes
FT8-48-GEN-28-1-Lamp-EB-STD-NBF-STD	0.025	\$ 4.00	Yes
FT8-48-GEN-28-2-Fixt-EB-HE-HBF-XX	0.064	\$ 43.45	Yes
FT8-48-GEN-28-2-Fixt-EB-HE-LBF-XX	0.044	\$ 43.45	Yes
FT8-48-GEN-28-2-Fixt-EB-HE-NBF-XX	0.049	\$ 43.45	Yes
FT8-48-GEN-28-3-Fixt-EB-HE-HBF-XX	0.097	\$ 53.45	Yes
FT8-48-GEN-28-3-Fixt-EB-HE-LBF-XX	0.066	\$ 53.45	Yes
FT8-48-GEN-28-3-Fixt-EB-HE-NBF-XX	0.074	\$ 53.45	Yes
FT8-48-GEN-28-4-Fixt-EB-HE-HBF-XX	0.129	\$ 56.45	Yes
FT8-48-GEN-28-4-Fixt-EB-HE-LBF-XX	0.087	\$ 56.45	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
FT8-48-GEN-28-4-Fixt-EB-HE-NBF-XX	0.099	\$ 56.45	Yes
FT8-48-GEN-32-1-Blst-EB-HE-HBF-XX	0.037	\$ 21.00	Yes
FT8-48-GEN-32-1-Blst-EB-HE-LBF-XX	0.025	\$ 21.00	Yes
FT8-48-GEN-32-1-Blst-EB-HE-NBF-XX	0.028	\$ 21.00	Yes
FT8-48-GEN-32-1-Blst-EB-STD-HBF-XX	0.038	\$ 18.00	Yes
FT8-48-GEN-32-1-Blst-EB-STD-LBF-XX	0.026	\$ 18.00	Yes
FT8-48-GEN-32-1-Blst-EB-STD-NBF-XX	0.029	\$ 18.00	Yes
FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX	0.037	\$ 41.45	Yes
FT8-48-GEN-32-1-Fixt-EB-HE-HBF-XX-RB	0.037	\$ 30.90	Yes
FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX	0.025	\$ 41.45	Yes
FT8-48-GEN-32-1-Fixt-EB-HE-LBF-XX-RB	0.025	\$ 30.90	Yes
FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX	0.028	\$ 43.45	Yes
FT8-48-GEN-32-1-Fixt-EB-HE-NBF-XX-RB	0.028	\$ 30.90	Yes
FT8-48-GEN-32-1-Lamp-EB-HE-HBF-XX	0.037	\$ 2.00	Yes
FT8-48-GEN-32-1-Lamp-EB-HE-LBF-XX	0.025	\$ 2.00	Yes
FT8-48-GEN-32-1-Lamp-EB-HE-NBF-XX	0.028	\$ 2.00	Yes
FT8-48-GEN-32-1-Lamp-EB-STD-NBF-XX	0.028	\$ 2.00	Yes
FT8-48-GEN-32-2-Blst-EB-HE-HBF-XX	0.074	\$ 21.00	Yes
FT8-48-GEN-32-2-Blst-EB-HE-LBF-XX	0.050	\$ 21.00	Yes
FT8-48-GEN-32-2-Blst-EB-HE-NBF-XX	0.056	\$ 21.00	Yes
FT8-48-GEN-32-2-Blst-EB-STD-HBF-XX	0.077	\$ 18.00	Yes
FT8-48-GEN-32-2-Blst-EB-STD-LBF-XX	0.052	\$ 18.00	Yes
FT8-48-GEN-32-2-Blst-EB-STD-NBF-XX	0.059	\$ 18.00	Yes
FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX	0.074	\$ 43.45	Yes
FT8-48-GEN-32-2-Fixt-EB-HE-HBF-XX-RB	0.074	\$ 30.90	Yes
FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX	0.050	\$ 43.45	Yes
FT8-48-GEN-32-2-Fixt-EB-HE-LBF-XX-RB	0.050	\$ 30.90	Yes
FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX	0.056	\$ 43.45	Yes
FT8-48-GEN-32-2-Fixt-EB-HE-NBF-XX-RB	0.056	\$ 30.90	Yes
FT8-48-GEN-32-2-Fixt-EB-STD-HBF-XX	0.077	\$ 48.50	Yes
FT8-48-GEN-32-2-Fixt-EB-STD-LBF-XX	0.052	\$ 48.50	Yes
FT8-48-GEN-32-2-Fixt-EB-STD-NBF-XX	0.059	\$ 48.50	Yes
FT8-48-GEN-32-3-Blst-EB-HE-HBF-XX	0.110	\$ 21.00	Yes
FT8-48-GEN-32-3-Blst-EB-HE-LBF-XX	0.075	\$ 21.00	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
FT8-48-GEN-32-3-Blst-EB-HE-NBF-XX	0.084	\$ 21.00	Yes
FT8-48-GEN-32-3-Blst-EB-STD-HBF-XX	0.115	\$ 18.00	Yes
FT8-48-GEN-32-3-Blst-EB-STD-LBF-XX	0.078	\$ 18.00	Yes
FT8-48-GEN-32-3-Blst-EB-STD-NBF-XX	0.088	\$ 18.00	Yes
FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX	0.110	\$ 53.45	Yes
FT8-48-GEN-32-3-Fixt-EB-HE-HBF-XX-RB	0.110	\$ 30.90	Yes
FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX	0.075	\$ 53.45	Yes
FT8-48-GEN-32-3-Fixt-EB-HE-LBF-XX-RB	0.075	\$ 30.90	Yes
FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX	0.084	\$ 53.45	Yes
FT8-48-GEN-32-3-Fixt-EB-HE-NBF-XX-RB	0.084	\$ 30.90	Yes
FT8-48-GEN-32-3-Fixt-EB-STD-HBF-XX	0.115	\$ 52.00	Yes
FT8-48-GEN-32-3-Fixt-EB-STD-LBF-XX	0.078	\$ 52.00	Yes
FT8-48-GEN-32-3-Fixt-EB-STD-NBF-XX	0.088	\$ 52.00	Yes
FT8-48-GEN-32-4-Blst-EB-HE-HBF-XX	0.147	\$ 21.00	Yes
FT8-48-GEN-32-4-Blst-EB-HE-LBF-XX	0.100	\$ 21.00	Yes
FT8-48-GEN-32-4-Blst-EB-HE-NBF-XX	0.113	\$ 21.00	Yes
FT8-48-GEN-32-4-Blst-EB-STD-HBF-XX	0.153	\$ 18.00	Yes
FT8-48-GEN-32-4-Blst-EB-STD-LBF-XX	0.104	\$ 18.00	Yes
FT8-48-GEN-32-4-Blst-EB-STD-NBF-XX	0.117	\$ 18.00	Yes
FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX	0.147	\$ 76.17	Yes
FT8-48-GEN-32-4-Fixt-EB-HE-HBF-XX-RB	0.147	\$ 30.90	Yes
FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX	0.100	\$ 76.17	Yes
FT8-48-GEN-32-4-Fixt-EB-HE-LBF-XX-RB	0.100	\$ 30.90	Yes
FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX	0.113	\$ 76.17	Yes
FT8-48-GEN-32-4-Fixt-EB-HE-NBF-XX-RB	0.113	\$ 30.90	Yes
FT8-48-GEN-32-4-Fixt-EB-STD-HBF-XX	0.153	\$ 55.50	Yes
FT8-48-GEN-32-4-Fixt-EB-STD-LBF-XX	0.104	\$ 55.50	Yes
FT8-48-GEN-32-4-Fixt-EB-STD-NBF-XX	0.117	\$ 55.50	Yes
FT8-48-GEN-84-5-Fixt-EB-HE-NBF-XX	0.465	\$ 398.00	Yes
FT8-48-HBY-32-12-Fixt-EB-HE-HBF-XX	0.442	\$ 398.00	Yes
FT8-48-HBY-32-12-Fixt-EB-HE-LBF-XX	0.300	\$ 398.00	Yes
FT8-48-HBY-32-12-Fixt-EB-HE-NBF-XX	0.338	\$ 398.00	Yes
FT8-48-HBY-32-14-Fixt-EB-HE-HBF-XX	0.515	\$ 398.00	Yes
FT8-48-HBY-32-14-Fixt-EB-HE-LBF-XX	0.349	\$ 398.00	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
FT8-48-HBY-32-14-Fixt-EB-HE-NBF-XX	0.394	\$ 398.00	Yes
FT8-48-HBY-32-16-Fixt-EB-HE-HBF-XX	0.589	\$ 530.00	Yes
FT8-48-HBY-32-16-Fixt-EB-HE-LBF-XX	0.399	\$ 530.00	Yes
FT8-48-HBY-32-16-Fixt-EB-HE-NBF-XX	0.451	\$ 530.00	Yes
FT8-48-HBY-32-18-Fixt-EB-HE-HBF-XX	0.662	\$ 534.00	Yes
FT8-48-HBY-32-18-Fixt-EB-HE-LBF-XX	0.449	\$ 534.00	Yes
FT8-48-HBY-32-18-Fixt-EB-HE-NBF-XX	0.507	\$ 534.00	Yes
FT8-48-HBY-32-20-Fixt-EB-HE-HBF-XX	0.736	\$ 538.00	Yes
FT8-48-HBY-32-20-Fixt-EB-HE-LBF-XX	0.499	\$ 538.00	Yes
FT8-48-HBY-32-20-Fixt-EB-HE-NBF-XX	0.563	\$ 538.00	Yes
FT8-48-HBY-32-4-Fixt-EB-HE-HBF-XX	0.147	\$ 192.88	Yes
FT8-48-HBY-32-4-Fixt-EB-HE-LBF-XX	0.100	\$ 192.88	Yes
FT8-48-HBY-32-4-Fixt-EB-HE-NBF-XX	0.113	\$ 192.88	Yes
FT8-48-HBY-32-6-Fixt-EB-HE-HBF-XX	0.221	\$ 260.00	Yes
FT8-48-HBY-32-6-Fixt-EB-HE-LBF-XX	0.150	\$ 260.00	Yes
FT8-48-HBY-32-6-Fixt-EB-HE-NBF-XX	0.169	\$ 260.00	Yes
FT8-48-HBY-32-8-Fixt-EB-HE-HBF-XX	0.294	\$ 265.00	Yes
FT8-48-HBY-32-8-Fixt-EB-HE-LBF-XX	0.200	\$ 265.00	Yes
FT8-48-HBY-32-8-Fixt-EB-HE-NBF-XX	0.225	\$ 265.00	Yes
FT8-48-HBY-84-3-Fixt-EB-HE-NBF-XX	0.279	\$ 163.00	Yes
FT8-48-HBY-84-6-Fixt-EB-HE-NBF-XX	0.555	\$ 398.00	Yes
FT8-48-HBY-84-8-Fixt-EB-HE-NBF-XX	0.793	\$ 372.31	Yes
FT8-48-PKG-32-2-Fixt-EB-HE-HBF-XX	0.074	\$ 239.00	Yes
FT8-48-PKG-32-2-Fixt-EB-HE-LBF-XX	0.050	\$ 176.82	Yes
FT8-48-PKG-32-2-Fixt-EB-HE-NBF-XX	0.056	\$ 176.82	Yes
FT8-48-PKG-32-3-Fixt-EB-HE-HBF-XX	0.110	\$ 176.82	Yes
FT8-48-PKG-32-3-Fixt-EB-HE-LBF-XX	0.048	\$ 239.00	Yes
FT8-48-PKG-32-3-Fixt-EB-HE-NBF-XX	0.084	\$ 176.82	Yes
FT8-48-SEN-32-2-Fixt-XX-XX-HBF-5050	0.021	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-HBF-70	0.015	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-HBF-75	0.013	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-HBF-80	0.011	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-HBF-85	0.008	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-HBF-90	0.006	\$ 209.80	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
FT8-48-SEN-32-2-Fixt-XX-XX-HBF-95	0.004	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-LBF-5050	0.021	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-LBF-70	0.019	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-LBF-75	0.016	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-LBF-80	0.013	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-LBF-85	0.010	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-LBF-90	0.007	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-LBF-95	0.005	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-NBF-5050	0.002	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-NBF-70	0.003	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-NBF-75	0.004	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-NBF-80	0.006	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-NBF-85	0.007	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-NBF-90	0.008	\$ 209.80	
FT8-48-SEN-32-2-Fixt-XX-XX-NBF-95	0.020	\$ 209.80	
FT8-60-GEN-55-1-Fixt-EB-HO-XX-XX	0.070	\$ 38.36	Yes
FT8-72-GEN-66-1-Fixt-EB-HO-XX-XX	0.081	\$ 38.36	Yes
FT8-96-GEN-59-1-Lamp-EB-HE-HBF-XX	0.068	\$ 171.36	Yes
FT8-96-GEN-59-1-Lamp-EB-HE-LBF-XX	0.047	\$ 171.36	Yes
FT8-96-GEN-59-1-Lamp-EB-HE-NBF-XX	0.052	\$ 93.45	Yes
FT8-96-GEN-59-2-Lamp-EB-HE-HBF-XX	0.136	\$ 103.45	Yes
FT8-96-GEN-59-2-Lamp-EB-HE-LBF-XX	0.094	\$ 103.45	Yes
FT8-96-GEN-59-2-Lamp-EB-HE-NBF-XX	0.104	\$ 103.45	Yes
HPS-CSO-100-1-Fixt-MB-XX-XX-XX	0.130	\$ 150.00	
HPS-CSO-150-1-Fixt-MB-XX-XX-XX	0.188	\$ 150.00	
HPS-CSO-200-1-Fixt-MB-XX-XX-XX	0.240	\$ 200.00	
HPS-CSO-250-1-Fixt-MB-XX-XX-XX	0.295	\$ 250.00	
HPS-CSO-310-1-Fixt-MB-XX-XX-XX	0.365	\$ 310.00	
HPS-CSO-400-1-Fixt-MB-XX-XX-XX	0.457	\$ 400.00	
HPS-GEN-1000-1-Fixt-MB-XX-XX-XX	1.100	\$ 200.00	
HPS-GEN-1000-1-Fixt-XX-XX-XX-XX	1.100	\$ 200.00	
HPS-GEN-100-1-Fixt-MB-XX-XX-XX	0.126	\$ 150.00	
HPS-GEN-150-1-Fixt-MB-XX-XX-XX	0.188	\$ 150.00	
HPS-GEN-150-1-Fixt-XX-XX-XX-XX	0.188	\$ 150.00	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
HPS-GEN-200-1-Fixt-MB-XX-XX-XX	0.240	\$ 112.24	
HPS-GEN-250-1-Fixt-MB-XX-XX-XX	0.295	\$ 112.24	
HPS-GEN-250-1-Fixt-XX-XX-XX-XX	0.295	\$ 250.00	
HPS-GEN-310-1-Fixt-MB-XX-XX-XX	0.365	\$ 270.00	
HPS-GEN-310-1-Fixt-XX-XX-XX-XX	0.365	\$ 310.00	
HPS-GEN-35-1-Fixt-MB-XX-XX-XX	0.043	\$ 150.00	
HPS-GEN-400-1-Fixt-MB-XX-XX-XX	0.457	\$ 200.00	
HPS-GEN-400-1-Fixt-XX-XX-XX-XX	0.457	\$ 200.00	
HPS-GEN-50-1-Fixt-MB-XX-XX-XX	0.064	\$ 150.00	
HPS-GEN-70-1-Fixt-MB-XX-XX-XX	0.086	\$ 150.00	
HPS-GEN-750-1-Fixt-MB-XX-XX-XX	0.840	\$ 290.00	
HPS-GEN-750-1-Fixt-XX-XX-XX-XX	0.840	\$ 290.00	
HPS-WPE-100-1-Fixt-MB-XX-XX-XX	0.126	\$ 242.12	
HPS-WPE-150-1-Fixt-MB-XX-XX-XX	0.188	\$ 219.78	
HPS-WPE-200-1-Fixt-MB-XX-XX-XX	0.240	\$ 258.98	
HPS-WPE-250-1-Fixt-MB-XX-XX-XX	0.295	\$ 259.98	
HPS-WPE-310-1-Fixt-MB-XX-XX-XX	0.365	\$ 327.10	
HPS-WPE-35-1-Fixt-MB-XX-XX-XX	0.043	\$ 72.33	
HPS-WPE-400-1-Fixt-MB-XX-XX-XX	0.457	\$ 327.10	
HPS-WPE-50-1-Fixt-MB-XX-XX-XX	0.064	\$ 142.90	
HPS-WPE-70-1-Fixt-MB-XX-XX-XX	0.086	\$ 142.90	
INX-EXT-30-1-Fixt-XX-XX-XX-XX	0.030	\$ 76.17	
INX-EXT-40-1-Fixt-XX-XX-XX-XX	0.040	\$ 76.17	
INX-GEN-1000-1-Lamp-XX-XX-XX-XX	1.000	\$ 150.00	Yes
INX-GEN-100-1-Fixt-XX-XX-XX-XX	0.091	\$ 40.00	Yes
INX-GEN-100-1-Lamp-XX-XX-XX-XX	0.091	\$ 4.31	Yes
INX-GEN-100-3-Lamp-XX-XX-XX-XX	0.272	\$ 3.50	Yes
INX-GEN-10-1-Lamp-XX-XX-XX-XX	0.010	\$ 2.00	Yes
INX-GEN-105-1-Fixt-XX-XX-XX-XX	0.105	\$ 40.00	Yes
INX-GEN-105-1-Lamp-XX-XX-XX-XX	0.105	\$ 4.31	Yes
INX-GEN-110-1-Fixt-XX-XX-XX-XX	0.110	\$ 40.00	Yes
INX-GEN-110-1-Lamp-XX-XX-XX-XX	0.110	\$ 4.31	Yes
INX-GEN-115-1-Fixt-XX-XX-XX-XX	0.115	\$ 40.00	Yes
INX-GEN-115-1-Lamp-XX-XX-XX-XX	0.115	\$ 4.31	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
INX-GEN-120-1-Fixt-XX-XX-XX-XX	0.120	\$ 40.00	Yes
INX-GEN-120-1-Lamp-XX-XX-XX-XX	0.120	\$ 4.31	Yes
INX-GEN-125-1-Fixt-XX-XX-XX-XX	0.125	\$ 40.00	Yes
INX-GEN-125-1-Lamp-XX-XX-XX-XX	0.125	\$ 4.31	Yes
INX-GEN-130-1-Fixt-XX-XX-XX-XX	0.130	\$ 40.00	Yes
INX-GEN-130-1-Lamp-XX-XX-XX-XX	0.130	\$ 4.31	Yes
INX-GEN-135-1-Fixt-XX-XX-XX-XX	0.135	\$ 40.00	Yes
INX-GEN-135-1-Lamp-XX-XX-XX-XX	0.135	\$ 4.31	Yes
INX-GEN-140-1-Fixt-XX-XX-XX-XX	0.140	\$ 40.00	Yes
INX-GEN-140-1-Lamp-XX-XX-XX-XX	0.140	\$ 4.31	Yes
INX-GEN-145-1-Fixt-XX-XX-XX-XX	0.145	\$ 40.00	Yes
INX-GEN-145-1-Lamp-XX-XX-XX-XX	0.145	\$ 4.31	Yes
INX-GEN-1500-1-Lamp-XX-XX-XX-XX	1.500	\$ 150.00	Yes
INX-GEN-150-1-Fixt-XX-XX-XX-XX	0.150	\$ 40.00	Yes
INX-GEN-150-1-Lamp-XX-XX-XX-XX	0.150	\$ 4.31	Yes
INX-GEN-150-2-Lamp-XX-XX-XX-XX	0.300	\$ 3.50	Yes
INX-GEN-15-1-Lamp-XX-XX-XX-XX	0.015	\$ 2.00	Yes
INX-GEN-155-1-Fixt-XX-XX-XX-XX	0.155	\$ 40.00	Yes
INX-GEN-155-1-Lamp-XX-XX-XX-XX	0.155	\$ 4.31	Yes
INX-GEN-160-1-Fixt-XX-XX-XX-XX	0.160	\$ 40.00	Yes
INX-GEN-160-1-Lamp-XX-XX-XX-XX	0.160	\$ 4.31	Yes
INX-GEN-165-1-Fixt-XX-XX-XX-XX	0.165	\$ 50.00	Yes
INX-GEN-165-1-Lamp-XX-XX-XX-XX	0.165	\$ 4.31	Yes
INX-GEN-170-1-Fixt-XX-XX-XX-XX	0.170	\$ 50.00	Yes
INX-GEN-170-1-Lamp-XX-XX-XX-XX	0.170	\$ 4.31	Yes
INX-GEN-175-1-Fixt-XX-XX-XX-XX	0.175	\$ 50.00	Yes
INX-GEN-175-1-Lamp-XX-XX-XX-XX	0.175	\$ 4.31	Yes
INX-GEN-180-1-Fixt-XX-XX-XX-XX	0.180	\$ 50.00	Yes
INX-GEN-180-1-Lamp-XX-XX-XX-XX	0.180	\$ 4.31	Yes
INX-GEN-185-1-Fixt-XX-XX-XX-XX	0.185	\$ 50.00	Yes
INX-GEN-185-1-Lamp-XX-XX-XX-XX	0.185	\$ 4.31	Yes
INX-GEN-190-1-Fixt-XX-XX-XX-XX	0.190	\$ 50.00	Yes
INX-GEN-190-1-Lamp-XX-XX-XX-XX	0.190	\$ 4.31	Yes
INX-GEN-195-1-Fixt-XX-XX-XX-XX	0.195	\$ 50.00	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
INX-GEN-195-1-Lamp-XX-XX-XX-XX	0.195	\$ 4.31	Yes
INX-GEN-200-1-Fixt-XX-XX-XX-XX	0.200	\$ 50.00	Yes
INX-GEN-200-1-Lamp-XX-XX-XX-XX	0.200	\$ 4.31	Yes
INX-GEN-20-1-Lamp-XX-XX-XX-XX	0.020	\$ 2.00	Yes
INX-GEN-250-1-Fixt-XX-XX-XX-XX	0.250	\$ 50.00	Yes
INX-GEN-250-1-Lamp-XX-XX-XX-XX	0.250	\$ 4.31	Yes
INX-GEN-25-1-Fixt-XX-XX-XX-XX	0.025	\$ 20.00	Yes
INX-GEN-25-1-Lamp-XX-XX-XX-XX	0.025	\$ 2.00	Yes
INX-GEN-300-1-Fixt-XX-XX-XX-XX	0.300	\$ 5.00	Yes
INX-GEN-300-1-Lamp-XX-XX-XX-XX	0.300	\$ 13.00	Yes
INX-GEN-30-1-Fixt-XX-XX-XX-XX	0.030	\$ 20.00	Yes
INX-GEN-30-1-Lamp-XX-XX-XX-XX	0.030	\$ 2.00	Yes
INX-GEN-3-1-Lamp-XX-XX-XX-XX	0.003	\$ 2.00	Yes
INX-GEN-350-1-Fixt-XX-XX-XX-XX	0.350	\$ 50.00	Yes
INX-GEN-350-1-Lamp-XX-XX-XX-XX	0.350	\$ 50.00	Yes
INX-GEN-35-1-Fixt-XX-XX-XX-XX	0.035	\$ 20.00	Yes
INX-GEN-35-1-Lamp-XX-XX-XX-XX	0.035	\$ 2.00	Yes
INX-GEN-400-1-Lamp-XX-XX-XX-XX	0.400	\$ 50.00	Yes
INX-GEN-40-1-Fixt-XX-XX-XX-XX	0.039	\$ 40.00	Yes
INX-GEN-40-1-Lamp-XX-XX-XX-XX	0.039	\$ 2.00	Yes
INX-GEN-4-1-Lamp-XX-XX-XX-XX	0.004	\$ 2.00	Yes
INX-GEN-45-1-Fixt-XX-XX-XX-XX	0.045	\$ 40.00	Yes
INX-GEN-45-1-Lamp-XX-XX-XX-XX	0.045	\$ 2.00	Yes
INX-GEN-500-1-Lamp-XX-XX-XX-XX	0.500	\$ 13.00	Yes
INX-GEN-50-1-Fixt-XX-XX-XX-XX	0.050	\$ 40.00	Yes
INX-GEN-50-1-Lamp-XX-XX-XX-XX	0.050	\$ 2.00	Yes
INX-GEN-5-1-Lamp-XX-XX-XX-XX	0.005	\$ 2.00	Yes
INX-GEN-55-1-Fixt-XX-XX-XX-XX	0.055	\$ 40.00	Yes
INX-GEN-55-1-Lamp-XX-XX-XX-XX	0.055	\$ 2.00	Yes
INX-GEN-60-1-Fixt-XX-XX-XX-XX	0.059	\$ 40.00	Yes
INX-GEN-60-1-Lamp-XX-XX-XX-XX	0.059	\$ 2.00	Yes
INX-GEN-6-1-Lamp-XX-XX-XX-XX	0.006	\$ 2.00	Yes
INX-GEN-65-1-Fixt-XX-XX-XX-XX	0.065	\$ 40.00	Yes
INX-GEN-65-1-Lamp-XX-XX-XX-XX	0.065	\$ 2.00	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
INX-GEN-70-1-Fixt-XX-XX-XX-XX	0.070	\$ 40.00	Yes
INX-GEN-70-1-Lamp-XX-XX-XX-XX	0.070	\$ 2.00	Yes
INX-GEN-7-1-Lamp-XX-XX-XX-XX	0.007	\$ 2.00	Yes
INX-GEN-75-1-Fixt-XX-XX-XX-XX	0.072	\$ 40.00	Yes
INX-GEN-75-1-Lamp-XX-XX-XX-XX	0.072	\$ 2.00	Yes
INX-GEN-80-1-Fixt-XX-XX-XX-XX	0.080	\$ 40.00	Yes
INX-GEN-80-1-Lamp-XX-XX-XX-XX	0.080	\$ 4.31	Yes
INX-GEN-8-1-Lamp-XX-XX-XX-XX	0.008	\$ 2.00	Yes
INX-GEN-85-1-Fixt-XX-XX-XX-XX	0.085	\$ 40.00	Yes
INX-GEN-85-1-Lamp-XX-XX-XX-XX	0.085	\$ 4.31	Yes
INX-GEN-90-1-Fixt-XX-XX-XX-XX	0.090	\$ 40.00	
INX-GEN-90-1-Lamp-XX-XX-XX-XX	0.090	\$ 4.31	Yes
INX-GEN-9-1-Lamp-XX-XX-XX-XX	0.009	\$ 2.00	Yes
INX-GEN-95-1-Fixt-XX-XX-XX-XX	0.095	\$ 40.00	Yes
INX-GEN-95-1-Lamp-XX-XX-XX-XX	0.095	\$ 4.31	Yes
INX-TRF-110-1-Lamp-XX-XX-XX-XX	0.110	\$ 171.36	
INX-TRF-116-1-Lamp-12-PED-WLK-XX	0.116	\$ 107.00	
INX-TRF-116-1-Lamp-XX-XX-XX-XX	0.116	\$ 107.00	
INX-TRF-135-1-Lamp-12-GRN-BAL-XX	0.135	\$ 107.00	
INX-TRF-135-1-Lamp-12-RED-ARR-XX	0.014	\$ 87.00	
INX-TRF-135-1-Lamp-12-RED-BAL-XX	0.135	\$ 87.00	
INX-TRF-135-1-Lamp-XX-XX-XX-XX	0.135	\$ 87.00	
INX-TRF-69-1-Lamp-12-RED-ARR-XX	0.069	\$ 87.00	
INX-TRF-69-1-Lamp-8-GRN-BAL-XX	0.069	\$ 87.00	
INX-TRF-69-1-Lamp-8-RED-BAL-XX	0.069	\$ 87.00	
INX-TRF-69-1-Lamp-9-PED-WLK-XX	0.069	\$ 87.00	
INX-TRF-69-1-Lamp-XX-XX-XX-XX	0.069	\$ 80.00	
LEC-EXT-.25-1-Fixt-XX-XX-XX-XX	0.000	\$ 80.00	
LEC-EXT-0.25-1-Fixt-XX-XX-XX-XX	0.000	\$ 80.00	
LEC-GEN-0.25-1-Fixt-XX-XX-XX-XX	0.000	\$ 76.17	
LED-CASE-10-1-Fixt-XX-XX-XX-XX	0.010	\$ 171.36	Yes
LED-CASE-11-1-Fixt-XX-XX-XX-XX	0.011	\$ 171.36	Yes
LED-CASE-12-1-Fixt-XX-XX-XX-XX	0.012	\$ 171.36	Yes
LED-CASE-13-1-Fixt-XX-XX-XX-XX	0.013	\$ 171.36	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-CASE-14-1-Fixt-XX-XX-XX-XX	0.014	\$ 171.36	Yes
LED-CASE-15-1-Fixt-XX-XX-XX-XX	0.015	\$ 171.36	Yes
LED-CASE-16-1-Fixt-XX-XX-XX-XX	0.016	\$ 171.36	Yes
LED-CASE-17-1-Fixt-XX-XX-XX-XX	0.017	\$ 171.36	Yes
LED-CASE-18-1-Fixt-XX-XX-XX-XX	0.018	\$ 171.36	Yes
LED-CASE-19-1-Fixt-XX-XX-XX-XX	0.019	\$ 171.36	Yes
LED-CASE-20-1-Fixt-XX-XX-XX-XX	0.020	\$ 171.36	Yes
LED-CASE-21-1-Fixt-XX-XX-XX-XX	0.021	\$ 171.36	Yes
LED-CASE-22-1-Fixt-XX-XX-XX-XX	0.022	\$ 171.36	Yes
LED-CASE-23-1-Fixt-XX-XX-XX-XX	0.023	\$ 171.36	Yes
LED-CASE-24-1-Fixt-XX-XX-XX-XX	0.024	\$ 171.36	Yes
LED-CASE-25-1-Fixt-XX-XX-XX-XX	0.025	\$ 171.36	Yes
LED-CASE-26-1-Fixt-XX-XX-XX-XX	0.026	\$ 171.36	Yes
LED-CASE-27-1-Fixt-XX-XX-XX-XX	0.027	\$ 171.36	Yes
LED-CASE-28-1-Fixt-XX-XX-XX-XX	0.028	\$ 171.36	Yes
LED-CASE-29-1-Fixt-XX-XX-XX-XX	0.029	\$ 171.36	Yes
LED-CASE-30-1-Fixt-XX-XX-XX-XX	0.030	\$ 171.36	Yes
LED-CASE-31-1-Fixt-XX-XX-XX-XX	0.031	\$ 171.36	Yes
LED-CASE-32-1-Fixt-XX-XX-XX-XX	0.032	\$ 171.36	Yes
LED-CASE-33-1-Fixt-XX-XX-XX-XX	0.033	\$ 171.36	Yes
LED-CASE-34-1-Fixt-XX-XX-XX-XX	0.034	\$ 171.36	Yes
LED-CASE-35-1-Fixt-XX-XX-XX-XX	0.035	\$ 171.36	Yes
LED-CASE-36-1-Fixt-XX-XX-XX-XX	0.036	\$ 171.36	Yes
LED-CASE-37-1-Fixt-XX-XX-XX-XX	0.037	\$ 171.36	Yes
LED-CASE-38-1-Fixt-XX-XX-XX-XX	0.038	\$ 171.36	Yes
LED-CASE-39-1-Fixt-XX-XX-XX-XX	0.039	\$ 171.36	Yes
LED-CASE-40-1-Fixt-XX-XX-XX-XX	0.040	\$ 171.36	Yes
LED-CASE-41-1-Fixt-XX-XX-XX-XX	0.041	\$ 171.36	Yes
LED-CASE-42-1-Fixt-XX-XX-XX-XX	0.042	\$ 171.36	Yes
LED-CASE-43-1-Fixt-XX-XX-XX-XX	0.043	\$ 171.36	Yes
LED-CASE-44-1-Fixt-XX-XX-XX-XX	0.044	\$ 171.36	Yes
LED-CASE-45-1-Fixt-XX-XX-XX-XX	0.045	\$ 171.36	Yes
LED-CASE-46-1-Fixt-XX-XX-XX-XX	0.046	\$ 171.36	Yes
LED-CASE-47-1-Fixt-XX-XX-XX-XX	0.047	\$ 171.36	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-CASE-48-1-Fixt-XX-XX-XX-XX	0.048	\$ 171.36	Yes
LED-CASE-49-1-Fixt-XX-XX-XX-XX	0.049	\$ 171.36	Yes
LED-CASE-50-1-Fixt-XX-XX-XX-XX	0.050	\$ 171.36	Yes
LED-CSO-100-1-Fixt-XX-XX-XX-XX	0.100	\$ 627.80	
LED-CSO-101-1-Fixt-XX-XX-XX-XX	0.101	\$ 627.80	
LED-CSO-102-1-Fixt-XX-XX-XX-XX	0.102	\$ 627.80	
LED-CSO-103-1-Fixt-XX-XX-XX-XX	0.103	\$ 627.80	
LED-CSO-104-1-Fixt-XX-XX-XX-XX	0.104	\$ 627.80	
LED-CSO-105-1-Fixt-XX-XX-XX-XX	0.105	\$ 627.80	
LED-CSO-106-1-Fixt-XX-XX-XX-XX	0.106	\$ 627.80	
LED-CSO-107-1-Fixt-XX-XX-XX-XX	0.107	\$ 627.80	
LED-CSO-108-1-Fixt-XX-XX-XX-XX	0.108	\$ 627.80	
LED-CSO-109-1-Fixt-XX-XX-XX-XX	0.109	\$ 627.80	
LED-CSO-110-1-Fixt-XX-XX-XX-XX	0.110	\$ 627.80	
LED-CSO-111-1-Fixt-XX-XX-XX-XX	0.111	\$ 627.80	
LED-CSO-112-1-Fixt-XX-XX-XX-XX	0.112	\$ 627.80	
LED-CSO-113-1-Fixt-XX-XX-XX-XX	0.113	\$ 627.80	
LED-CSO-114-1-Fixt-XX-XX-XX-XX	0.114	\$ 627.80	
LED-CSO-115-1-Fixt-XX-XX-XX-XX	0.115	\$ 627.80	
LED-CSO-116-1-Fixt-XX-XX-XX-XX	0.116	\$ 627.80	
LED-CSO-117-1-Fixt-XX-XX-XX-XX	0.117	\$ 627.80	
LED-CSO-118-1-Fixt-XX-XX-XX-XX	0.118	\$ 627.80	
LED-CSO-119-1-Fixt-XX-XX-XX-XX	0.119	\$ 627.80	
LED-CSO-120-1-Fixt-XX-XX-XX-XX	0.120	\$ 627.80	
LED-CSO-121-1-Fixt-XX-XX-XX-XX	0.121	\$ 627.80	
LED-CSO-122-1-Fixt-XX-XX-XX-XX	0.122	\$ 627.80	
LED-CSO-123-1-Fixt-XX-XX-XX-XX	0.123	\$ 627.80	
LED-CSO-124-1-Fixt-XX-XX-XX-XX	0.124	\$ 627.80	
LED-CSO-125-1-Fixt-XX-XX-XX-XX	0.125	\$ 627.80	
LED-CSO-126-1-Fixt-XX-XX-XX-XX	0.126	\$ 627.80	
LED-CSO-127-1-Fixt-XX-XX-XX-XX	0.127	\$ 627.80	
LED-CSO-128-1-Fixt-XX-XX-XX-XX	0.128	\$ 627.80	
LED-CSO-129-1-Fixt-XX-XX-XX-XX	0.129	\$ 627.80	
LED-CSO-130-1-Fixt-XX-XX-XX-XX	0.130	\$ 627.80	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-CSO-131-1-Fixt-XX-XX-XX-XX	0.131	\$ 627.80	
LED-CSO-132-1-Fixt-XX-XX-XX-XX	0.132	\$ 627.80	
LED-CSO-133-1-Fixt-XX-XX-XX-XX	0.133	\$ 627.80	
LED-CSO-134-1-Fixt-XX-XX-XX-XX	0.134	\$ 627.80	
LED-CSO-135-1-Fixt-XX-XX-XX-XX	0.135	\$ 627.80	
LED-CSO-136-1-Fixt-XX-XX-XX-XX	0.136	\$ 627.80	
LED-CSO-137-1-Fixt-XX-XX-XX-XX	0.137	\$ 627.80	
LED-CSO-138-1-Fixt-XX-XX-XX-XX	0.138	\$ 627.80	
LED-CSO-139-1-Fixt-XX-XX-XX-XX	0.139	\$ 627.80	
LED-CSO-140-1-Fixt-XX-XX-XX-XX	0.140	\$ 627.80	
LED-CSO-141-1-Fixt-XX-XX-XX-XX	0.141	\$ 627.80	
LED-CSO-142-1-Fixt-XX-XX-XX-XX	0.142	\$ 627.80	
LED-CSO-143-1-Fixt-XX-XX-XX-XX	0.143	\$ 627.80	
LED-CSO-144-1-Fixt-XX-XX-XX-XX	0.144	\$ 627.80	
LED-CSO-145-1-Fixt-XX-XX-XX-XX	0.145	\$ 627.80	
LED-CSO-146-1-Fixt-XX-XX-XX-XX	0.146	\$ 627.80	
LED-CSO-147-1-Fixt-XX-XX-XX-XX	0.147	\$ 627.80	
LED-CSO-148-1-Fixt-XX-XX-XX-XX	0.148	\$ 627.80	
LED-CSO-149-1-Fixt-XX-XX-XX-XX	0.149	\$ 627.80	
LED-CSO-150-1-Fixt-XX-XX-XX-XX	0.150	\$ 627.80	
LED-CSO-25-1-Fixt-XX-XX-XX-XX	0.025	\$ 668.10	
LED-CSO-26-1-Fixt-XX-XX-XX-XX	0.026	\$ 668.10	
LED-CSO-27-1-Fixt-XX-XX-XX-XX	0.027	\$ 668.10	
LED-CSO-28-1-Fixt-XX-XX-XX-XX	0.028	\$ 668.10	
LED-CSO-29-1-Fixt-XX-XX-XX-XX	0.029	\$ 668.10	
LED-CSO-30-1-Fixt-XX-XX-XX-XX	0.030	\$ 668.10	
LED-CSO-31-1-Fixt-XX-XX-XX-XX	0.031	\$ 668.10	
LED-CSO-32-1-Fixt-XX-XX-XX-XX	0.032	\$ 668.10	
LED-CSO-33-1-Fixt-XX-XX-XX-XX	0.033	\$ 668.10	
LED-CSO-34-1-Fixt-XX-XX-XX-XX	0.034	\$ 668.10	
LED-CSO-35-1-Fixt-XX-XX-XX-XX	0.035	\$ 668.10	
LED-CSO-36-1-Fixt-XX-XX-XX-XX	0.036	\$ 668.10	
LED-CSO-37-1-Fixt-XX-XX-XX-XX	0.037	\$ 668.10	
LED-CSO-38-1-Fixt-XX-XX-XX-XX	0.038	\$ 668.10	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-CSO-39-1-Fixt-XX-XX-XX-XX	0.039	\$ 668.10	
LED-CSO-40-1-Fixt-XX-XX-XX-XX	0.040	\$ 668.10	
LED-CSO-41-1-Fixt-XX-XX-XX-XX	0.041	\$ 668.10	
LED-CSO-42-1-Fixt-XX-XX-XX-XX	0.042	\$ 668.10	
LED-CSO-43-1-Fixt-XX-XX-XX-XX	0.043	\$ 668.10	
LED-CSO-44-1-Fixt-XX-XX-XX-XX	0.044	\$ 668.10	
LED-CSO-45-1-Fixt-XX-XX-XX-XX	0.045	\$ 668.10	
LED-CSO-46-1-Fixt-XX-XX-XX-XX	0.046	\$ 668.10	
LED-CSO-47-1-Fixt-XX-XX-XX-XX	0.047	\$ 668.10	
LED-CSO-48-1-Fixt-XX-XX-XX-XX	0.048	\$ 668.10	
LED-CSO-49-1-Fixt-XX-XX-XX-XX	0.049	\$ 668.10	
LED-CSO-50-1-Fixt-XX-XX-XX-XX	0.050	\$ 668.10	
LED-CSO-51-1-Fixt-XX-XX-XX-XX	0.051	\$ 668.10	
LED-CSO-52-1-Fixt-XX-XX-XX-XX	0.052	\$ 668.10	
LED-CSO-53-1-Fixt-XX-XX-XX-XX	0.053	\$ 668.10	
LED-CSO-54-1-Fixt-XX-XX-XX-XX	0.054	\$ 627.80	
LED-CSO-55-1-Fixt-XX-XX-XX-XX	0.055	\$ 627.80	
LED-CSO-56-1-Fixt-XX-XX-XX-XX	0.056	\$ 627.80	
LED-CSO-57-1-Fixt-XX-XX-XX-XX	0.057	\$ 627.80	
LED-CSO-58-1-Fixt-XX-XX-XX-XX	0.058	\$ 627.80	
LED-CSO-59-1-Fixt-XX-XX-XX-XX	0.059	\$ 668.10	
LED-CSO-60-1-Fixt-XX-XX-XX-XX	0.060	\$ 668.10	
LED-CSO-61-1-Fixt-XX-XX-XX-XX	0.061	\$ 668.10	
LED-CSO-62-1-Fixt-XX-XX-XX-XX	0.062	\$ 668.10	
LED-CSO-63-1-Fixt-XX-XX-XX-XX	0.063	\$ 668.10	
LED-CSO-64-1-Fixt-XX-XX-XX-XX	0.064	\$ 668.10	
LED-CSO-65-1-Fixt-XX-XX-XX-XX	0.065	\$ 668.10	
LED-CSO-66-1-Fixt-XX-XX-XX-XX	0.066	\$ 668.10	
LED-CSO-67-1-Fixt-XX-XX-XX-XX	0.067	\$ 668.10	
LED-CSO-68-1-Fixt-XX-XX-XX-XX	0.068	\$ 668.10	
LED-CSO-69-1-Fixt-XX-XX-XX-XX	0.069	\$ 668.10	
LED-CSO-70-1-Fixt-XX-XX-XX-XX	0.070	\$ 668.10	
LED-CSO-71-1-Fixt-XX-XX-XX-XX	0.071	\$ 668.10	
LED-CSO-72-1-Fixt-XX-XX-XX-XX	0.072	\$ 668.10	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-CSO-73-1-Fixt-XX-XX-XX-XX	0.073	\$ 668.10	
LED-CSO-74-1-Fixt-XX-XX-XX-XX	0.074	\$ 668.10	
LED-CSO-75-1-Fixt-XX-XX-XX-XX	0.075	\$ 668.10	
LED-CSO-76-1-Fixt-XX-XX-XX-XX	0.076	\$ 668.10	
LED-CSO-77-1-Fixt-XX-XX-XX-XX	0.077	\$ 668.10	
LED-CSO-78-1-Fixt-XX-XX-XX-XX	0.078	\$ 668.10	
LED-CSO-79-1-Fixt-XX-XX-XX-XX	0.079	\$ 668.10	
LED-CSO-80-1-Fixt-XX-XX-XX-XX	0.080	\$ 668.10	
LED-CSO-81-1-Fixt-XX-XX-XX-XX	0.081	\$ 668.10	
LED-CSO-82-1-Fixt-XX-XX-XX-XX	0.082	\$ 668.10	
LED-CSO-83-1-Fixt-XX-XX-XX-XX	0.083	\$ 668.10	
LED-CSO-84-1-Fixt-XX-XX-XX-XX	0.084	\$ 627.80	
LED-CSO-85-1-Fixt-XX-XX-XX-XX	0.085	\$ 627.80	
LED-CSO-86-1-Fixt-XX-XX-XX-XX	0.086	\$ 627.80	
LED-CSO-87-1-Fixt-XX-XX-XX-XX	0.087	\$ 627.80	
LED-CSO-88-1-Fixt-XX-XX-XX-XX	0.088	\$ 627.80	
LED-CSO-89-1-Fixt-XX-XX-XX-XX	0.089	\$ 627.80	
LED-CSO-90-1-Fixt-XX-XX-XX-XX	0.090	\$ 627.80	
LED-CSO-91-1-Fixt-XX-XX-XX-XX	0.091	\$ 627.80	
LED-CSO-92-1-Fixt-XX-XX-XX-XX	0.092	\$ 627.80	
LED-CSO-93-1-Fixt-XX-XX-XX-XX	0.093	\$ 627.80	
LED-CSO-94-1-Fixt-XX-XX-XX-XX	0.094	\$ 627.80	
LED-CSO-95-1-Fixt-XX-XX-XX-XX	0.095	\$ 627.80	
LED-CSO-96-1-Fixt-XX-XX-XX-XX	0.096	\$ 627.80	
LED-CSO-97-1-Fixt-XX-XX-XX-XX	0.097	\$ 627.80	
LED-CSO-98-1-Fixt-XX-XX-XX-XX	0.098	\$ 627.80	
LED-CSO-99-1-Fixt-XX-XX-XX-XX	0.099	\$ 627.80	
LED-EXT-2-1-Fixt-XX-XX-XX-XX	0.002	\$ 102.62	
LED-GEN-10-1-Fixt-XX-XX-XX-XX	0.010	\$ 193.47	Yes
LED-GEN-10-1-Lamp-XX-XX-XX-XX	0.010	\$ 39.79	Yes
LED-GEN-11-1-Fixt-XX-XX-XX-XX	0.011	\$ 193.47	Yes
LED-GEN-11-1-Lamp-XX-XX-XX-XX	0.011	\$ 64.96	Yes
LED-GEN-1-1-Lamp-XX-XX-XX-XX	0.001	\$ 33.91	Yes
LED-GEN-12-1-Fixt-XX-XX-XX-XX	0.012	\$ 193.47	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-GEN-12-1-Lamp-XX-XX-XX-XX	0.012	\$ 64.96	Yes
LED-GEN-13-1-Fixt-XX-XX-XX-XX	0.013	\$ 193.47	Yes
LED-GEN-13-1-Lamp-XX-XX-XX-XX	0.013	\$ 64.96	Yes
LED-GEN-14-1-Fixt-XX-XX-XX-XX	0.014	\$ 193.47	Yes
LED-GEN-14-1-Lamp-XX-XX-XX-XX	0.014	\$ 64.96	Yes
LED-GEN-15-1-Fixt-XX-XX-XX-XX	0.015	\$ 193.47	Yes
LED-GEN-15-1-Lamp-XX-XX-XX-XX	0.015	\$ 64.96	Yes
LED-GEN-16-1-Fixt-XX-XX-XX-XX	0.016	\$ 199.09	Yes
LED-GEN-16-1-Lamp-XX-XX-XX-XX	0.016	\$ 64.96	Yes
LED-GEN-17-1-Fixt-XX-XX-XX-XX	0.017	\$ 199.09	Yes
LED-GEN-17-1-Lamp-XX-XX-XX-XX	0.017	\$ 64.96	Yes
LED-GEN-18-1-Fixt-XX-XX-XX-XX	0.018	\$ 199.09	Yes
LED-GEN-18-1-Lamp-XX-XX-XX-XX	0.018	\$ 64.96	Yes
LED-GEN-19-1-Fixt-XX-XX-XX-XX	0.019	\$ 199.09	Yes
LED-GEN-19-1-Lamp-XX-XX-XX-XX	0.019	\$ 64.96	Yes
LED-GEN-20.1-1-Lamp-XX-XX-XX-XX	0.020	\$ 40.00	Yes
LED-GEN-20.2-1-Lamp-XX-XX-XX-XX	0.020	\$ 40.00	Yes
LED-GEN-20.3-1-Lamp-XX-XX-XX-XX	0.020	\$ 40.00	Yes
LED-GEN-20.4-1-Lamp-XX-XX-XX-XX	0.020	\$ 40.00	Yes
LED-GEN-20.5-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-20.6-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-20.7-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-20.8-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-20.9-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-20-1-Fixt-XX-XX-XX-XX	0.020	\$ 199.09	Yes
LED-GEN-20-1-Lamp-XX-XX-XX-XX	0.020	\$ 64.96	Yes
LED-GEN-21.1-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-21.2-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-21.3-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-21.4-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-21.5-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes
LED-GEN-21.6-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes
LED-GEN-21.7-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes
LED-GEN-21.8-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-GEN-21.9-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes
LED-GEN-21-1-Fixt-XX-XX-XX-XX	0.021	\$ 199.09	Yes
LED-GEN-21-1-Lamp-XX-XX-XX-XX	0.021	\$ 40.00	Yes
LED-GEN-2-1-Lamp-XX-XX-XX-XX	0.002	\$ 33.91	Yes
LED-GEN-22.1-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes
LED-GEN-22.2-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes
LED-GEN-22.3-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes
LED-GEN-22.4-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes
LED-GEN-22.5-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-22.6-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-22.7-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-22.8-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-22.9-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-22-1-Fixt-XX-XX-XX-XX	0.022	\$ 199.09	Yes
LED-GEN-22-1-Lamp-XX-XX-XX-XX	0.022	\$ 40.00	Yes
LED-GEN-23.1-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-23.2-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-23.3-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-23.4-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-23.5-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-23.6-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-23.7-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-23.8-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-23.9-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-23-1-Fixt-XX-XX-XX-XX	0.023	\$ 199.09	Yes
LED-GEN-23-1-Lamp-XX-XX-XX-XX	0.023	\$ 40.00	Yes
LED-GEN-24.1-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-24.2-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-24.3-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-24.4-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-24.5-1-Lamp-XX-XX-XX-XX	0.025	\$ 40.00	Yes
LED-GEN-24.6-1-Lamp-XX-XX-XX-XX	0.025	\$ 40.00	Yes
LED-GEN-24.7-1-Lamp-XX-XX-XX-XX	0.025	\$ 40.00	Yes
LED-GEN-24.8-1-Lamp-XX-XX-XX-XX	0.025	\$ 40.00	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-GEN-24.9-1-Lamp-XX-XX-XX-XX	0.025	\$ 40.00	Yes
LED-GEN-24-1-Fixt-XX-XX-XX-XX	0.024	\$ 199.09	Yes
LED-GEN-24-1-Lamp-XX-XX-XX-XX	0.024	\$ 40.00	Yes
LED-GEN-25-1-Fixt-XX-XX-XX-XX	0.025	\$ 199.09	Yes
LED-GEN-25-1-Lamp-XX-XX-XX-XX	0.025	\$ 40.00	Yes
LED-GEN-26-1-Fixt-XX-XX-XX-XX	0.026	\$ 272.30	Yes
LED-GEN-27-1-Fixt-XX-XX-XX-XX	0.027	\$ 272.30	Yes
LED-GEN-28-1-Fixt-XX-XX-XX-XX	0.028	\$ 272.30	Yes
LED-GEN-29-1-Fixt-XX-XX-XX-XX	0.029	\$ 272.30	Yes
LED-GEN-30-1-Fixt-XX-XX-XX-XX	0.030	\$ 272.30	Yes
LED-GEN-31-1-Fixt-XX-XX-XX-XX	0.031	\$ 272.30	Yes
LED-GEN-3-1-Lamp-XX-XX-XX-XX	0.003	\$ 33.91	Yes
LED-GEN-32-1-Fixt-XX-XX-XX-XX	0.032	\$ 272.30	Yes
LED-GEN-33-1-Fixt-XX-XX-XX-XX	0.033	\$ 272.30	Yes
LED-GEN-34-1-Fixt-XX-XX-XX-XX	0.034	\$ 272.30	Yes
LED-GEN-35-1-Fixt-XX-XX-XX-XX	0.035	\$ 272.30	Yes
LED-GEN-36-1-Fixt-XX-XX-XX-XX	0.036	\$ 272.30	Yes
LED-GEN-37-1-Fixt-XX-XX-XX-XX	0.037	\$ 272.30	Yes
LED-GEN-38-1-Fixt-XX-XX-XX-XX	0.038	\$ 272.30	Yes
LED-GEN-39-1-Fixt-XX-XX-XX-XX	0.039	\$ 272.30	Yes
LED-GEN-40-1-Fixt-XX-XX-XX-XX	0.040	\$ 272.30	Yes
LED-GEN-41-1-Fixt-XX-XX-XX-XX	0.041	\$ 272.30	Yes
LED-GEN-4-1-Lamp-XX-XX-XX-XX	0.004	\$ 33.91	Yes
LED-GEN-42-1-Fixt-XX-XX-XX-XX	0.042	\$ 272.30	Yes
LED-GEN-43-1-Fixt-XX-XX-XX-XX	0.043	\$ 272.30	Yes
LED-GEN-44-1-Fixt-XX-XX-XX-XX	0.044	\$ 272.30	Yes
LED-GEN-45-1-Fixt-XX-XX-XX-XX	0.045	\$ 272.30	Yes
LED-GEN-46-1-Fixt-XX-XX-XX-XX	0.046	\$ 272.30	Yes
LED-GEN-47-1-Fixt-XX-XX-XX-XX	0.047	\$ 272.30	Yes
LED-GEN-48-1-Fixt-XX-XX-XX-XX	0.048	\$ 272.30	Yes
LED-GEN-49-1-Fixt-XX-XX-XX-XX	0.049	\$ 272.30	Yes
LED-GEN-50-1-Fixt-XX-XX-XX-XX	0.050	\$ 272.30	Yes
LED-GEN-5-1-Lamp-XX-XX-XX-XX	0.005	\$ 33.91	Yes
LED-GEN-6-1-Lamp-XX-XX-XX-XX	0.006	\$ 39.79	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-GEN-7-1-Lamp-XX-XX-XX-XX	0.007	\$ 39.79	Yes
LED-GEN-8-1-Fixt-XX-XX-XX-XX	0.008	\$ 193.47	Yes
LED-GEN-8-1-Lamp-XX-XX-XX-XX	0.008	\$ 39.79	Yes
LED-GEN-9-1-Fixt-XX-XX-XX-XX	0.009	\$ 193.47	Yes
LED-GEN-9-1-Lamp-XX-XX-XX-XX	0.009	\$ 39.79	Yes
LED-ScrewIn-10.0-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-ScrewIn-10.1-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-ScrewIn-10.2-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-ScrewIn-10.3-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-ScrewIn-10.4-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-ScrewIn-10.5-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-10.6-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-10.7-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-10.8-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-10.9-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-11.0-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-11.1-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-11.2-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-11.3-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-11.4-1-Lamp-LED-XX-XX-XX	0.011	\$ 102.87	Yes
LED-ScrewIn-11.5-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-11.6-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-11.7-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-11.8-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-11.9-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-12.0-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-12.1-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-12.2-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-12.3-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-12.4-1-Lamp-LED-XX-XX-XX	0.012	\$ 102.87	Yes
LED-ScrewIn-12.5-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes
LED-ScrewIn-12.6-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes
LED-ScrewIn-12.7-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes
LED-ScrewIn-12.8-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-ScrewIn-12.9-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes
LED-ScrewIn-13.0-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes
LED-ScrewIn-13.1-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes
LED-ScrewIn-13.2-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes
LED-ScrewIn-13.3-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes
LED-ScrewIn-13.4-1-Lamp-LED-XX-XX-XX	0.013	\$ 102.87	Yes
LED-ScrewIn-13.5-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-13.6-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-13.7-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-13.8-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-13.9-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-14.0-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-14.1-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-14.2-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-14.3-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-14.4-1-Lamp-LED-XX-XX-XX	0.014	\$ 102.87	Yes
LED-ScrewIn-14.5-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-14.6-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-14.7-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-14.8-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-14.9-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-15.0-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-15.1-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-15.2-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-15.3-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-15.4-1-Lamp-LED-XX-XX-XX	0.015	\$ 102.87	Yes
LED-ScrewIn-15.5-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes
LED-ScrewIn-15.6-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes
LED-ScrewIn-15.7-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes
LED-ScrewIn-15.8-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes
LED-ScrewIn-15.9-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes
LED-ScrewIn-16.0-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes
LED-ScrewIn-16.1-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes
LED-ScrewIn-16.2-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-ScrewIn-16.3-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes
LED-ScrewIn-16.4-1-Lamp-LED-XX-XX-XX	0.016	\$ 102.87	Yes
LED-ScrewIn-16.5-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-16.6-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-16.7-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-16.8-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-16.9-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-17.0-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-17.1-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-17.2-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-17.3-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-17.4-1-Lamp-LED-XX-XX-XX	0.017	\$ 102.87	Yes
LED-ScrewIn-17.5-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-17.6-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-17.7-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-17.8-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-17.9-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-18.0-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-18.1-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-18.2-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-18.3-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-18.4-1-Lamp-LED-XX-XX-XX	0.018	\$ 102.87	Yes
LED-ScrewIn-18.5-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-18.6-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-18.7-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-18.8-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-18.9-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-19.0-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-19.1-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-19.2-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-19.3-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-19.4-1-Lamp-LED-XX-XX-XX	0.019	\$ 102.87	Yes
LED-ScrewIn-19.5-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes
LED-ScrewIn-19.6-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-ScrewIn-19.7-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes
LED-ScrewIn-19.8-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes
LED-ScrewIn-19.9-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes
LED-ScrewIn-20.0-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes
LED-ScrewIn-20.1-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes
LED-ScrewIn-20.2-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes
LED-ScrewIn-20.3-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes
LED-ScrewIn-20.4-1-Lamp-LED-XX-XX-XX	0.020	\$ 102.87	Yes
LED-ScrewIn-20.5-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-20.6-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-20.7-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-20.8-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-20.9-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-21.0-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-21.1-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-21.2-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-21.3-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-21.4-1-Lamp-LED-XX-XX-XX	0.021	\$ 102.87	Yes
LED-ScrewIn-21.5-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-21.6-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-21.7-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-21.8-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-21.9-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-22.0-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-22.1-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-22.2-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-22.3-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-22.4-1-Lamp-LED-XX-XX-XX	0.022	\$ 102.87	Yes
LED-ScrewIn-22.5-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes
LED-ScrewIn-22.6-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes
LED-ScrewIn-22.7-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes
LED-ScrewIn-22.8-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes
LED-ScrewIn-22.9-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes
LED-ScrewIn-23.0-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-ScrewIn-23.1-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes
LED-ScrewIn-23.2-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes
LED-ScrewIn-23.3-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes
LED-ScrewIn-23.4-1-Lamp-LED-XX-XX-XX	0.023	\$ 102.87	Yes
LED-ScrewIn-23.5-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-23.6-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-23.7-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-23.8-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-23.9-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-24.0-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-24.1-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-24.2-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-24.3-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-24.4-1-Lamp-LED-XX-XX-XX	0.024	\$ 102.87	Yes
LED-ScrewIn-24.5-1-Lamp-LED-XX-XX-XX	0.025	\$ 102.87	Yes
LED-ScrewIn-24.6-1-Lamp-LED-XX-XX-XX	0.025	\$ 102.87	Yes
LED-ScrewIn-24.7-1-Lamp-LED-XX-XX-XX	0.025	\$ 102.87	Yes
LED-ScrewIn-24.8-1-Lamp-LED-XX-XX-XX	0.025	\$ 102.87	Yes
LED-ScrewIn-24.9-1-Lamp-LED-XX-XX-XX	0.025	\$ 102.87	Yes
LED-ScrewIn-25.0-1-Lamp-LED-XX-XX-XX	0.025	\$ 102.87	Yes
LED-ScrewIn-8.0-1-Lamp-LED-XX-XX-XX	0.008	\$ 45.00	Yes
LED-ScrewIn-8.1-1-Lamp-LED-XX-XX-XX	0.008	\$ 45.00	Yes
LED-ScrewIn-8.2-1-Lamp-LED-XX-XX-XX	0.008	\$ 45.00	Yes
LED-ScrewIn-8.3-1-Lamp-LED-XX-XX-XX	0.008	\$ 45.00	Yes
LED-ScrewIn-8.4-1-Lamp-LED-XX-XX-XX	0.008	\$ 45.00	Yes
LED-ScrewIn-8.5-1-Lamp-LED-XX-XX-XX	0.009	\$ 45.00	Yes
LED-ScrewIn-8.6-1-Lamp-LED-XX-XX-XX	0.009	\$ 45.00	Yes
LED-ScrewIn-8.7-1-Lamp-LED-XX-XX-XX	0.009	\$ 45.00	Yes
LED-ScrewIn-8.8-1-Lamp-LED-XX-XX-XX	0.009	\$ 45.00	Yes
LED-ScrewIn-8.9-1-Lamp-LED-XX-XX-XX	0.009	\$ 45.00	Yes
LED-ScrewIn-9.0-1-Lamp-LED-XX-XX-XX	0.009	\$ 102.87	Yes
LED-ScrewIn-9.1-1-Lamp-LED-XX-XX-XX	0.009	\$ 102.87	Yes
LED-ScrewIn-9.2-1-Lamp-LED-XX-XX-XX	0.009	\$ 102.87	Yes
LED-ScrewIn-9.3-1-Lamp-LED-XX-XX-XX	0.009	\$ 102.87	Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-ScrewIn-9.4-1-Lamp-LED-XX-XX-XX	0.009	\$ 102.87	Yes
LED-ScrewIn-9.5-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-ScrewIn-9.6-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-ScrewIn-9.7-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-ScrewIn-9.8-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-ScrewIn-9.9-1-Lamp-LED-XX-XX-XX	0.010	\$ 102.87	Yes
LED-SEN-20-1-Fixt-XX-XX-XX-70	0.006	\$ 209.80	
LED-SEN-20-1-Fixt-XX-XX-XX-75	0.005	\$ 209.80	
LED-SEN-20-1-Fixt-XX-XX-XX-80	0.004	\$ 209.80	
LED-SEN-20-1-Fixt-XX-XX-XX-85	0.004	\$ 209.80	
LED-SEN-20-1-Fixt-XX-XX-XX-90	0.003	\$ 209.80	
LED-SEN-20-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-21-1-Fixt-XX-XX-XX-70	0.007	\$ 209.80	
LED-SEN-21-1-Fixt-XX-XX-XX-75	0.006	\$ 209.80	
LED-SEN-21-1-Fixt-XX-XX-XX-80	0.005	\$ 209.80	
LED-SEN-21-1-Fixt-XX-XX-XX-85	0.004	\$ 209.80	
LED-SEN-21-1-Fixt-XX-XX-XX-90	0.003	\$ 209.80	
LED-SEN-21-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-22-1-Fixt-XX-XX-XX-70	0.007	\$ 209.80	
LED-SEN-22-1-Fixt-XX-XX-XX-75	0.006	\$ 209.80	
LED-SEN-22-1-Fixt-XX-XX-XX-80	0.005	\$ 209.80	
LED-SEN-22-1-Fixt-XX-XX-XX-85	0.004	\$ 209.80	
LED-SEN-22-1-Fixt-XX-XX-XX-90	0.003	\$ 209.80	
LED-SEN-22-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-23-1-Fixt-XX-XX-XX-70	0.007	\$ 209.80	
LED-SEN-23-1-Fixt-XX-XX-XX-75	0.006	\$ 209.80	
LED-SEN-23-1-Fixt-XX-XX-XX-80	0.005	\$ 209.80	
LED-SEN-23-1-Fixt-XX-XX-XX-85	0.004	\$ 209.80	
LED-SEN-23-1-Fixt-XX-XX-XX-90	0.003	\$ 209.80	
LED-SEN-23-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-24-1-Fixt-XX-XX-XX-70	0.008	\$ 209.80	
LED-SEN-24-1-Fixt-XX-XX-XX-75	0.007	\$ 209.80	
LED-SEN-24-1-Fixt-XX-XX-XX-80	0.005	\$ 209.80	
LED-SEN-24-1-Fixt-XX-XX-XX-85	0.004	\$ 209.80	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-SEN-24-1-Fixt-XX-XX-XX-90	0.003	\$ 209.80	
LED-SEN-24-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-25-1-Fixt-XX-XX-XX-70	0.008	\$ 209.80	
LED-SEN-25-1-Fixt-XX-XX-XX-75	0.007	\$ 209.80	
LED-SEN-25-1-Fixt-XX-XX-XX-80	0.006	\$ 209.80	
LED-SEN-25-1-Fixt-XX-XX-XX-85	0.004	\$ 209.80	
LED-SEN-25-1-Fixt-XX-XX-XX-90	0.003	\$ 209.80	
LED-SEN-25-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-26-1-Fixt-XX-XX-XX-70	0.008	\$ 209.80	
LED-SEN-26-1-Fixt-XX-XX-XX-75	0.007	\$ 209.80	
LED-SEN-26-1-Fixt-XX-XX-XX-80	0.006	\$ 209.80	
LED-SEN-26-1-Fixt-XX-XX-XX-85	0.005	\$ 209.80	
LED-SEN-26-1-Fixt-XX-XX-XX-90	0.003	\$ 209.80	
LED-SEN-26-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-27-1-Fixt-XX-XX-XX-70	0.009	\$ 209.80	
LED-SEN-27-1-Fixt-XX-XX-XX-75	0.007	\$ 209.80	
LED-SEN-27-1-Fixt-XX-XX-XX-80	0.006	\$ 209.80	
LED-SEN-27-1-Fixt-XX-XX-XX-85	0.005	\$ 209.80	
LED-SEN-27-1-Fixt-XX-XX-XX-90	0.003	\$ 209.80	
LED-SEN-27-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-28-1-Fixt-XX-XX-XX-70	0.009	\$ 209.80	
LED-SEN-28-1-Fixt-XX-XX-XX-75	0.008	\$ 209.80	
LED-SEN-28-1-Fixt-XX-XX-XX-80	0.006	\$ 209.80	
LED-SEN-28-1-Fixt-XX-XX-XX-85	0.005	\$ 209.80	
LED-SEN-28-1-Fixt-XX-XX-XX-90	0.004	\$ 209.80	
LED-SEN-28-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-29-1-Fixt-XX-XX-XX-70	0.009	\$ 209.80	
LED-SEN-29-1-Fixt-XX-XX-XX-75	0.008	\$ 209.80	
LED-SEN-29-1-Fixt-XX-XX-XX-80	0.006	\$ 209.80	
LED-SEN-29-1-Fixt-XX-XX-XX-85	0.005	\$ 209.80	
LED-SEN-29-1-Fixt-XX-XX-XX-90	0.004	\$ 209.80	
LED-SEN-29-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-SEN-30-1-Fixt-XX-XX-XX-70	0.010	\$ 209.80	
LED-SEN-30-1-Fixt-XX-XX-XX-75	0.008	\$ 209.80	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-SEN-30-1-Fixt-XX-XX-XX-80	0.007	\$ 209.80	
LED-SEN-30-1-Fixt-XX-XX-XX-85	0.005	\$ 209.80	
LED-SEN-30-1-Fixt-XX-XX-XX-90	0.004	\$ 209.80	
LED-SEN-30-1-Fixt-XX-XX-XX-95	0.002	\$ 209.80	
LED-TRF-10-1-Lamp-12-WLK-DNT-WLK	0.010	\$ 110.00	
LED-TRF-11-1-Lamp-12-GRN-BAL-XX	0.011	\$ 90.00	
LED-TRF-11-1-Lamp-12-RED-ARR-XX	0.011	\$ 90.00	
LED-TRF-11-1-Lamp-12-RED-BAL-XX	0.011	\$ 90.00	
LED-TRF-8-1-Lamp-8-GRN-BAL-XX	0.008	\$ 70.00	
LED-TRF-8-1-Lamp-8-RED-BAL-XX	0.008	\$ 70.00	
LED-TRF-8-1-Lamp-9-WLK-DNT-WLK	0.008	\$ 80.00	
LED-WPE-100-1-Fixt-XX-XX-XX-XX	0.100	\$ 869.26	
LED-WPE-101-1-Fixt-XX-XX-XX-XX	0.101	\$ 876.92	
LED-WPE-10-1-Fixt-XX-XX-XX-XX	0.010	\$ 179.86	
LED-WPE-102-1-Fixt-XX-XX-XX-XX	0.102	\$ 884.58	
LED-WPE-103-1-Fixt-XX-XX-XX-XX	0.103	\$ 892.24	
LED-WPE-104-1-Fixt-XX-XX-XX-XX	0.104	\$ 899.90	
LED-WPE-105-1-Fixt-XX-XX-XX-XX	0.105	\$ 907.56	
LED-WPE-106-1-Fixt-XX-XX-XX-XX	0.106	\$ 915.22	
LED-WPE-107-1-Fixt-XX-XX-XX-XX	0.107	\$ 922.88	
LED-WPE-108-1-Fixt-XX-XX-XX-XX	0.108	\$ 930.54	
LED-WPE-109-1-Fixt-XX-XX-XX-XX	0.109	\$ 938.20	
LED-WPE-110-1-Fixt-XX-XX-XX-XX	0.110	\$ 945.86	
LED-WPE-111-1-Fixt-XX-XX-XX-XX	0.111	\$ 953.52	
LED-WPE-11-1-Fixt-XX-XX-XX-XX	0.011	\$ 187.52	
LED-WPE-112-1-Fixt-XX-XX-XX-XX	0.112	\$ 961.18	
LED-WPE-113-1-Fixt-XX-XX-XX-XX	0.113	\$ 968.84	
LED-WPE-114-1-Fixt-XX-XX-XX-XX	0.114	\$ 976.50	
LED-WPE-115-1-Fixt-XX-XX-XX-XX	0.115	\$ 984.16	
LED-WPE-116-1-Fixt-XX-XX-XX-XX	0.116	\$ 991.82	
LED-WPE-117-1-Fixt-XX-XX-XX-XX	0.117	\$ 999.48	
LED-WPE-118-1-Fixt-XX-XX-XX-XX	0.118	\$ 1,007.14	
LED-WPE-119-1-Fixt-XX-XX-XX-XX	0.119	\$ 1,014.80	
LED-WPE-120-1-Fixt-XX-XX-XX-XX	0.120	\$ 1,022.46	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-WPE-121-1-Fixt-XX-XX-XX-XX	0.121	\$ 1,030.12	
LED-WPE-12-1-Fixt-XX-XX-XX-XX	0.012	\$ 195.18	
LED-WPE-122-1-Fixt-XX-XX-XX-XX	0.122	\$ 1,037.78	
LED-WPE-123-1-Fixt-XX-XX-XX-XX	0.123	\$ 1,045.44	
LED-WPE-124-1-Fixt-XX-XX-XX-XX	0.124	\$ 1,053.10	
LED-WPE-125-1-Fixt-XX-XX-XX-XX	0.125	\$ 1,060.76	
LED-WPE-126-1-Fixt-XX-XX-XX-XX	0.126	\$ 1,068.42	
LED-WPE-127-1-Fixt-XX-XX-XX-XX	0.127	\$ 1,076.08	
LED-WPE-128-1-Fixt-XX-XX-XX-XX	0.128	\$ 1,083.74	
LED-WPE-129-1-Fixt-XX-XX-XX-XX	0.129	\$ 1,091.40	
LED-WPE-130-1-Fixt-XX-XX-XX-XX	0.130	\$ 1,099.06	
LED-WPE-131-1-Fixt-XX-XX-XX-XX	0.131	\$ 1,106.72	
LED-WPE-13-1-Fixt-XX-XX-XX-XX	0.013	\$ 202.84	
LED-WPE-132-1-Fixt-XX-XX-XX-XX	0.132	\$ 1,114.38	
LED-WPE-133-1-Fixt-XX-XX-XX-XX	0.133	\$ 1,122.04	
LED-WPE-134-1-Fixt-XX-XX-XX-XX	0.134	\$ 1,129.70	
LED-WPE-135-1-Fixt-XX-XX-XX-XX	0.135	\$ 1,137.36	
LED-WPE-136-1-Fixt-XX-XX-XX-XX	0.136	\$ 1,145.02	
LED-WPE-137-1-Fixt-XX-XX-XX-XX	0.137	\$ 1,152.68	
LED-WPE-138-1-Fixt-XX-XX-XX-XX	0.138	\$ 1,160.34	
LED-WPE-139-1-Fixt-XX-XX-XX-XX	0.139	\$ 1,168.00	
LED-WPE-140-1-Fixt-XX-XX-XX-XX	0.140	\$ 1,175.66	
LED-WPE-141-1-Fixt-XX-XX-XX-XX	0.141	\$ 1,183.32	
LED-WPE-14-1-Fixt-XX-XX-XX-XX	0.014	\$ 210.50	
LED-WPE-142-1-Fixt-XX-XX-XX-XX	0.142	\$ 1,190.98	
LED-WPE-143-1-Fixt-XX-XX-XX-XX	0.143	\$ 1,198.64	
LED-WPE-144-1-Fixt-XX-XX-XX-XX	0.144	\$ 1,206.30	
LED-WPE-145-1-Fixt-XX-XX-XX-XX	0.145	\$ 1,213.96	
LED-WPE-146-1-Fixt-XX-XX-XX-XX	0.146	\$ 1,221.62	
LED-WPE-147-1-Fixt-XX-XX-XX-XX	0.147	\$ 1,229.28	
LED-WPE-148-1-Fixt-XX-XX-XX-XX	0.148	\$ 1,236.94	
LED-WPE-149-1-Fixt-XX-XX-XX-XX	0.149	\$ 1,244.60	
LED-WPE-150-1-Fixt-XX-XX-XX-XX	0.150	\$ 1,252.26	
LED-WPE-15-1-Fixt-XX-XX-XX-XX	0.015	\$ 218.16	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-WPE-16-1-Fixt-XX-XX-XX-XX	0.016	\$ 225.82	
LED-WPE-17-1-Fixt-XX-XX-XX-XX	0.017	\$ 233.48	
LED-WPE-18-1-Fixt-XX-XX-XX-XX	0.018	\$ 241.14	
LED-WPE-19-1-Fixt-XX-XX-XX-XX	0.019	\$ 248.80	
LED-WPE-20-1-Fixt-XX-XX-XX-XX	0.020	\$ 256.46	
LED-WPE-21-1-Fixt-XX-XX-XX-XX	0.021	\$ 264.12	
LED-WPE-22-1-Fixt-XX-XX-XX-XX	0.022	\$ 271.78	
LED-WPE-23-1-Fixt-XX-XX-XX-XX	0.023	\$ 279.44	
LED-WPE-24-1-Fixt-XX-XX-XX-XX	0.024	\$ 287.10	
LED-WPE-25-1-Fixt-XX-XX-XX-XX	0.025	\$ 294.76	
LED-WPE-26-1-Fixt-XX-XX-XX-XX	0.026	\$ 302.42	
LED-WPE-27-1-Fixt-XX-XX-XX-XX	0.027	\$ 310.08	
LED-WPE-28-1-Fixt-XX-XX-XX-XX	0.028	\$ 317.74	
LED-WPE-29-1-Fixt-XX-XX-XX-XX	0.029	\$ 325.40	
LED-WPE-30-1-Fixt-XX-XX-XX-XX	0.030	\$ 333.06	
LED-WPE-31-1-Fixt-XX-XX-XX-XX	0.031	\$ 340.72	
LED-WPE-32-1-Fixt-XX-XX-XX-XX	0.032	\$ 348.38	
LED-WPE-33-1-Fixt-XX-XX-XX-XX	0.033	\$ 356.04	
LED-WPE-34-1-Fixt-XX-XX-XX-XX	0.034	\$ 363.70	
LED-WPE-35-1-Fixt-XX-XX-XX-XX	0.035	\$ 371.36	
LED-WPE-36-1-Fixt-XX-XX-XX-XX	0.036	\$ 379.02	
LED-WPE-37-1-Fixt-XX-XX-XX-XX	0.037	\$ 386.68	
LED-WPE-38-1-Fixt-XX-XX-XX-XX	0.038	\$ 394.34	
LED-WPE-39-1-Fixt-XX-XX-XX-XX	0.039	\$ 402.00	
LED-WPE-40-1-Fixt-XX-XX-XX-XX	0.040	\$ 409.66	
LED-WPE-41-1-Fixt-XX-XX-XX-XX	0.041	\$ 417.32	
LED-WPE-42-1-Fixt-XX-XX-XX-XX	0.042	\$ 424.98	
LED-WPE-43-1-Fixt-XX-XX-XX-XX	0.043	\$ 432.64	
LED-WPE-44-1-Fixt-XX-XX-XX-XX	0.044	\$ 440.30	
LED-WPE-45-1-Fixt-XX-XX-XX-XX	0.045	\$ 447.96	
LED-WPE-46-1-Fixt-XX-XX-XX-XX	0.046	\$ 455.62	
LED-WPE-47-1-Fixt-XX-XX-XX-XX	0.047	\$ 463.28	
LED-WPE-48-1-Fixt-XX-XX-XX-XX	0.048	\$ 470.94	
LED-WPE-49-1-Fixt-XX-XX-XX-XX	0.049	\$ 478.60	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-WPE-50-1-Fixt-XX-XX-XX-XX	0.050	\$ 486.26	
LED-WPE-51-1-Fixt-XX-XX-XX-XX	0.051	\$ 493.92	
LED-WPE-52-1-Fixt-XX-XX-XX-XX	0.052	\$ 501.58	
LED-WPE-53-1-Fixt-XX-XX-XX-XX	0.053	\$ 509.24	
LED-WPE-54-1-Fixt-XX-XX-XX-XX	0.054	\$ 516.90	
LED-WPE-55-1-Fixt-XX-XX-XX-XX	0.055	\$ 524.56	
LED-WPE-56-1-Fixt-XX-XX-XX-XX	0.056	\$ 532.22	
LED-WPE-57-1-Fixt-XX-XX-XX-XX	0.057	\$ 539.88	
LED-WPE-58-1-Fixt-XX-XX-XX-XX	0.058	\$ 547.54	
LED-WPE-59-1-Fixt-XX-XX-XX-XX	0.059	\$ 555.20	
LED-WPE-60-1-Fixt-XX-XX-XX-XX	0.060	\$ 562.86	
LED-WPE-61-1-Fixt-XX-XX-XX-XX	0.061	\$ 570.52	
LED-WPE-62-1-Fixt-XX-XX-XX-XX	0.062	\$ 578.18	
LED-WPE-63-1-Fixt-XX-XX-XX-XX	0.063	\$ 585.84	
LED-WPE-64-1-Fixt-XX-XX-XX-XX	0.064	\$ 593.50	
LED-WPE-65-1-Fixt-XX-XX-XX-XX	0.065	\$ 601.16	
LED-WPE-66-1-Fixt-XX-XX-XX-XX	0.066	\$ 608.82	
LED-WPE-67-1-Fixt-XX-XX-XX-XX	0.067	\$ 616.48	
LED-WPE-68-1-Fixt-XX-XX-XX-XX	0.068	\$ 624.14	
LED-WPE-69-1-Fixt-XX-XX-XX-XX	0.069	\$ 631.80	
LED-WPE-70-1-Fixt-XX-XX-XX-XX	0.070	\$ 639.46	
LED-WPE-71-1-Fixt-XX-XX-XX-XX	0.071	\$ 647.12	
LED-WPE-72-1-Fixt-XX-XX-XX-XX	0.072	\$ 654.78	
LED-WPE-73-1-Fixt-XX-XX-XX-XX	0.073	\$ 662.44	
LED-WPE-74-1-Fixt-XX-XX-XX-XX	0.074	\$ 670.10	
LED-WPE-75-1-Fixt-XX-XX-XX-XX	0.075	\$ 677.76	
LED-WPE-76-1-Fixt-XX-XX-XX-XX	0.076	\$ 685.42	
LED-WPE-77-1-Fixt-XX-XX-XX-XX	0.077	\$ 693.08	
LED-WPE-78-1-Fixt-XX-XX-XX-XX	0.078	\$ 700.74	
LED-WPE-79-1-Fixt-XX-XX-XX-XX	0.079	\$ 708.40	
LED-WPE-80-1-Fixt-XX-XX-XX-XX	0.080	\$ 716.06	
LED-WPE-81-1-Fixt-XX-XX-XX-XX	0.081	\$ 723.72	
LED-WPE-82-1-Fixt-XX-XX-XX-XX	0.082	\$ 731.38	
LED-WPE-83-1-Fixt-XX-XX-XX-XX	0.083	\$ 739.04	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-WPE-84-1-Fixt-XX-XX-XX-XX	0.084	\$ 746.70	
LED-WPE-85-1-Fixt-XX-XX-XX-XX	0.085	\$ 754.36	
LED-WPE-86-1-Fixt-XX-XX-XX-XX	0.086	\$ 762.02	
LED-WPE-87-1-Fixt-XX-XX-XX-XX	0.087	\$ 769.68	
LED-WPE-88-1-Fixt-XX-XX-XX-XX	0.088	\$ 777.34	
LED-WPE-89-1-Fixt-XX-XX-XX-XX	0.089	\$ 785.00	
LED-WPE-90-1-Fixt-XX-XX-XX-XX	0.090	\$ 792.66	
LED-WPE-91-1-Fixt-XX-XX-XX-XX	0.091	\$ 800.32	
LED-WPE-92-1-Fixt-XX-XX-XX-XX	0.092	\$ 807.98	
LED-WPE-93-1-Fixt-XX-XX-XX-XX	0.093	\$ 815.64	
LED-WPE-94-1-Fixt-XX-XX-XX-XX	0.094	\$ 823.30	
LED-WPE-95-1-Fixt-XX-XX-XX-XX	0.095	\$ 830.96	
LED-WPE-96-1-Fixt-XX-XX-XX-XX	0.096	\$ 838.62	
LED-WPE-97-1-Fixt-XX-XX-XX-XX	0.097	\$ 846.28	
LED-WPE-98-1-Fixt-XX-XX-XX-XX	0.098	\$ 853.94	
LED-WPE-99-1-Fixt-XX-XX-XX-XX	0.099	\$ 861.60	
LED-WPG-100-1-Fixt-XX-XX-XX-XX	0.100	\$ 869.26	
LED-WPG-101-1-Fixt-XX-XX-XX-XX	0.101	\$ 876.92	
LED-WPG-10-1-Fixt-XX-XX-XX-XX	0.010	\$ 179.86	
LED-WPG-102-1-Fixt-XX-XX-XX-XX	0.102	\$ 884.58	
LED-WPG-103-1-Fixt-XX-XX-XX-XX	0.103	\$ 892.24	
LED-WPG-104-1-Fixt-XX-XX-XX-XX	0.104	\$ 899.90	
LED-WPG-105-1-Fixt-XX-XX-XX-XX	0.105	\$ 907.56	
LED-WPG-106-1-Fixt-XX-XX-XX-XX	0.106	\$ 915.22	
LED-WPG-107-1-Fixt-XX-XX-XX-XX	0.107	\$ 922.88	
LED-WPG-108-1-Fixt-XX-XX-XX-XX	0.108	\$ 930.54	
LED-WPG-109-1-Fixt-XX-XX-XX-XX	0.109	\$ 938.20	
LED-WPG-110-1-Fixt-XX-XX-XX-XX	0.110	\$ 945.86	
LED-WPG-111-1-Fixt-XX-XX-XX-XX	0.111	\$ 953.52	
LED-WPG-11-1-Fixt-XX-XX-XX-XX	0.011	\$ 187.52	
LED-WPG-112-1-Fixt-XX-XX-XX-XX	0.112	\$ 961.18	
LED-WPG-113-1-Fixt-XX-XX-XX-XX	0.113	\$ 968.84	
LED-WPG-114-1-Fixt-XX-XX-XX-XX	0.114	\$ 976.50	
LED-WPG-115-1-Fixt-XX-XX-XX-XX	0.115	\$ 984.16	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-WPG-116-1-Fixt-XX-XX-XX-XX	0.116	\$ 991.82	
LED-WPG-117-1-Fixt-XX-XX-XX-XX	0.117	\$ 999.48	
LED-WPG-118-1-Fixt-XX-XX-XX-XX	0.118	\$ 1,007.14	
LED-WPG-119-1-Fixt-XX-XX-XX-XX	0.119	\$ 1,014.80	
LED-WPG-120-1-Fixt-XX-XX-XX-XX	0.120	\$ 1,022.46	
LED-WPG-121-1-Fixt-XX-XX-XX-XX	0.121	\$ 1,030.12	
LED-WPG-12-1-Fixt-XX-XX-XX-XX	0.012	\$ 195.18	
LED-WPG-122-1-Fixt-XX-XX-XX-XX	0.122	\$ 1,037.78	
LED-WPG-123-1-Fixt-XX-XX-XX-XX	0.123	\$ 1,045.44	
LED-WPG-124-1-Fixt-XX-XX-XX-XX	0.124	\$ 1,053.10	
LED-WPG-125-1-Fixt-XX-XX-XX-XX	0.125	\$ 1,060.76	
LED-WPG-126-1-Fixt-XX-XX-XX-XX	0.126	\$ 1,068.42	
LED-WPG-127-1-Fixt-XX-XX-XX-XX	0.127	\$ 1,076.08	
LED-WPG-128-1-Fixt-XX-XX-XX-XX	0.128	\$ 1,083.74	
LED-WPG-129-1-Fixt-XX-XX-XX-XX	0.129	\$ 1,091.40	
LED-WPG-130-1-Fixt-XX-XX-XX-XX	0.130	\$ 1,099.06	
LED-WPG-131-1-Fixt-XX-XX-XX-XX	0.131	\$ 1,106.72	
LED-WPG-13-1-Fixt-XX-XX-XX-XX	0.013	\$ 202.84	
LED-WPG-132-1-Fixt-XX-XX-XX-XX	0.132	\$ 1,114.38	
LED-WPG-133-1-Fixt-XX-XX-XX-XX	0.133	\$ 1,122.04	
LED-WPG-134-1-Fixt-XX-XX-XX-XX	0.134	\$ 1,129.70	
LED-WPG-135-1-Fixt-XX-XX-XX-XX	0.135	\$ 1,137.36	
LED-WPG-136-1-Fixt-XX-XX-XX-XX	0.136	\$ 1,145.02	
LED-WPG-137-1-Fixt-XX-XX-XX-XX	0.137	\$ 1,152.68	
LED-WPG-138-1-Fixt-XX-XX-XX-XX	0.138	\$ 1,160.34	
LED-WPG-139-1-Fixt-XX-XX-XX-XX	0.139	\$ 1,168.00	
LED-WPG-140-1-Fixt-XX-XX-XX-XX	0.140	\$ 1,175.66	
LED-WPG-141-1-Fixt-XX-XX-XX-XX	0.141	\$ 1,183.32	
LED-WPG-14-1-Fixt-XX-XX-XX-XX	0.014	\$ 210.50	
LED-WPG-142-1-Fixt-XX-XX-XX-XX	0.142	\$ 1,190.98	
LED-WPG-143-1-Fixt-XX-XX-XX-XX	0.143	\$ 1,198.64	
LED-WPG-144-1-Fixt-XX-XX-XX-XX	0.144	\$ 1,206.30	
LED-WPG-145-1-Fixt-XX-XX-XX-XX	0.145	\$ 1,213.96	
LED-WPG-146-1-Fixt-XX-XX-XX-XX	0.146	\$ 1,221.62	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-WPG-147-1-Fixt-XX-XX-XX-XX	0.147	\$ 1,229.28	
LED-WPG-148-1-Fixt-XX-XX-XX-XX	0.148	\$ 1,236.94	
LED-WPG-149-1-Fixt-XX-XX-XX-XX	0.149	\$ 1,244.60	
LED-WPG-150-1-Fixt-XX-XX-XX-XX	0.150	\$ 1,252.26	
LED-WPG-15-1-Fixt-XX-XX-XX-XX	0.015	\$ 218.16	
LED-WPG-16-1-Fixt-XX-XX-XX-XX	0.016	\$ 225.82	
LED-WPG-17-1-Fixt-XX-XX-XX-XX	0.017	\$ 233.48	
LED-WPG-18-1-Fixt-XX-XX-XX-XX	0.018	\$ 241.14	
LED-WPG-19-1-Fixt-XX-XX-XX-XX	0.019	\$ 248.80	
LED-WPG-20-1-Fixt-XX-XX-XX-XX	0.020	\$ 256.46	
LED-WPG-21-1-Fixt-XX-XX-XX-XX	0.021	\$ 264.12	
LED-WPG-22-1-Fixt-XX-XX-XX-XX	0.022	\$ 271.78	
LED-WPG-23-1-Fixt-XX-XX-XX-XX	0.023	\$ 279.44	
LED-WPG-24-1-Fixt-XX-XX-XX-XX	0.024	\$ 287.10	
LED-WPG-25-1-Fixt-XX-XX-XX-XX	0.025	\$ 294.76	
LED-WPG-26-1-Fixt-XX-XX-XX-XX	0.026	\$ 302.42	
LED-WPG-27-1-Fixt-XX-XX-XX-XX	0.027	\$ 310.08	
LED-WPG-28-1-Fixt-XX-XX-XX-XX	0.028	\$ 317.74	
LED-WPG-29-1-Fixt-XX-XX-XX-XX	0.029	\$ 325.40	
LED-WPG-30-1-Fixt-XX-XX-XX-XX	0.030	\$ 333.06	
LED-WPG-31-1-Fixt-XX-XX-XX-XX	0.031	\$ 340.72	
LED-WPG-32-1-Fixt-XX-XX-XX-XX	0.032	\$ 348.38	
LED-WPG-33-1-Fixt-XX-XX-XX-XX	0.033	\$ 356.04	
LED-WPG-34-1-Fixt-XX-XX-XX-XX	0.034	\$ 363.70	
LED-WPG-35-1-Fixt-XX-XX-XX-XX	0.035	\$ 371.36	
LED-WPG-36-1-Fixt-XX-XX-XX-XX	0.036	\$ 379.02	
LED-WPG-37-1-Fixt-XX-XX-XX-XX	0.037	\$ 386.68	
LED-WPG-38-1-Fixt-XX-XX-XX-XX	0.038	\$ 394.34	
LED-WPG-39-1-Fixt-XX-XX-XX-XX	0.039	\$ 402.00	
LED-WPG-40-1-Fixt-XX-XX-XX-XX	0.040	\$ 409.66	
LED-WPG-41-1-Fixt-XX-XX-XX-XX	0.041	\$ 417.32	
LED-WPG-42-1-Fixt-XX-XX-XX-XX	0.042	\$ 424.98	
LED-WPG-43-1-Fixt-XX-XX-XX-XX	0.043	\$ 432.64	
LED-WPG-44-1-Fixt-XX-XX-XX-XX	0.044	\$ 440.30	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-WPG-45-1-Fixt-XX-XX-XX-XX	0.045	\$ 447.96	
LED-WPG-46-1-Fixt-XX-XX-XX-XX	0.046	\$ 455.62	
LED-WPG-47-1-Fixt-XX-XX-XX-XX	0.047	\$ 463.28	
LED-WPG-48-1-Fixt-XX-XX-XX-XX	0.048	\$ 470.94	
LED-WPG-49-1-Fixt-XX-XX-XX-XX	0.049	\$ 478.60	
LED-WPG-50-1-Fixt-XX-XX-XX-XX	0.050	\$ 486.26	
LED-WPG-51-1-Fixt-XX-XX-XX-XX	0.051	\$ 493.92	
LED-WPG-52-1-Fixt-XX-XX-XX-XX	0.052	\$ 501.58	
LED-WPG-53-1-Fixt-XX-XX-XX-XX	0.053	\$ 509.24	
LED-WPG-54-1-Fixt-XX-XX-XX-XX	0.054	\$ 516.90	
LED-WPG-55-1-Fixt-XX-XX-XX-XX	0.055	\$ 524.56	
LED-WPG-56-1-Fixt-XX-XX-XX-XX	0.056	\$ 532.22	
LED-WPG-57-1-Fixt-XX-XX-XX-XX	0.057	\$ 539.88	
LED-WPG-58-1-Fixt-XX-XX-XX-XX	0.058	\$ 547.54	
LED-WPG-59-1-Fixt-XX-XX-XX-XX	0.059	\$ 555.20	
LED-WPG-60-1-Fixt-XX-XX-XX-XX	0.060	\$ 562.86	
LED-WPG-61-1-Fixt-XX-XX-XX-XX	0.061	\$ 570.52	
LED-WPG-62-1-Fixt-XX-XX-XX-XX	0.062	\$ 578.18	
LED-WPG-63-1-Fixt-XX-XX-XX-XX	0.063	\$ 585.84	
LED-WPG-64-1-Fixt-XX-XX-XX-XX	0.064	\$ 593.50	
LED-WPG-65-1-Fixt-XX-XX-XX-XX	0.065	\$ 601.16	
LED-WPG-66-1-Fixt-XX-XX-XX-XX	0.066	\$ 608.82	
LED-WPG-67-1-Fixt-XX-XX-XX-XX	0.067	\$ 616.48	
LED-WPG-68-1-Fixt-XX-XX-XX-XX	0.068	\$ 624.14	
LED-WPG-69-1-Fixt-XX-XX-XX-XX	0.069	\$ 631.80	
LED-WPG-70-1-Fixt-XX-XX-XX-XX	0.070	\$ 639.46	
LED-WPG-71-1-Fixt-XX-XX-XX-XX	0.071	\$ 647.12	
LED-WPG-72-1-Fixt-XX-XX-XX-XX	0.072	\$ 654.78	
LED-WPG-73-1-Fixt-XX-XX-XX-XX	0.073	\$ 662.44	
LED-WPG-74-1-Fixt-XX-XX-XX-XX	0.074	\$ 670.10	
LED-WPG-75-1-Fixt-XX-XX-XX-XX	0.075	\$ 677.76	
LED-WPG-76-1-Fixt-XX-XX-XX-XX	0.076	\$ 685.42	
LED-WPG-77-1-Fixt-XX-XX-XX-XX	0.077	\$ 693.08	
LED-WPG-78-1-Fixt-XX-XX-XX-XX	0.078	\$ 700.74	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
LED-WPG-79-1-Fixt-XX-XX-XX-XX	0.079	\$ 708.40	
LED-WPG-80-1-Fixt-XX-XX-XX-XX	0.080	\$ 716.06	
LED-WPG-81-1-Fixt-XX-XX-XX-XX	0.081	\$ 723.72	
LED-WPG-82-1-Fixt-XX-XX-XX-XX	0.082	\$ 731.38	
LED-WPG-83-1-Fixt-XX-XX-XX-XX	0.083	\$ 739.04	
LED-WPG-84-1-Fixt-XX-XX-XX-XX	0.084	\$ 746.70	
LED-WPG-85-1-Fixt-XX-XX-XX-XX	0.085	\$ 754.36	
LED-WPG-86-1-Fixt-XX-XX-XX-XX	0.086	\$ 762.02	
LED-WPG-87-1-Fixt-XX-XX-XX-XX	0.087	\$ 769.68	
LED-WPG-88-1-Fixt-XX-XX-XX-XX	0.088	\$ 777.34	
LED-WPG-89-1-Fixt-XX-XX-XX-XX	0.089	\$ 785.00	
LED-WPG-90-1-Fixt-XX-XX-XX-XX	0.090	\$ 792.66	
LED-WPG-91-1-Fixt-XX-XX-XX-XX	0.091	\$ 800.32	
LED-WPG-92-1-Fixt-XX-XX-XX-XX	0.092	\$ 807.98	
LED-WPG-93-1-Fixt-XX-XX-XX-XX	0.093	\$ 815.64	
LED-WPG-94-1-Fixt-XX-XX-XX-XX	0.094	\$ 823.30	
LED-WPG-95-1-Fixt-XX-XX-XX-XX	0.095	\$ 830.96	
LED-WPG-96-1-Fixt-XX-XX-XX-XX	0.096	\$ 838.62	
LED-WPG-97-1-Fixt-XX-XX-XX-XX	0.097	\$ 846.28	
LED-WPG-98-1-Fixt-XX-XX-XX-XX	0.098	\$ 853.94	
LED-WPG-99-1-Fixt-XX-XX-XX-XX	0.099	\$ 861.60	
MH-CSO-100-1-Fixt-MB-XX-XX-XX	0.125	\$ 150.00	
MH-CSO-150-1-Fixt-MB-XX-XX-XX	0.185	\$ 150.00	
MH-CSO-175-1-Fixt-MB-XX-XX-XX	0.210	\$ 200.00	
MH-CSO-250-1-Fixt-MB-XX-XX-XX	0.295	\$ 250.00	
MH-CSO-400-1-Fixt-MB-XX-XX-XX	0.454	\$ 400.00	
MH-GEN-1000-1-Fixt-MB-XX-XX-XX	1.080	\$ 270.00	
MH-GEN-100-1-Fixt-MB-XX-XX-XX	0.130	\$ 107.88	
MH-GEN-1500-1-Fixt-MB-XX-XX-XX	1.610	\$ 280.00	
MH-GEN-150-1-Fixt-MB-XX-XX-XX	0.185	\$ 91.82	
MH-GEN-175-1-Fixt-MB-XX-XX-XX	0.210	\$ 91.82	
MH-GEN-250-1-Fixt-MB-XX-XX-XX	0.295	\$ 147.88	
MH-GEN-400-1-Fixt-MB-XX-XX-XX	0.456	\$ 175.00	
MH-GEN-750-1-Fixt-MB-XX-XX-XX	0.850	\$ 270.50	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
MH-WPE-100-1-Fixt-MB-XX-XX-XX	0.125	\$ 189.00	
MH-WPE-150-1-Fixt-MB-XX-XX-XX	0.173	\$ 189.00	
MH-WPE-175-1-Fixt-MB-XX-XX-XX	0.210	\$ 189.00	
MH-WPE-250-1-Fixt-MB-XX-XX-XX	0.295	\$ 189.00	
MH-WPE-35-1-Fixt-MB-XX-XX-XX	0.048	\$ 189.00	
MH-WPE-400-1-Fixt-MB-XX-XX-XX	0.454	\$ 189.00	
MH-WPE-50-1-Fixt-MB-XX-XX-XX	0.062	\$ 189.00	
MH-WPE-70-1-Fixt-MB-XX-XX-XX	0.093	\$ 189.00	
MV-CSO-100-1-Fixt-MB-XX-XX-XX	0.122	\$ 374.00	
MV-CSO-175-1-Fixt-MB-XX-XX-XX	0.205	\$ 374.00	
MV-CSO-250-1-Fixt-MB-XX-XX-XX	0.285	\$ 374.00	
MV-CSO-400-1-Fixt-MB-XX-XX-XX	0.454	\$ 374.00	
MV-GEN-1000-1-Fixt-MB-XX-XX-XX	1.080	\$ 295.00	
MV-GEN-100-1-Fixt-MB-XX-XX-XX	0.122	\$ 107.88	
MV-GEN-175-1-Fixt-MB-XX-XX-XX	0.205	\$ 91.82	
MV-GEN-250-1-Fixt-MB-XX-XX-XX	0.285	\$ 147.88	
MV-GEN-400-1-Fixt-MB-XX-XX-XX	0.454	\$ 175.00	
MV-GEN-75-1-Fixt-MB-XX-XX-XX	0.075	\$ 41.45	
MV-WPE-100-1-Fixt-MB-XX-XX-XX	0.120	\$ 189.00	
MV-WPE-175-1-Fixt-MB-XX-XX-XX	0.205	\$ 189.00	
MV-WPE-250-1-Fixt-MB-XX-XX-XX	0.285	\$ 189.00	
MV-WPE-400-1-Fixt-MB-XX-XX-XX	0.454	\$ 189.00	
MV-WPE-50-1-Fixt-MB-XX-XX-XX	0.075	\$ 189.00	
MV-WPE-75-1-Fixt-MB-XX-XX-XX	0.095	\$ 189.00	
PSMH-CSO-100-1-Fixt-ESMB-XX-XX-XX	0.118	\$ 374.00	
PSMH-CSO-100-1-Fixt-MB-XX-XX-XX	0.128	\$ 374.00	
PSMH-CSO-125-1-Fixt-ESMB-XX-XX-XX	0.141	\$ 374.00	
PSMH-CSO-125-1-Fixt-MB-XX-XX-XX	0.150	\$ 374.00	
PSMH-CSO-150-1-Fixt-ESMB-XX-XX-XX	0.173	\$ 374.00	
PSMH-CSO-150-1-Fixt-MB-XX-XX-XX	0.189	\$ 374.00	
PSMH-CSO-175-1-Fixt-ESMB-XX-XX-XX	0.189	\$ 374.00	
PSMH-CSO-175-1-Fixt-MB-XX-XX-XX	0.208	\$ 374.00	
PSMH-CSO-200-1-Fixt-ESMB-XX-XX-XX	0.218	\$ 374.00	
PSMH-CSO-200-1-Fixt-MB-XX-XX-XX	0.232	\$ 374.00	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
PSMH-CSO-250-1-Fixt-ESMB-XX-XX-XX	0.272	\$ 374.00	
PSMH-CSO-250-1-Fixt-MB-XX-XX-XX	0.290	\$ 374.00	
PSMH-CSO-320-1-Fixt-ESMB-XX-XX-XX	0.342	\$ 374.00	
PSMH-CSO-320-1-Fixt-MB-XX-XX-XX	0.370	\$ 374.00	
PSMH-CSO-350-1-Fixt-ESMB-XX-XX-XX	0.375	\$ 374.00	
PSMH-CSO-350-1-Fixt-MB-XX-XX-XX	0.410	\$ 374.00	
PSMH-CSO-400-1-Fixt-ESMB-XX-XX-XX	0.425	\$ 374.00	
PSMH-CSO-400-1-Fixt-MB-XX-XX-XX	0.465	\$ 374.00	
PSMH-CSO-450-1-Fixt-ESMB-XX-XX-XX	0.480	\$ 374.00	
PSMH-CSO-450-1-Fixt-MB-XX-XX-XX	0.506	\$ 374.00	
PSMH-GEN-1000-1-Fixt-MB-XX-XX-XX	1.080	\$ 280.00	
PSMH-GEN-100-1-Fixt-ESMB-XX-XX-XX	0.118	\$ 161.00	
PSMH-GEN-100-1-Fixt-MB-XX-XX-XX	0.128	\$ 161.00	
PSMH-GEN-125-1-Fixt-ESMB-XX-XX-XX	0.141	\$ 161.00	
PSMH-GEN-125-1-Fixt-MB-XX-XX-XX	0.150	\$ 161.00	
PSMH-GEN-150-1-Fixt-ESMB-XX-XX-XX	0.173	\$ 161.00	
PSMH-GEN-150-1-Fixt-MB-XX-XX-XX	0.189	\$ 161.00	
PSMH-GEN-175-1-Fixt-ESMB-XX-XX-XX	0.189	\$ 161.00	
PSMH-GEN-175-1-Fixt-MB-XX-XX-XX	0.208	\$ 161.00	
PSMH-GEN-200-1-Fixt-ESMB-XX-XX-XX	0.218	\$ 280.00	
PSMH-GEN-200-1-Fixt-MB-XX-XX-XX	0.232	\$ 280.00	
PSMH-GEN-250-1-Fixt-ESMB-XX-XX-XX	0.272	\$ 280.00	
PSMH-GEN-250-1-Fixt-MB-XX-XX-XX	0.290	\$ 280.00	
PSMH-GEN-320-1-Fixt-ESMB-XX-XX-XX	0.342	\$ 283.00	
PSMH-GEN-320-1-Fixt-MB-XX-XX-XX	0.370	\$ 283.00	
PSMH-GEN-350-1-Fixt-ESMB-XX-XX-XX	0.375	\$ 283.00	
PSMH-GEN-350-1-Fixt-MB-XX-XX-XX	0.410	\$ 283.00	
PSMH-GEN-400-1-Fixt-ESMB-XX-XX-XX	0.425	\$ 334.00	
PSMH-GEN-400-1-Fixt-MB-XX-XX-XX	0.465	\$ 407.31	
PSMH-GEN-450-1-Fixt-ESMB-XX-XX-XX	0.480	\$ 283.00	
PSMH-GEN-450-1-Fixt-MB-XX-XX-XX	0.506	\$ 283.00	
PSMH-GEN-50-1-Fixt-ESMB-XX-XX-XX	0.062	\$ 272.30	
PSMH-GEN-50-1-Fixt-MB-XX-XX-XX	0.072	\$ 272.30	
PSMH-GEN-70-1-Fixt-ESMB-XX-XX-XX	0.085	\$ 668.10	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lighting Equipment Table

Efficient Fixture, Lamp or Lighting Control	kW	Full Cost	Sensor Eligible
PSMH-GEN-70-1-Fixt-MB-XX-XX-XX	0.090	\$ 627.80	
PSMH-GEN-750-1-Fixt-MB-XX-XX-XX	0.812	\$ 280.00	
PSMH-WPE-100-1-Fixt-ESMB-XX-XX-XX	0.118	\$ 105.00	
PSMH-WPE-100-1-Fixt-MB-XX-XX-XX	0.128	\$ 105.00	
PSMH-WPE-125-1-Fixt-ESMB-XX-XX-XX	0.141	\$ 125.00	
PSMH-WPE-125-1-Fixt-MB-XX-XX-XX	0.150	\$ 125.00	
PSMH-WPE-150-1-Fixt-ESMB-XX-XX-XX	0.173	\$ 150.00	
PSMH-WPE-150-1-Fixt-MB-XX-XX-XX	0.189	\$ 150.00	
PSMH-WPE-175-1-Fixt-ESMB-XX-XX-XX	0.189	\$ 175.00	
PSMH-WPE-175-1-Fixt-MB-XX-XX-XX	0.208	\$ 175.00	
PSMH-WPE-200-1-Fixt-ESMB-XX-XX-XX	0.218	\$ 200.00	
PSMH-WPE-200-1-Fixt-MB-XX-XX-XX	0.232	\$ 200.00	
PSMH-WPE-250-1-Fixt-ESMB-XX-XX-XX	0.272	\$ 250.00	
PSMH-WPE-250-1-Fixt-MB-XX-XX-XX	0.290	\$ 250.00	
PSMH-WPE-320-1-Fixt-ESMB-XX-XX-XX	0.342	\$ 320.00	
PSMH-WPE-320-1-Fixt-MB-XX-XX-XX	0.370	\$ 320.00	
PSMH-WPE-350-1-Fixt-ESMB-XX-XX-XX	0.375	\$ 350.00	
PSMH-WPE-350-1-Fixt-MB-XX-XX-XX	0.410	\$ 350.00	
PSMH-WPE-400-1-Fixt-ESMB-XX-XX-XX	0.425	\$ 400.00	
PSMH-WPE-400-1-Fixt-MB-XX-XX-XX	0.465	\$ 400.00	
PSMH-WPE-450-1-Fixt-ESMB-XX-XX-XX	0.480	\$ 450.00	
PSMH-WPE-450-1-Fixt-MB-XX-XX-XX	0.506	\$ 450.00	
PSMH-WPE-50-1-Fixt-ESMB-XX-XX-XX	0.062	\$ 105.00	
PSMH-WPE-50-1-Fixt-MB-XX-XX-XX	0.072	\$ 105.00	
PSMH-WPE-70-1-Fixt-ESMB-XX-XX-XX	0.085	\$ 105.00	
PSMH-WPE-70-1-Fixt-MB-XX-XX-XX	0.090	\$ 105.00	

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 7: Lighting Equipment Sensor Table

Efficient Fixture, Lamp or Lighting Control	PAF	Full Cost
Ceiling Mount	0.70	125
Daylight Continuous Dimming	0.70	65
Daylight Multi-Step Dimming	0.80	65
Daylight On/Off	0.90	65
Wall Mount	0.70	55

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Motor & Drive Efficiency

Description

Prescriptive rebates will be offered for new motors (Plan A) up to 500 hp and replacement of currently operating motors (Plan B) up to 500 hp, installation of new variable frequency drives (VFD) up to 200 hp and Constant Speed Motor Controllers up to 500HP.

Algorithms:

Motor Electrical Energy Savings (Customer kWh)	= HP x LF_Motors x Conversion x (1/Standard_Eff - 1/ High_Eff) x Hrs x Refrigeration_Factor
Motor Electrical Demand Savings (Customer kW)	= HP x LF_Motors x Conversion x (1/Standard_Eff - 1/ High_Eff) x Refrigeration_Factor
VFD Drive Electrical Energy Savings (Customer kWh)	= HP x LF_Drives x Conversion x (1/Standard_Eff) x Hrs x %_Savings_Drives x Refrigeration_Factor
VFD Drive Electrical Demand Savings (Customer kW)	= HP x LF_Drives x Conversion x (1/Standard_Eff) x %_Savings_Drives x Refrigeration_Factor
Constant Speed Motor Controller Electrical Energy Savings (Customer kWh)	= HP x kW_per_HP x Hrs
Constant Speed Motor Controller Electrical Demand Savings (Customer kW)	= HP x kW_per_HP
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

Variables:

Hrs	= Annual operational hours per year of the motor. Deemed values are used for hours based on the type and use of the motor as seen in Tables 1, 2, & 3. The customer provides the following information on the rebate form (HP, Industrial/non industrial, building type, and compressor/pump/fan/other)
LF_Motors	= Motor load factor as percentage (0 - 100). The assumed value of 75% will be used for prescriptive motors. (Reference 3)
LF_Drives	= Drive load factor as percentage (0 - 100). The assumed value of 75% will be used for prescriptive pumping drives and 65% will be used for prescriptive fan drives. (Reference 5)
HP	= Rated motor horsepower provided by customer on rebate form.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

High_Eff	= Efficiency of high efficiency replacement motor as percentage (0-100). Plan A high efficiency is NEMA Premium plus 1%. Plan B high efficiency is NEMA Premium. Plan B Enhanced high efficiency is NEMA Premium plus 1%. Efficiencies shown in the Deemed Motor Tables. The customer will provide the model and serial number of the motor along with actual nameplate efficiency from the new motor. If the actual efficiency is not provided by the customer, it will be determined from specification sheet.
Standard_Eff	= Efficiency of standard replacement motor as percentage (0 - 100). Plan A is NEMA Premium. Plan B is EPACKT. Plan B Enhanced is EPACKT. Efficiencies shown in Deemed Motor Tables. Based on customer provided motor size, speed, and type.
%_Savings_Drives	= Average savings achieved by installing a variable frequency drive on a fan or pumping motor. 33% will be used for prescriptive drive rebates. (Reference 5)
kW_per_HP	= Demand savings per horsepower for constant speed motor controller applications. We will use 0.0586 for escalators (Reference 9) and 0.013 for all other qualifying applications (Reference 10)
Refrigeration_Factor	= Multiplier to include interactive effects of refrigeration/cooling energy to remove heat from the motor. Reduction in motor energy results in a reduction in refrigeration/cooling energy. = 1+1/COP (See assumptions for values)
COP	= Coefficient of Performance = refrigeration/cooling capacity(btu/hr)/energy input(btu/hr)
Conversion	= Standard conversion from horsepower to kW. 1 HP = .746 kW
Coincidence Factor	= Probability that peak demand of the motor will coincide with peak utility system demand. 0.78 will be used for prescriptive rebates, see Reference 2.
Measure Life	= Length of time the motor/drive will be operational = 20 years for new, replacement motors, CS motor controllers & 15 years for VFDs (Reference 3,11)
Baseline and incremental cost assumptions	= The customer will provide the model and serial number of the motor and from that the size, type and rpm of the motor/drive will determine the deemed baseline cost or incremental cost. (Reference 8-motor replacement, and VFDs , 10-CS Motor Controllers)
TDLF	A transmission distribution loss factor of 6.5%
NTG	Net-to-Gross factors - 65% as the NTG for motor replacement, VFD, and custom products. For CS Motor Controllers 95% is used. (Reference 7)
Incremental operation and maintenance costs or savings	= 0 value assumed for this product

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Incremental cost	Motors - see Deemed Motor Table 6. VFDs - see Deemed ASD Table 7. Motor Controllers - see Deemed Motor Controller Table 3.
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Inputs: **Verified during M&V:**

For Motors:	
New motor model and serial number (HP, efficiency, type, and speed can then be looked up in a database)	Yes
Application of motor (Industrial/non Industrial)	Yes
Building type where motor is installed for non industrial motors	Yes
Use of motor (pump, fan, other) for non industrial motors	Yes
Equipment is installed	Yes
For Variable Frequency Drives (VFD):	
Size, speed, type and use of motor drive is connected to	Yes
Application of motor (Industrial/non Industrial)	Yes
Building type where motor is installed for non industrial motors	Yes
Use of motor (pump, fan, other) for non industrial motors	Yes
Equipment is installed	Yes
For Constant Speed Motor Controllers:	
Size of motor	
Application of motor (Escalator/Other that qualify)	

Assumptions:

- Each motor is replaced with the same size on a 1 for 1 basis. Motors replaced with different sizes can participate in the Custom Efficiency product.
- Prescriptive rebates are only given for motors put into service, rebates are not given for backup motors.
- Prescriptive rebates are only given to variable frequency drives installed on centrifugal pump or fan applications.
- Rebates do not apply to rewind or repaired motors.
- Constant speed motor controllers are only eligible if installed on escalators, or industrial/commercial applications that cannot be shut of or slowed down during normal business operation, and operate at a load factor of less than 20% more than 65% of the time.
- COP Deemed at 1.43 for Low Temperature Applications and 2.28 for Medium Temperature Applications, from our anti-sweat heater projects, EC Motor custom projects and are consistent with custom projects from various custom refrigeration applications.
- COP Deemed at 4.0 for Data Center Applications based on custom projects from various custom data center applications.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Tables

Table 1: Operating Hours by Motor Size, Industrial Applications (5)

HP	Fans	Pumps	Air Compressor	Other
1	4,550	3,380	1,257	2,435
1.5	4,550	3,380	1,257	2,435
2	4,550	3,380	1,257	2,435
3	4,550	3,380	1,257	2,435
5	4,550	3,380	1,257	2,435
7.5	4,316	4,121	2,131	2,939
10	4,316	4,121	2,131	2,939
15	4,316	4,121	2,131	2,939
20	4,316	4,121	2,131	2,939
25	5,101	4,889	3,528	3,488
30	5,101	4,889	3,528	3,488
40	5,101	4,889	3,528	3,488
50	5,101	4,889	3,528	3,488
60	6,151	5,667	4,520	5,079
75	6,151	5,667	4,520	5,079
100	6,151	5,667	4,520	5,079
125	5,964	5,126	4,685	5,137
150	5,964	5,126	4,685	5,137
200	5,964	5,126	4,685	5,137
250	7,044	5,968	6,148	6,102
300	7,044	5,968	6,148	6,102
350	7,044	5,968	6,148	6,102
400	7,044	5,968	6,148	6,102
450	7,044	5,968	6,148	6,102
500	7,044	5,968	6,148	6,102

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 2: Operating Hours by Application for all products other than motor controllers, Non-industrial (3)

Building Type	Operating Hours
Office HVAC Pump	2,000
Retail HVAC Pump	2,000
Hospitals HVAC Pump	2,754
Elem/Sec Schools HVAC Pump	2,190
Restaurant HVAC Pump	2,000
Warehouse HVAC Pump	2,241
Hotels/Motels HVAC Pump	4,231
Grocery HVAC Pump	2,080
Health HVAC Pump	2,559
College/Univ HVAC Pump	3,641
Office Ventilation Fan	6,192
Retail Ventilation Fan	3,261
Hospitals Ventilation Fan	8,374
Elem/Sec Schools Ventilation Fan	3,699
Restaurant Ventilation Fan	4,155
Warehouse Ventilation Fan	6,389
Hotels/Motels Ventilation Fan	3,719
Grocery Ventilation Fan	6,389
Health Ventilation Fan	2,000
College/Univ Ventilation Fan	3,631
Office Other Application	4,500
Retail Other Application	4,500
Hospitals Other Application	4,500
Elem/Sec Schools Other Application	4,500
Restaurant Other Application	4,500
Warehouse Other Application	4,500
Hotels/Motels Other Application	4,500
Grocery Other Application	4,500
Health Other Application	4,500
College/Univ Other Application	4,500

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 3: Operating Hours & Incremental Cost for Motor Controllers by Application, Non-industrial (Reference 4 ,10)

Building Type and motor application	Escalator	Industrial	Incremental Cost
5	4,500	2,435	\$918
7.5	4,500	2,939	\$918
10	4,500	2,939	\$918
15	4,500	2,939	\$918
20	4,500	2,939	\$933
25	4,500	3,488	\$1,012
30	4,500	3,488	\$1,091
40	4,500	3,488	\$1,300
50	4,500	3,488	\$1,497
60	4,500	5,079	\$1,796
75	4,500	5,079	\$1,943
100	4,500	5,079	\$2,389
125	4,500	5,137	\$3,087
150	4,500	5,137	\$3,784
200	4,500	5,137	\$4,555
250	4,500	6,102	\$4,655
300	4,500	6,102	\$4,755
350	4,500	6,102	\$4,855
400	4,500	6,102	\$4,955
450	4,500	6,102	\$5,055
500	4,500	6,102	\$5,155

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

References:

1. CEE (Consortium for Energy Efficiency) Premium Efficiency Motors Initiative - Source for premium motor efficiencies, EPA Act Standard Motor Efficiencies and baseline/incremental costs
2. NYSERDA (New York State Energy Research and Development Authority), Energy \$mart Programs Deemed Savings Database - Source for Coincidence Factor
3. Efficiency Vermont's Technical Reference User Manual, 2004 - Source for operating hours for non-industrial motors (p.15) and source for measure life, Source for load factor (75%) and baseline/incremental costs
4. United States Industrial Electric Motor Systems Market Opportunities Assessment, EERE, US DOE, Dec 2002 - Source for operating hours for industrial motors and source for load factor (Table 1-18 and 1-19)
5. Office of Industrial Electric Motor Systems Market Opportunities Assessment : Department of Energy (assessment of 265 Industrial facilities in 1997) - Source for VSD opportunity in the US market along with Load Factors for Fans and Pumps along with average savings.
6. NWPC (Northwest Power Conservation Council) RTF's (Regional Technical Forum) Archived Measures - Source for full motor cost
7. Net-to-gross factor from Program Evaluation in 2010 by third party and other sources for new products.
8. Average cost for VFD's and Motor Cost information from April 2011 effort local vendors
9. Engineering analysis performed by Xcel energy on installation of 164 controllers, Colorado custom project 404, 2009.
10. Methodology for demand savings from Esource TAS-F-1, March 2007 - Identifying Cost-Effective Applications for Motor Voltage Controllers
11. Comprehensive Process and Impact Evaluation of the (Xcel Energy) Colorado Motor and Drive Efficiency Program, FINAL, March 28, 2011, TetraTech
12. Rewind Costs from http://www.greenmotors.org/downloads/RTFSubmittalMay_08%20_2_.pdf website

Changes from 2012-2013 Filing

Removed EC motors.

Added secondary savings for motors (Plan A & B) and drives in low temp cases, medium temp cases, and data centers.

Costs for ASDs updated.

VFDs
460V, 3 phase, normal duty
HP rated as constant torque
All NEMA 1 enclosure or less

Table 6: ASD Costs (Reference 8)

HP	MSRP motor - Avg of all	Motor less discount plus mark-up and inflation	Installed Loaded
1	\$537	415	622
1.5	\$1,600	1,237	1,856
2	\$1,652	1,277	1,915
3	\$1,696	1,311	1,966
5	\$1,969	1,522	2,282
7.5	\$2,130	1,647	2,470
10	\$2,504	1,935	2,903
15	\$3,091	2,390	3,584
20	\$3,739	2,890	4,336
25	\$4,508	3,485	5,227
30	\$5,666	4,380	6,569
40	\$6,436	4,975	7,462
50	\$8,194	6,334	9,500
60	\$10,717	8,284	12,426
75	\$12,509	9,669	14,504
100	\$15,677	12,118	18,178
125	\$17,937	13,865	20,797
150	\$23,025	17,798	26,697
200	\$22,867	17,676	26,514

Average % savings ¹	33%
Measure Life (years)	15
Pumping Load Factor	75%
Fan Load Factor	65%
Average Load Factor	70%

1. From Office of Industrial Electric Motor Systems Market Opportunities Assessment : Department of Energy (assessment of 265 Industrial facilities in 1997)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Stipulated Values

Load Factor	0.75
Conversion	= .746 (1 HP = .746 kW)
Coincidence Factor	0.78

Table 5: Motor Efficiency and Incremental Costs (Reference 1, 2, 3, 9)

Motor Tag	HP	Speed	Type	Pre-EPACT Motor Efficiency	EPACT Motor Efficiency	NEMA Premium Motor Efficiency	NEMA Premium plus 1% Motor Efficiency	EPACT Motor Cost	NEMA Premium Motor Cost	NEMA Premium plus 1% Motor Cost	NEMA Premium Installed Cost	NEMA Premium plus 1% Installed Cost
1 HP 1800 RPM "blend"	1	1800	"blend"								\$730	\$1,003
1.5 HP 1800 RPM "blend"	1.5	1800	"blend"								\$725	\$996
2 HP 1800 RPM "blend"	2	1800	"blend"								\$800	\$1,121
3 HP 1800 RPM "blend"	3	1800	"blend"								\$840	\$1,188
5 HP 1800 RPM "blend"	5	1800	"blend"								\$860	\$1,222
7.5 HP 1800 RPM "blend"	7.5	1800	"blend"								\$1,165	\$1,730
10 HP 1800 RPM "blend"	10	1800	"blend"								\$1,298	\$1,952
15 HP 1800 RPM "blend"	15	1800	"blend"								\$2,242	\$3,098
20 HP 1800 RPM "blend"	20	1800	"blend"								\$2,522	\$3,567
25 HP 1800 RPM "blend"	25	1800	"blend"								\$2,873	\$4,152
30 HP 1800 RPM "blend"	30	1800	"blend"								\$3,095	\$4,521
40 HP 1800 RPM "blend"	40	1800	"blend"								\$3,716	\$5,558
50 HP 1800 RPM "blend"	50	1800	"blend"								\$4,073	\$6,153
60 HP 1800 RPM "blend"	60	1800	"blend"								\$5,128	\$7,913
75 HP 1800 RPM "blend"	75	1800	"blend"								\$5,888	\$9,181
100 HP 1800 RPM "blend"	100	1800	"blend"								\$7,392	\$11,262
125 HP 1800 RPM "blend"	125	1800	"blend"								\$9,076	\$14,072
150 HP 1800 RPM "blend"	150	1800	"blend"								\$9,401	\$14,615
200 HP 1800 RPM "blend"	200	1800	"blend"								\$11,250	\$17,699
250 HP 1800 RPM "blend"	250	1800	"blend"								\$13,958	\$22,216
300 HP 1800 RPM "blend"	300	1800	"blend"								\$17,744	\$28,532
350 HP 1800 RPM "blend"	350	1800	"blend"								\$25,653	\$41,726
400 HP 1800 RPM "blend"	400	1800	"blend"								\$28,962	\$47,246
450 HP 1800 RPM "blend"	450	1800	"blend"								\$49,947	\$82,254
500 HP 1800 RPM "blend"	500	1800	"blend"								\$52,358	\$86,275
1 HP 1200 RPM ODP	1	1200	ODP	76.30%	80.0%	82.5%	83.5%				\$730	\$1,003
1.5 HP 1200 RPM ODP	1.5	1200	ODP	77.40%	84.0%	86.5%	87.5%				\$725	\$996
2 HP 1200 RPM ODP	2	1200	ODP	78.50%	85.5%	87.5%	88.5%				\$800	\$1,121
3 HP 1200 RPM ODP	3	1200	ODP	80.60%	86.5%	88.5%	89.5%				\$840	\$1,188
5 HP 1200 RPM ODP	5	1200	ODP	83.20%	87.5%	89.5%	90.5%				\$860	\$1,222
7.5 HP 1200 RPM ODP	7.5	1200	ODP	85.30%	88.5%	90.2%	91.2%				\$1,165	\$1,730
10 HP 1200 RPM ODP	10	1200	ODP	86.30%	90.2%	91.7%	92.7%				\$1,298	\$1,952
15 HP 1200 RPM ODP	15	1200	ODP	87.20%	90.2%	91.7%	92.7%				\$2,242	\$3,098
20 HP 1200 RPM ODP	20	1200	ODP	88.10%	91.0%	92.4%	93.4%				\$2,522	\$3,567
25 HP 1200 RPM ODP	25	1200	ODP	88.90%	91.7%	93.0%	94.0%				\$2,873	\$4,152
30 HP 1200 RPM ODP	30	1200	ODP	89.40%	92.4%	93.6%	94.6%				\$3,095	\$4,521
40 HP 1200 RPM ODP	40	1200	ODP	89.70%	93.0%	94.1%	95.1%				\$3,716	\$5,558
50 HP 1200 RPM ODP	50	1200	ODP	89.90%	93.0%	94.1%	95.1%				\$4,073	\$6,153
60 HP 1200 RPM ODP	60	1200	ODP	90.40%	93.6%	94.5%	95.5%				\$5,128	\$7,913
75 HP 1200 RPM ODP	75	1200	ODP	90.90%	93.6%	94.5%	95.5%				\$5,888	\$9,181
100 HP 1200 RPM ODP	100	1200	ODP	90.90%	94.1%	95.0%	96.0%				\$7,392	\$11,262
125 HP 1200 RPM ODP	125	1200	ODP	91.30%	94.1%	95.0%	96.0%				\$9,076	\$14,072
150 HP 1200 RPM ODP	150	1200	ODP	91.70%	94.5%	95.4%	96.4%				\$9,401	\$14,615
200 HP 1200 RPM ODP	200	1200	ODP	92.50%	94.5%	95.4%	96.4%				\$11,250	\$17,699
250 HP 1200 RPM ODP	250	1200	ODP	94.11%	95.4%	95.5%	96.5%				\$13,958	\$22,216
300 HP 1200 RPM ODP	300	1200	ODP	94.36%	95.4%	95.5%	96.5%				\$17,744	\$28,532
350 HP 1200 RPM ODP	350	1200	ODP	94.53%	95.4%	95.5%	96.5%				\$25,653	\$41,726

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Motor Efficiency and Incremental Costs (Reference 1, 2, 3, 9)

Motor Tag	HP	Speed	Type	Pre-EPACT Motor Efficiency	EPACT Motor Efficiency	NEMA Premium Motor Efficiency	NEMA Premium plus 1% Motor Efficiency	EPACT Motor Cost	NEMA Premium Motor Cost	NEMA Premium plus 1% Motor Cost	NEMA Premium Installed Cost	NEMA Premium plus 1% Installed Cost
400 HP 1200 RPM ODP	400	1200	ODP	95.40%	95.8%	95.9%	96.9%				\$28,962	\$47,246
450 HP 1200 RPM ODP	450	1200	ODP	95.40%	96.2%	96.3%	97.3%				\$49,947	\$82,254
500 HP 1200 RPM ODP	500	1200	ODP	95.40%	96.2%	96.3%	97.3%				\$52,358	\$86,275
1 HP 1800 RPM ODP	1	1800	ODP	76.30%	82.5%	85.5%	86.5%				\$730	\$1,003
1.5 HP 1800 RPM ODP	1.5	1800	ODP	77.40%	84.0%	86.5%	87.5%				\$725	\$996
2 HP 1800 RPM ODP	2	1800	ODP	78.50%	84.0%	86.5%	87.5%				\$800	\$1,121
3 HP 1800 RPM ODP	3	1800	ODP	80.60%	86.5%	89.5%	90.5%				\$840	\$1,188
5 HP 1800 RPM ODP	5	1800	ODP	83.20%	87.5%	89.5%	90.5%				\$860	\$1,222
7.5 HP 1800 RPM ODP	7.5	1800	ODP	85.30%	88.5%	91.0%	92.0%				\$1,165	\$1,730
10 HP 1800 RPM ODP	10	1800	ODP	86.30%	89.5%	91.7%	92.7%				\$1,298	\$1,952
15 HP 1800 RPM ODP	15	1800	ODP	87.20%	91.0%	93.0%	94.0%				\$2,242	\$3,098
20 HP 1800 RPM ODP	20	1800	ODP	88.10%	91.0%	93.0%	94.0%				\$2,522	\$3,567
25 HP 1800 RPM ODP	25	1800	ODP	88.90%	91.7%	93.6%	94.6%				\$2,873	\$4,152
30 HP 1800 RPM ODP	30	1800	ODP	89.40%	92.4%	94.1%	95.1%				\$3,095	\$4,521
40 HP 1800 RPM ODP	40	1800	ODP	89.70%	93.0%	94.1%	95.1%				\$3,716	\$5,558
50 HP 1800 RPM ODP	50	1800	ODP	89.90%	93.0%	94.5%	95.5%				\$4,073	\$6,153
60 HP 1800 RPM ODP	60	1800	ODP	90.40%	93.6%	95.0%	96.0%				\$5,128	\$7,913
75 HP 1800 RPM ODP	75	1800	ODP	90.90%	94.1%	95.0%	96.0%				\$5,888	\$9,181
100 HP 1800 RPM ODP	100	1800	ODP	90.90%	94.1%	95.4%	96.4%				\$7,392	\$11,262
125 HP 1800 RPM ODP	125	1800	ODP	91.30%	94.5%	95.4%	96.4%				\$9,076	\$14,072
150 HP 1800 RPM ODP	150	1800	ODP	91.70%	95.0%	95.8%	96.8%				\$9,401	\$14,615
200 HP 1800 RPM ODP	200	1800	ODP	92.50%	95.0%	95.8%	96.8%				\$11,250	\$17,699
250 HP 1800 RPM ODP	250	1800	ODP	94.44%	95.4%	95.8%	96.8%				\$13,958	\$22,216
300 HP 1800 RPM ODP	300	1800	ODP	94.62%	95.4%	95.8%	96.8%				\$17,744	\$28,532
350 HP 1800 RPM ODP	350	1800	ODP	94.06%	95.4%	95.8%	96.8%				\$25,653	\$41,726
400 HP 1800 RPM ODP	400	1800	ODP	94.73%	95.4%	95.8%	96.8%				\$28,962	\$47,246
450 HP 1800 RPM ODP	450	1800	ODP	94.96%	95.8%	96.2%	97.2%				\$49,947	\$82,254
500 HP 1800 RPM ODP	500	1800	ODP	94.97%	95.8%	96.2%	97.2%				\$52,358	\$86,275
1 HP 3600 RPM ODP	1	3600	ODP	76.30%	76.3%	77.0%	78.0%				\$730	\$1,003
1.5 HP 3600 RPM ODP	1.5	3600	ODP	77.40%	82.5%	84.0%	85.0%				\$725	\$996
2 HP 3600 RPM ODP	2	3600	ODP	78.50%	84.0%	85.5%	86.5%				\$800	\$1,121
3 HP 3600 RPM ODP	3	3600	ODP	80.60%	84.0%	85.5%	86.5%				\$840	\$1,188
5 HP 3600 RPM ODP	5	3600	ODP	83.20%	85.5%	86.5%	87.5%				\$860	\$1,222
7.5 HP 3600 RPM ODP	7.5	3600	ODP	85.30%	87.5%	88.5%	89.5%				\$1,165	\$1,730
10 HP 3600 RPM ODP	10	3600	ODP	86.30%	88.5%	89.5%	90.5%				\$1,298	\$1,952
15 HP 3600 RPM ODP	15	3600	ODP	87.20%	89.5%	90.2%	91.2%				\$2,242	\$3,098
20 HP 3600 RPM ODP	20	3600	ODP	88.10%	90.2%	91.0%	92.0%				\$2,522	\$3,567
25 HP 3600 RPM ODP	25	3600	ODP	88.90%	91.0%	91.7%	92.7%				\$2,873	\$4,152
30 HP 3600 RPM ODP	30	3600	ODP	89.40%	91.0%	91.7%	92.7%				\$3,095	\$4,521
40 HP 3600 RPM ODP	40	3600	ODP	89.70%	91.7%	92.4%	93.4%				\$3,716	\$5,558
50 HP 3600 RPM ODP	50	3600	ODP	89.90%	92.4%	93.0%	94.0%				\$4,073	\$6,153
60 HP 3600 RPM ODP	60	3600	ODP	90.40%	93.0%	93.6%	94.6%				\$5,128	\$7,913
75 HP 3600 RPM ODP	75	3600	ODP	90.90%	93.0%	93.6%	94.6%				\$5,888	\$9,181
100 HP 3600 RPM ODP	100	3600	ODP	90.90%	93.0%	93.6%	94.6%				\$7,392	\$11,262
125 HP 3600 RPM ODP	125	3600	ODP	91.30%	93.6%	94.1%	95.1%				\$9,076	\$14,072
150 HP 3600 RPM ODP	150	3600	ODP	91.70%	93.6%	94.1%	95.1%				\$9,401	\$14,615
200 HP 3600 RPM ODP	200	3600	ODP	92.50%	94.5%	95.0%	96.0%				\$11,250	\$17,699
250 HP 3600 RPM ODP	250	3600	ODP	92.99%	94.5%	95.0%	96.0%				\$13,958	\$22,216
300 HP 3600 RPM ODP	300	3600	ODP	93.89%	95.0%	95.4%	96.4%				\$17,744	\$28,532
350 HP 3600 RPM ODP	350	3600	ODP	94.24%	95.0%	95.4%	96.4%				\$25,653	\$41,726
400 HP 3600 RPM ODP	400	3600	ODP	94.35%	95.4%	95.8%	96.8%				\$28,962	\$47,246
450 HP 3600 RPM ODP	450	3600	ODP	94.62%	95.8%	95.9%	96.9%				\$49,947	\$82,254
500 HP 3600 RPM ODP	500	3600	ODP	94.60%	95.8%	95.9%	96.9%				\$52,358	\$86,275

See Ref Motor Costs

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Motor Efficiency and Incremental Costs (Reference 1, 2, 3, 9)

Motor Tag	HP	Speed	Type	Pre-EPACT Motor Efficiency	EPACT Motor Efficiency	NEMA Premium Motor Efficiency	NEMA Premium plus 1% Motor Efficiency	EPACT Motor Cost	NEMA Premium Motor Cost	NEMA Premium plus 1% Motor Cost	NEMA Premium Installed Cost	NEMA Premium plus 1% Installed Cost
1 HP 1200 RPM TEFC	1	1200	TEFC	76.30%	80.0%	82.5%	83.5%				\$730	\$1,003
1.5 HP 1200 RPM TEFC	1.5	1200	TEFC	77.40%	85.5%	87.5%	88.5%				\$725	\$996
2 HP 1200 RPM TEFC	2	1200	TEFC	78.50%	86.5%	88.5%	89.5%				\$800	\$1,121
3 HP 1200 RPM TEFC	3	1200	TEFC	80.60%	87.5%	89.5%	90.5%				\$840	\$1,188
5 HP 1200 RPM TEFC	5	1200	TEFC	83.20%	87.5%	89.5%	90.5%				\$860	\$1,222
7.5 HP 1200 RPM TEFC	7.5	1200	TEFC	85.30%	89.5%	91.0%	92.0%				\$1,165	\$1,730
10 HP 1200 RPM TEFC	10	1200	TEFC	86.30%	89.5%	91.0%	92.0%				\$1,298	\$1,952
15 HP 1200 RPM TEFC	15	1200	TEFC	87.20%	90.2%	91.7%	92.7%				\$2,242	\$3,098
20 HP 1200 RPM TEFC	20	1200	TEFC	88.10%	90.2%	91.7%	92.7%				\$2,522	\$3,567
25 HP 1200 RPM TEFC	25	1200	TEFC	88.90%	91.7%	93.0%	94.0%				\$2,873	\$4,152
30 HP 1200 RPM TEFC	30	1200	TEFC	89.40%	91.7%	93.0%	94.0%				\$3,095	\$4,521
40 HP 1200 RPM TEFC	40	1200	TEFC	89.70%	93.0%	94.1%	95.1%				\$3,716	\$5,558
50 HP 1200 RPM TEFC	50	1200	TEFC	89.90%	93.0%	94.1%	95.1%				\$4,073	\$6,153
60 HP 1200 RPM TEFC	60	1200	TEFC	90.40%	93.6%	94.5%	95.5%				\$5,128	\$7,913
75 HP 1200 RPM TEFC	75	1200	TEFC	90.90%	93.6%	94.5%	95.5%				\$5,888	\$9,181
100 HP 1200 RPM TEFC	100	1200	TEFC	90.90%	94.1%	95.0%	96.0%				\$7,392	\$11,262
125 HP 1200 RPM TEFC	125	1200	TEFC	91.30%	94.1%	95.0%	96.0%				\$9,076	\$14,072
150 HP 1200 RPM TEFC	150	1200	TEFC	91.70%	95.0%	95.8%	96.8%				\$9,401	\$14,615
200 HP 1200 RPM TEFC	200	1200	TEFC	92.50%	95.0%	95.8%	96.8%				\$11,250	\$17,699
250 HP 1200 RPM TEFC	250	1200	TEFC	94.40%	95.0%	95.8%	96.8%				\$13,958	\$22,216
300 HP 1200 RPM TEFC	300	1200	TEFC	94.40%	95.0%	95.8%	96.8%				\$17,744	\$28,532
350 HP 1200 RPM TEFC	350	1200	TEFC	94.28%	95.0%	95.8%	96.8%				\$25,653	\$41,726
400 HP 1200 RPM TEFC	400	1200	TEFC	95.00%	95.0%	95.8%	96.8%				\$28,962	\$47,246
450 HP 1200 RPM TEFC	450	1200	TEFC	95.00%	95.0%	95.8%	96.8%				\$49,947	\$82,254
500 HP 1200 RPM TEFC	500	1200	TEFC	95.00%	95.0%	95.8%	96.8%				\$52,358	\$86,275
1 HP 1800 RPM TEFC	1	1800	TEFC	76.30%	82.5%	85.5%	86.5%				\$730	\$1,003
1.5 HP 1800 RPM TEFC	1.5	1800	TEFC	77.40%	84.0%	86.5%	87.5%				\$725	\$996
2 HP 1800 RPM TEFC	2	1800	TEFC	78.50%	84.0%	86.5%	87.5%				\$800	\$1,121
3 HP 1800 RPM TEFC	3	1800	TEFC	80.60%	87.5%	89.5%	90.5%				\$840	\$1,188
5 HP 1800 RPM TEFC	5	1800	TEFC	83.20%	87.5%	89.5%	90.5%				\$860	\$1,222
7.5 HP 1800 RPM TEFC	7.5	1800	TEFC	85.30%	89.5%	91.7%	92.7%				\$1,165	\$1,730
10 HP 1800 RPM TEFC	10	1800	TEFC	86.30%	89.5%	91.7%	92.7%				\$1,298	\$1,952
15 HP 1800 RPM TEFC	15	1800	TEFC	87.20%	91.0%	92.4%	93.4%				\$2,242	\$3,098
20 HP 1800 RPM TEFC	20	1800	TEFC	88.10%	91.0%	93.0%	94.0%				\$2,522	\$3,567
25 HP 1800 RPM TEFC	25	1800	TEFC	88.90%	92.4%	93.6%	94.6%				\$2,873	\$4,152
30 HP 1800 RPM TEFC	30	1800	TEFC	89.40%	92.4%	93.6%	94.6%				\$3,095	\$4,521
40 HP 1800 RPM TEFC	40	1800	TEFC	89.70%	93.0%	94.1%	95.1%				\$3,716	\$5,558
50 HP 1800 RPM TEFC	50	1800	TEFC	89.90%	93.0%	94.5%	95.5%				\$4,073	\$6,153
60 HP 1800 RPM TEFC	60	1800	TEFC	90.40%	93.6%	95.0%	96.0%				\$5,128	\$7,913
75 HP 1800 RPM TEFC	75	1800	TEFC	90.90%	94.1%	95.4%	96.4%				\$5,888	\$9,181
100 HP 1800 RPM TEFC	100	1800	TEFC	90.90%	94.5%	95.4%	96.4%				\$7,392	\$11,262
125 HP 1800 RPM TEFC	125	1800	TEFC	91.30%	94.5%	95.4%	96.4%				\$9,076	\$14,072
150 HP 1800 RPM TEFC	150	1800	TEFC	91.70%	95.0%	95.8%	96.8%				\$9,401	\$14,615
200 HP 1800 RPM TEFC	200	1800	TEFC	92.50%	95.0%	96.2%	97.2%				\$11,250	\$17,699
250 HP 1800 RPM TEFC	250	1800	TEFC	94.22%	95.0%	96.2%	97.2%				\$13,958	\$22,216
300 HP 1800 RPM TEFC	300	1800	TEFC	94.44%	95.4%	96.2%	97.2%				\$17,744	\$28,532
350 HP 1800 RPM TEFC	350	1800	TEFC	94.56%	95.4%	96.2%	97.2%				\$25,653	\$41,726
400 HP 1800 RPM TEFC	400	1800	TEFC	94.83%	95.4%	96.2%	97.2%				\$28,962	\$47,246
450 HP 1800 RPM TEFC	450	1800	TEFC	94.88%	95.4%	96.2%	97.2%				\$49,947	\$82,254
500 HP 1800 RPM TEFC	500	1800	TEFC	94.86%	95.8%	96.2%	97.2%				\$52,358	\$86,275

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 5: Motor Efficiency and Incremental Costs (Reference 1, 2, 3, 9)

Motor Tag	HP	Speed	Type	Pre-EPACT Motor Efficiency	EPACT Motor Efficiency	NEMA Premium Motor Efficiency	NEMA Premium plus 1% Motor Efficiency	EPACT Motor Cost	NEMA Premium Motor Cost	NEMA Premium plus 1% Motor Cost	NEMA Premium Installed Cost	NEMA Premium plus 1% Installed Cost
1 HP 3600 RPM TEFC	1	3600	TEFC	76.30%	75.5%	77.0%	78.0%				\$730	\$1,003
1.5 HP 3600 RPM TEFC	1.5	3600	TEFC	77.40%	82.5%	84.0%	85.0%				\$725	\$996
2 HP 3600 RPM TEFC	2	3600	TEFC	78.50%	84.0%	85.5%	86.5%				\$800	\$1,121
3 HP 3600 RPM TEFC	3	3600	TEFC	80.60%	85.5%	86.5%	87.5%				\$840	\$1,188
5 HP 3600 RPM TEFC	5	3600	TEFC	83.20%	87.5%	88.5%	89.5%				\$860	\$1,222
7.5 HP 3600 RPM TEFC	7.5	3600	TEFC	85.30%	88.5%	89.5%	90.5%				\$1,165	\$1,730
10 HP 3600 RPM TEFC	10	3600	TEFC	86.30%	89.5%	90.2%	91.2%				\$1,298	\$1,952
15 HP 3600 RPM TEFC	15	3600	TEFC	87.20%	90.2%	91.0%	92.0%				\$2,242	\$3,098
20 HP 3600 RPM TEFC	20	3600	TEFC	88.10%	90.2%	91.0%	92.0%				\$2,522	\$3,567
25 HP 3600 RPM TEFC	25	3600	TEFC	88.90%	91.0%	91.7%	92.7%				\$2,873	\$4,152
30 HP 3600 RPM TEFC	30	3600	TEFC	89.40%	91.0%	91.7%	92.7%				\$3,095	\$4,521
40 HP 3600 RPM TEFC	40	3600	TEFC	89.70%	91.7%	92.4%	93.4%				\$3,716	\$5,558
50 HP 3600 RPM TEFC	50	3600	TEFC	89.90%	92.4%	93.0%	94.0%				\$4,073	\$6,153
60 HP 3600 RPM TEFC	60	3600	TEFC	90.40%	93.0%	93.6%	94.6%				\$5,128	\$7,913
75 HP 3600 RPM TEFC	75	3600	TEFC	90.90%	93.0%	93.6%	94.6%				\$5,888	\$9,181
100 HP 3600 RPM TEFC	100	3600	TEFC	90.90%	93.6%	94.1%	95.1%				\$7,392	\$11,262
125 HP 3600 RPM TEFC	125	3600	TEFC	91.30%	94.5%	95.0%	96.0%				\$9,076	\$14,072
150 HP 3600 RPM TEFC	150	3600	TEFC	91.70%	94.5%	95.0%	96.0%				\$9,401	\$14,615
200 HP 3600 RPM TEFC	200	3600	TEFC	92.50%	95.0%	95.4%	96.4%				\$11,250	\$17,699
250 HP 3600 RPM TEFC	250	3600	TEFC	94.68%	95.4%	95.8%	96.8%				\$13,958	\$22,216
300 HP 3600 RPM TEFC	300	3600	TEFC	94.71%	95.4%	95.8%	96.8%				\$17,744	\$28,532
350 HP 3600 RPM TEFC	350	3600	TEFC	94.65%	95.4%	95.8%	96.8%				\$25,653	\$41,726
400 HP 3600 RPM TEFC	400	3600	TEFC	94.75%	95.4%	95.8%	96.8%				\$28,962	\$47,246
450 HP 3600 RPM TEFC	450	3600	TEFC	94.50%	95.4%	95.8%	96.8%				\$49,947	\$82,254
500 HP 3600 RPM TEFC	500	3600	TEFC	94.50%	95.4%	95.8%	96.8%				\$52,358	\$86,275

Measure Life

Measure Life Plan A =	Ref (2), (3), (5)	20
Measure Life Plan B =		20

References

- 1 WASU Last Rev. June 25, 2007. Source of EPACT and Premium Motor Efficiencies
- 2 Estimates based on interpolation for selected EPACT efficiencies
- 3 NYSEERDA (New York State Energy Research and Development Authority); NY Energy Smart Programs Deemed Savings Database - Source for coincidence factor, measure life, and motor load factor
- 4 NWPCC (Northwest Power Conservation Council) RTF's (Regional Technical Forum) Archived Measures - Source for full motor cost
- 5 Washington State University Motor Test Lab Results. June 25, 2007 - Source for efficiencies
- 6 Washington State and DOE Pre-EPACT Default Motor Efficiency Table. 2004.
- 7 Table A-1 and A-2, pp. 264-265, Energy Efficient Motor Systems, ACEEE. 1999.
- 8 United States Industrial Electric Motor Systems Market Opportunities Assessment, EERE, US DOE, Dec 2002 - Source for operating hours for industrial motors and source for motor load factor data (Tables 1-18 and 1-19)
- 9 Efficiency Vermont's Technical Reference User Manual, 2004 - Source for operating hours for commercial motors (p.15) and source for measure life and source

References -2011 Plan A Enhanced and Plan B Enhanced

Costs were determined for 1800 RPM TEFC motors, but will be used for all RPM and Types of Enhanced NEMA Premium motors
Incremental costs for Plan A represents the cost differential between standard motor and efficient motor
Incremental costs for Plan B motors represent the full purchase and installation costs for the new motor

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Process Efficiency

The Process Efficiency Business product targets energy intensive processes at large industrial facilities. Customers who implement identified upgrades may receive rebates for large process changes that are not completed through Custom Efficiency or the prescriptive products.

Calculations:

Electrical energy savings, electrical demand savings and gas savings will be calculated based on the methodologies presented in each of the end use products.

A net-to-gross factor of 90% will be used for electric Process Efficiency projects.

A transmission distribution loss factor of 6.50% will be used for Process Efficiency projects.

Changes from 2013

No changes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Recommissioning / Refrigeration Recommissioning

Recommissioning is a special product that involves a Study phase and an Implementation phase. The customer may apply for rebate under the Recommissioning product. Each Recommissioning project will be analyzed individually by Xcel Energy. A qualified engineering vendor will perform the study and provide a report and technical calculations to Xcel Energy for review. Analysis will be based on standard engineering methodologies. Customer may also submit for implementation a proposed "Fast Track" project without going through the Recommissioning Study phase, as long as they have performed a study. Recommissioning projects do not have to demonstrate a TRC factor greater than one on a project by project basis. In that regard the product is similar to deemed products. In most other respects it is more of a custom product.

Calculations:	
Electric and Gas energy savings and electrical demand savings will be calculated by a study vendor based on the project specific details. Each project will undergo an engineering review by Xcel Energy in accordance with standard engineering practices.	
NTG	A net-to-gross factor of 90% will be used for Recommissioning projects, based on the following justification: Without having completed a Recommissioning study through our product, the customer would not have known about the opportunities. If they would have known about them, they would have done them on their own due to the likelihood they are no/low cost items with very quick paybacks.
TDLF	A transmission distribution loss factor of 6.50% will be used for Recommissioning projects. Reference the Enhanced DSM filing, SRD-2; no significant system changes have been noted since then.
Measure Life	Persistence of the Recommissioning product (product life) is set at 7 years, reference "Recommissioning Persistence - Task 1 Benchmarking Deliverable 040607.pdf"

Changes from 2013
Addition of Building Tune-Up

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Building Tune-up

This new measure under the Recommissioning product provides a recommissioning-type study at a smaller scale and targeted towards buildings less than

Calculations:	
Electric and Gas energy savings and electrical demand savings will be calculated by a study vendor based on the project specific details. Each project will	
Variables:	
NTG	A net-to-gross factor of 90% will be used for Building Tune-up projects, based on the following justification: Without having completed a Building Tune-up study, the customer would not have known about the opportunities to save energy. If they would have known about them, they would have done them on their own due to the likelihood they are no/low cost items with very quick paybacks.
TDLF	A transmission distribution loss factor of 6.50% will be used for Building Tune-up projects, the same as the Recommissioning product. Reference the Enhanced DSM filing, SRD-2
Measure Life	Persistence of the Building Tune-up product (product life) is set at 7 years, same as the Recommissioning product; reference "Recommissioning Persistence - Task 1 Benchmarking Deliverable 040607.pdf"

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Segment Efficiency

This is a custom product that involves an energy and financial analysis of existing facilities. Customer may apply for rebate under the Segment Efficiency product. Each project will be analyzed individually by Xcel Energy. Technical variables required for the analysis will be obtained from the customer or vendor. Analysis will be based on standard engineering methods. Prescriptive rebates may be given for measures identified during the analysis that qualify under prescriptive end use products.

Calculations:

Electrical and gas energy savings and electrical demand savings will be calculated based on the project-specific details. Each project will undergo an engineering review in accordance with standard engineering practices. Where prescriptive elements exist, the calculations will be in accordance with the calculation methodologies detailed in the prescriptive products.

Changes from 2013

Updated Utility Data

Used 2012 Actuals where possible for forecasting

Updated External References for Gas and Electric

Updated 4/20/13 by PJD

Assumptions

A transmission distribution loss factor of **6.50%** will be used for custom projects. This is calculated using factors from Enhanced DSM Filing - SRD-2

We will conservatively use NTG for each end use technology as stated in their respective technical assumptions. Actual NTG should be closer to 100% because these customers have historically not participated in the products.

Please see the corresponding programs for inputs that were duplicated here:

Prescriptive Lighting	Used historical CRE participation
Prescriptive Motors/Drives	Used Prescriptive VFD as representative measure
Prescriptive Cooling	Used 20-60 ton RTU from prescriptive cooling program as representative measure
Custom Lighting	Used measure from Lighting program
Custom Motors/Drives	Used program roll up as listed in prescriptive motors & drives
Custom Cooling	Used measure from Cooling program
EMS (Electric)	Used EMS Technical Assumptions
Custom Custom	Used program Technical Assumptions
Recommissioning (Electric)	Used RCx program's implementation Technical Assumptions
Heating Efficiency	Used program's Replacement Condensing Boiler; 1MMBTUH measure
EMS (Gas)	Used EMS Technical Assumptions
Custom Custom (gas)	Used program Technical Assumptions
Recommissioning (Gas)	Used RCx program's implementation Technical Assumptions

Measures such as lighting relied on actual program history for estimates

The CRE Program offers a 130% multiplier to the rebates that are normally offered by other programs.

CRE Rebate Multiplier

130%

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Self-Direct

The Self-Direct product will provide large commercial and industrial customers in Colorado the opportunity to self-fund electric energy conservation projects at their facilities. Customers who engineer, implement, and commission qualifying projects will receive rebates to offset their costs to implement efficient projects.

Calculations:

Electrical energy savings and electrical demand savings will be calculated based on the actual savings from a project.

A net-to-gross factor of 91% will be used for Self-Direct projects. The NTG assumption (91%) was developed based on the weighted average of the net-to-gross factors from our stand alone programs, using the weighting from previously completed self-direct projects.

A transmission distribution loss factor of 6.5% will be used for Electrical projects.

Measure life and operation and maintenance savings will be calculated for each project.

Changes from 2013

No changes.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Small Business Lighting Efficiency

Description:

Prescriptive rebates will be offered for replacement lighting equipment. New Construction rebates will be offered for new facilities or spaces overhauled for a new purpose. Custom Efficiency Lighting rebates are available for lighting-related improvement
Information in red type indicates an addition or change to the technical assumptions

Algorithms:

Electrical Demand Savings (Customer kW)	= (kW Base - kW EE) x HVAC cooling kW savings factor
Electrical Energy Savings (Customer kWh/yr)	= (kW Base - kW EE) x Hrs x HVAC cooling kWh savings factor
Natural Gas Savings (Dth)	= (kW Base - kW EE) x Hrs x HVAC heating penalty factor
kW saved	= kW Base - kW EE
Hrs_Baseline (Base)	= Hrs * HVAC cooling kWh savings factor / HVAC cooling kW savings factor
Hrs_Energy Efficient (EE)	= Hrs * HVAC cooling kWh savings factor / HVAC cooling kW savings factor
Stairwell Fixture with Integral Occupancy Sensor EE_H1	= Hours in State 1 of fixture usage = Hrs * (1-Percent_Time_Controlled)
Stairwell Fixture with Integral Occupancy Sensor EE_H2	= Hours in State 2 of fixture usage = Hrs - EE_H1
Stairwell Fixture with Integral Occupancy Sensor Base_Watt-Hrs	= Baseline Watt-Hours = Base kW * 1000 * Hrs
Stairwell Fixture with Integral Occupancy Sensor EE_Watt-Hrs	= High Efficiency Watt-Hours = (EE_W1 * EE_H1) + (EE_W2 * EE_H2)
Stairwell Fixture with Integral Occupancy Sensor kW_EE	= Average calculated Wattage of two states of fixture usage = Base_kW - [(Base_Watt-Hrs - EE_Watt-Hrs) / (Hrs * 1000)] Calculated values shown in Deemed Fixture Table
Lighting Controls -Electrical Energy Savings (Customer kWh/yr)	=(kW connected) x (1-PAF) x Hrs x HVAC cooling kWh savings factor
Lighting Controls -Electrical Demand Savings (Customer kW)	=(kW connected) x (1-PAF) x HVAC cooling kW savings factor
Lighting Controls -Natural Gas Savings (Dth)	=(kW connected) x (1-PAF) x Hrs x HVAC heating penalty factor
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

Variables:

Hrs	= Annual Operating Hours. Hours to be obtained from Table 2. The type of facility is to be supplied by the customer.
kW_Base	= Baseline fixture wattage (kW per fixture) determined from deemed fixture table.
kW_EE	= High Efficiency fixture wattage (kW per fixture) determined from deemed fixture table
Stairwell Fixture with Integral Occupancy Sensor Hrs_full_power	= 263 per year
Stairwell Fixture with Integral Occupancy Sensor Hrs_dimmed	= 8497 per year
Stairwell Fixture with Integral Occupancy Sensor Percent_Time_Controlled	= 97% (Ref 8)
Stairwell Fixture with Integral Occupancy Sensor EE_W1	= Wattage in State 1 of fixture usage
Stairwell Fixture with Integral Occupancy Sensor EE_W2	= Wattage in State 2 of fixture usage

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Variables (Continued):

HVAC_cooling_kWhsavings_factor	= Cooling system energy savings factor resulting from efficient lighting from Table 1. Reduction in lighting energy results in a reduction in cooling energy, if the customer has air conditioning. Existence of air
HVAC_cooling_kW savings_factor	= Cooling system demand savings factor resulting from efficient lighting from Table 1. Reduction in
HVAC_heating_kW savings_factor	= Heating system penalty factor resulting from efficient lighting. Reduction in lighting demand results in an increase in heating usage, if the customer has air conditioning. A value of -0.00088738 Dth/kWh given by (Reference 4).
CF	= Coincidence Factor, the probability that peak demand of the lights will coincide with peak utility system demand. CF will be determined based on customer provided building type in Table 2.
Measure Life	= Length of time the lighting equipment will be operational, see Table 3 for Measure Lifetimes
Baseline Cost	= Cost of the baseline technology. For Retrofit, the cost is 0 since the baseline is to continue to operate the existing system. For New Construction, the cost is given in the deemed fixture table. (Reference 4) and vendors.
High Efficiency Cost	= Cost of the High Efficiency technology. Costs given in Deemed Fixture Table (Reference 4, 8, 11) and vendors.
kW connected	Total connected fixture load, determined as the sum of stipulated fixture wattages from Deemed Fixture Table.
PAF	Stipulated power adjustment factor based on control type from Table 4.
TDLF	Transmission Distribution Loss Factor = 6.50% , the percentage loss of electricity as it flows from the power plant to the customer, calculated using factors from Enhanced DSM Filing SRD-2
NTG	Net-to-gross = 84% for prescriptive measures (Reference 5) and 96% for Custom Efficiency Lighting and Lighting Redesign based on the additional influence.
Incremental operation and maintenance cost	= Other annual savings or costs associated with the electrical savings. For Lighting, this consists of additional natural gas for heating. Methodology given by (Reference 2).
Adjustments for closely-related fixture combinations	Allow closely-related fixture combinations to be added to the DSTA and qualify for a prescriptive rebate if the technology pairings are in a range deemed viable by PSCo energy efficiency engineering or product management.
Higher wattage level or quantity of fixtures removed	Allow a higher level of wattage, or a higher number of fixtures, to be removed during a lighting retrofit if the customer so chooses.

Inputs:

- Number of Fixtures
- Lighting equipment type
- Building type
- Existence of air conditioning

Verified during M&V:

- Yes
- Yes
- Yes
- Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Assumptions:

- Each replacement lighting fixture is going in on a one-for-one basis for existing fixtures. New construction fixtures are put in on a one-for-one basis instead of lower efficiency options.
- In the Technical Assumptions, one will note that the Operating Hours does not appear, but rather a modified version. The methodology defines kW Savings on the basis of difference in kW with the HVAC Cooling demand factor. The Annual Energy Savings takes into account any heating that has to be added.

Table 1: HVAC Interactive Factors (Reference 2)

HVAC system	HVAC_cooling_kWh_savings_factor	HVAC_cooling_kW_savings_factor	HVAC_heating_penalty_factor
Heating only	1.00	1.00	-0.000540
Heating and cooling	1.11	1.33	-0.000540
LED Refrigerated Case Door	1.41	1.41	-
LED Freezer Case Door	1.59	1.59	-

Table 2: Coincident Peak Demand Factors and Annual Operating Hours by Building Type (Reference 1 and 3)

Building Type	CF	Annual Operating Hours
24-Hour Facility	94%	8234
Building Stairwells	91.7%	7292
College	76%	2348
Cooler Door Retrofit to LED	94%	8760
Freezer Door Retrofit to LED	94%	8760
Element./Second. School	31%	1632
Grocery (All) / Big Box Retail (larger than 50,000 SF)	87%	4660
Health	73%	3213
Hospital	80%	5182
Hotel/Motel	9%	914
Manufacturing	57%	4739
Night Time Exterior (LED Canopy/Soffit Lights, LED Exterior Wall Packs)	0%	4380
Office	61%	2567
Other/Misc.	63%	3521
Parking Garages, incl. LED Parking Garage Wall Packs	100%	8760
Restaurant	65%	3613
Retail	73%	2829
Safety or Code Required	100%	8760
Warehouse	54%	2316

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 3: Measure Lifetimes in Years (Reference 4, 8, 9, 10)

Measure	Lifetime in Years
Low Wattage T8 Lamps	6
T8 Lighting Systems	20
T5 Lighting Systems	20
Ballasted CFLs	20
Integrated 25W Ceramic Metal Halide	7
LED Retrofit Fixture	20
LED Screw In Retrofit Fixture	8
LED Screw In Lamp	12
LED Wall Pack fixtures	18
Lighting Controls	8
Stiarwell Fixtures with Occupancy Sensors	14.4

References

1. Arkansas Deemed Savings Quick Start Program Draft Report Commercial Measures Final Report, Nexant. CF and hours
2. HVAC Interactive Factors developed based on the Rundquist Simplified HVAC Interaction Factor method for Minnesota, presented on page 28 of the 11/93 issue of the ASHRAE Journal - "Calculating lighting and HVAC interactions".
3. Technical Reference User Manual No. 2004-31, Efficiency Vermont, 12/31/04. CF and Hours
4. Deemed Savings Database, Minnesota Department of Commerce Division of Energy Resources (DER), 2008. CF, Hours, kW, Costs, Measure life
5. Net-to-Gross factor from National Energy Efficiency Best Practices Study(<http://www.eebestpractices.com>)
6. Lighting Efficiency input wattage guide, Xcel Energy, July, 2008, kW
7. CL&P and UI program Savings Documentation modified for 3022 Daylight Hours in Denver CO
8. University of Minnesota Study, 2010
9. LED Lamp measure life based on average 2009 custom project LED life of 45,000 hours / weighted hours of operation average
10. LED Fixture measure life based on Xcel Energy Minnesota Lighting Efficiency Program average replacement fixture lifetime
11. LED Fixture costs based on Xcel Energy Custom Lighting Efficiency project costs

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Standard Offer

Description:

Standard Offer utilizes an ESCO, pre-qualified by the Governor's Energy Office, or a Customer-chosen vendor to perform a pre-formatted investment grade audit from which comes a bundled set of measures that the customer, by agreement, must implement. The customer may apply for a rebate under the Standard Offer product or the implementation funding can come from the ESCO. Analysis will be based on standard engineering methodologies. Prescriptive rebates will not be offered in this product.

Algorithms:

Electric and Gas energy savings and electrical demand savings will be calculated by an ESCO or a Customer-chosen vendor based on facility-specific details. Each project will undergo an engineering review by Xcel Energy in accordance with standard engineering practices. M&V plans will be required for all Standard Offer projects and must last a minimum of three years.

Variables:

Operation and Maintenance Savings will be calculated for each specific project based on project details.
Measure lifetime will be calculated for each specific project based on project details.
Incremental equipment cost will be calculated for each specific project based on project details.

Inputs:

All variables for each project (equipment wattage, equipment efficiency, hours of operation, etc.) will be calculated for each specific project based on project details.

Assumptions:

A net-to-gross factor of 87% will be used for electric custom projects, referenced National Energy Efficiency Best Practices Report (<http://www.eebestpractices.com>) A net-to-gross factor of 93% will be used for custom gas projects which assumes 1/2 of the free rider rate for electric because gas products are new offerings in Colorado.

Tables:

None

References:

None

Changes from 2012-2013 Filing

None

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Interruptible Service Option Credit

Description:

Participants receive a discount on their demand charges in return for reducing electric loads when notified by the Utility

Calculations:

Electrical Energy Savings (Customer kWh)	= Average kW per Customer x Hours of Operation per year
Electrical Demand Savings (Customer kW)	= Average kW per Customer
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

Variables:

Average kW per customer	= Average kW per customer = 500.00 kW (1)
Hours of Operation per year	= 6 Hours of Operation that a customer achieves energy savings by controlling their electric load during a typical year. (1)
CF	Coincidence Factor = The probability that peak demand of the measure will coincide with peak utility system demand. Percentage of 61.57% (1)
Life of Product	= Length of contract period = 5 years

References:

(1) ISOC Forecast

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: ENERGY STAR New Homes

Algorithms:

Bundled measures savings (Customer kW)	= The higher of the summer or winter peak kW savings from REM/Rate model for each house with adjusted baseline by locations seen in Table 1 (below).
Bundled measures savings (Customer kWh)	= Total kWh savings from REM/Rate model for each home with adjusted baseline by locations seen in Table 1 (below).
Bundled measures savings (Gross Dth)	= Total Dth savings from REM/Rate model for each home with adjusted baseline by locations seen in Table 1 (below).
Clothes washer natural gas savings (Dth) and electric energy savings (kWh)	Energy savings for the clothes washer were based on the ENERGY STAR Clothes Washer Savings Calculator: http://www.energystar.gov/index.cfm?c=clotheswash.pr_clothes_washers . This assumed a gas water heater home, so savings are generated for gas and electric. Savings is 1.27 Dth and 77 Kwh.
Dishwasher natural gas savings (Dth) and electric energy savings (kWh)	Energy savings for the dishwasher were based on the ENERGY STAR Dishwasher Savings Calculator: http://www.energystar.gov/index.cfm?c=dishwash.pr_dishwashers . This assumed a gas water heater home, so savings are generated for gas and electric. Savings is 0.88 Dth and 26 kWh.
Refrigerator electric energy savings (kWh)	Energy savings for the refrigerator were based on the ENERGY STAR Refrigerator Savings Calculator: http://www.energystar.gov/index.cfm?c=refrig.pr_refrigerators . Savings is 93 kWh.
Net Dth	= Gross Dth x NTG
Electrical Energy Savings (Gross Generator)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG
HERS_ICC_Adj_Factor	= Incremental Capital Cost Adjustment Factor for Envelope HERS Index based Measures = $1 + -0.649 \times \ln(\text{Home_Size}) + 5.2228$
As-built_HERS_ICC/SF	= As-built Incremental Capital Cost per Square Foot for Envelope HERS Index based Measures. As-Built HERS ICC/SF = $(0.001617 \times \text{HERS}^2 - 0.25839 \times \text{HERS} + 10.32437) \times \text{HERS_ICC_Adj_Factor}$
Baseline_HERS_ICC/SF	For areas requiring IECC 2009 compliant homes: Baseline_HERS_ICC/SF = \$0.00. For areas requiring better than Code HERS Indices: Baseline_HERS_ICC/SF = $(0.001617 \times \text{Baseline_HERS}^2 - 0.25839 \times \text{Baseline_HERS} + 10.32437) \times \text{HERS_ICC_Adj_Factor}$
HERS_ICC/SF	= As-built HERS_ICC/SF - Baseline_HERS_ICC/SF

Variables:

Home Size	Home Size in Square Feet for use in calculating ICC Adj Factor. Provided by vendor for each home.
HERS	HERS Index Score for use in calculating Incremental Capital Costs. Provided by vendor for each home.
Baseline_HERS	HERS Index Score based on local code requirements. For areas requiring IECC 2009 compliant homes: Baseline_HERS = 80. For areas requiring Better Than Code homes: Baseline_HERS = 70.
TDLF	Transmission Distribution Loss Factor = 7.7%, the percentage loss of electricity as it flows from the power plant to the customer.
CF	Coincidence Factor = the probability that peak demand of the lights will coincide with peak utility system demand from Table 2 (below).

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

NTG	Net-to-Gross Factor as listed in Table 2.
O&M savings	Operation and Maintenance savings = We will assume water savings of \$58.19 per year for Clothes Washers and \$3.59 per year for Dishwashers.

Table 1. Baseline HERS Values

Location	Baseline HERS	HERS for Rebate Eligibility
Jurisdictions Requiring Better Than Code HERS Index Scores	70	65
Jurisdictions Requiring Code Compliant HERS Index Scores	80	75

- As-built HERS Index must be less than the maximum allowed by local code to qualify for a rebate
- Rebate levels, incremental costs and baseline HERS values will be adjusted as appropriate to account for local codes requiring better than IECC 2009 compliant HERS Indices.
- No rebates will be given for homes with a Baseline HERS Index of 60 or lower

Table 2. Measure Life, Cost and Net to Gross (NTG)

Type of measure:	Measure life:	Incremental cost:	Coincidence factor:	NTG (elec):	NTG (gas):
Envelope Measures	20 years (Reference 1)	Incremental costs for envelope measures will be determined based on location, size of house, and HERS index as seen in Table 3.	Coincidence factor will be determined for the bundled measures of each house by taking the actual Summer peak kW reduction and multiplying by 0.9 to account for probability that the house peak occurs at the same time as the system peak.	92%	92%
Energy Star V3 Home	20 years (Reference 1)	Incremental Capital Cost is the SUM of the Incremental Capital Costs for each of the following measures: HERS based Envelope Measure (see Table 3), Energy Star V3 Paper work = \$1,155.63 Energy Star Clothes Washer, Energy Star Dishwasher, and Energy Star Refrigerator.	Coincidence factor will be determined for the bundled measures of each house by summing the actual Summer peak coincident kW reduction already calculated for each measure.	92%	92%
Energy Star Clothes washer	11 years (Reference 16)	\$200 (Reference 14)	4.47% (Reference 14)	92%	92%
Energy Star Dishwasher	11 years (Reference 15)	\$30 (Reference 14)	2.45% (Reference 14)	92%	92%
Energy Star Refrigerator	13 years (Reference 14)	\$30 (Reference 14)	100.00%	92%	N/A

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 3. HERS Envelope Measure Incremental Capital Cost per Square Foot of Efficient Home Referenced to a Baseline of 80 HERS (Reference 17)

HERS Range for forecast	HERS Value	Home Size (Sq. Ft.)											
		1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	
	80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
75 - 71	75	\$ 0.07	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.02
	74	\$ 0.10	\$ 0.09	\$ 0.08	\$ 0.07	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03
	73	\$ 0.14	\$ 0.12	\$ 0.10	\$ 0.09	\$ 0.08	\$ 0.07	\$ 0.07	\$ 0.07	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05
	72	\$ 0.18	\$ 0.15	\$ 0.13	\$ 0.12	\$ 0.11	\$ 0.10	\$ 0.09	\$ 0.08	\$ 0.07	\$ 0.07	\$ 0.07	\$ 0.06
	71	\$ 0.23	\$ 0.19	\$ 0.17	\$ 0.15	\$ 0.13	\$ 0.12	\$ 0.11	\$ 0.10	\$ 0.09	\$ 0.08	\$ 0.08	\$ 0.08
70 - 66	70	\$ 0.28	\$ 0.24	\$ 0.21	\$ 0.19	\$ 0.17	\$ 0.15	\$ 0.14	\$ 0.12	\$ 0.11	\$ 0.10	\$ 0.10	\$ 0.09
	69	\$ 0.34	\$ 0.29	\$ 0.25	\$ 0.22	\$ 0.20	\$ 0.18	\$ 0.16	\$ 0.15	\$ 0.14	\$ 0.12	\$ 0.11	\$ 0.11
	68	\$ 0.40	\$ 0.34	\$ 0.30	\$ 0.27	\$ 0.24	\$ 0.22	\$ 0.19	\$ 0.18	\$ 0.16	\$ 0.15	\$ 0.13	\$ 0.13
	67	\$ 0.47	\$ 0.40	\$ 0.35	\$ 0.31	\$ 0.28	\$ 0.25	\$ 0.23	\$ 0.21	\$ 0.19	\$ 0.17	\$ 0.16	\$ 0.16
65 - 61	66	\$ 0.55	\$ 0.47	\$ 0.41	\$ 0.36	\$ 0.32	\$ 0.29	\$ 0.26	\$ 0.24	\$ 0.22	\$ 0.20	\$ 0.18	\$ 0.18
	65	\$ 0.63	\$ 0.53	\$ 0.47	\$ 0.41	\$ 0.37	\$ 0.34	\$ 0.30	\$ 0.28	\$ 0.25	\$ 0.23	\$ 0.21	\$ 0.21
	64	\$ 0.72	\$ 0.61	\$ 0.53	\$ 0.47	\$ 0.42	\$ 0.38	\$ 0.35	\$ 0.31	\$ 0.29	\$ 0.26	\$ 0.24	\$ 0.24
	63	\$ 0.81	\$ 0.69	\$ 0.60	\$ 0.53	\$ 0.48	\$ 0.43	\$ 0.39	\$ 0.35	\$ 0.32	\$ 0.29	\$ 0.27	\$ 0.27
	62	\$ 0.91	\$ 0.77	\$ 0.67	\$ 0.60	\$ 0.53	\$ 0.48	\$ 0.44	\$ 0.40	\$ 0.36	\$ 0.33	\$ 0.30	\$ 0.30
60 - and below	61	\$ 1.01	\$ 0.86	\$ 0.75	\$ 0.66	\$ 0.60	\$ 0.54	\$ 0.49	\$ 0.44	\$ 0.40	\$ 0.37	\$ 0.33	\$ 0.33
	60	\$ 1.12	\$ 0.95	\$ 0.83	\$ 0.74	\$ 0.66	\$ 0.60	\$ 0.54	\$ 0.49	\$ 0.45	\$ 0.41	\$ 0.37	\$ 0.37
	59	\$ 1.23	\$ 1.05	\$ 0.91	\$ 0.81	\$ 0.73	\$ 0.66	\$ 0.60	\$ 0.54	\$ 0.49	\$ 0.45	\$ 0.41	\$ 0.41
	58	\$ 1.35	\$ 1.15	\$ 1.00	\$ 0.89	\$ 0.80	\$ 0.72	\$ 0.65	\$ 0.59	\$ 0.54	\$ 0.49	\$ 0.45	\$ 0.45
	57	\$ 1.48	\$ 1.26	\$ 1.10	\$ 0.97	\$ 0.87	\$ 0.79	\$ 0.71	\$ 0.65	\$ 0.59	\$ 0.54	\$ 0.49	\$ 0.49
	56	\$ 1.61	\$ 1.37	\$ 1.19	\$ 1.06	\$ 0.95	\$ 0.86	\$ 0.78	\$ 0.71	\$ 0.64	\$ 0.59	\$ 0.53	\$ 0.53
	55	\$ 1.75	\$ 1.48	\$ 1.30	\$ 1.15	\$ 1.03	\$ 0.93	\$ 0.84	\$ 0.77	\$ 0.70	\$ 0.64	\$ 0.58	\$ 0.58
	54	\$ 1.89	\$ 1.61	\$ 1.40	\$ 1.24	\$ 1.12	\$ 1.01	\$ 0.91	\$ 0.83	\$ 0.76	\$ 0.69	\$ 0.63	\$ 0.63
	53	\$ 2.04	\$ 1.73	\$ 1.51	\$ 1.34	\$ 1.20	\$ 1.09	\$ 0.98	\$ 0.90	\$ 0.82	\$ 0.74	\$ 0.68	\$ 0.68
	52	\$ 2.19	\$ 1.86	\$ 1.63	\$ 1.44	\$ 1.29	\$ 1.17	\$ 1.06	\$ 0.96	\$ 0.88	\$ 0.80	\$ 0.73	\$ 0.73
	51	\$ 2.35	\$ 2.00	\$ 1.75	\$ 1.55	\$ 1.39	\$ 1.25	\$ 1.14	\$ 1.03	\$ 0.94	\$ 0.86	\$ 0.78	\$ 0.78
	50	\$ 2.52	\$ 2.14	\$ 1.87	\$ 1.66	\$ 1.49	\$ 1.34	\$ 1.22	\$ 1.11	\$ 1.01	\$ 0.92	\$ 0.84	\$ 0.84
	49	\$ 2.69	\$ 2.28	\$ 1.99	\$ 1.77	\$ 1.59	\$ 1.43	\$ 1.30	\$ 1.18	\$ 1.07	\$ 0.98	\$ 0.89	\$ 0.89
48	\$ 2.87	\$ 2.43	\$ 2.13	\$ 1.89	\$ 1.69	\$ 1.53	\$ 1.38	\$ 1.26	\$ 1.15	\$ 1.04	\$ 0.95	\$ 0.95	
47	\$ 3.05	\$ 2.59	\$ 2.26	\$ 2.01	\$ 1.80	\$ 1.62	\$ 1.47	\$ 1.34	\$ 1.22	\$ 1.11	\$ 1.01	\$ 1.01	
46	\$ 3.24	\$ 2.75	\$ 2.40	\$ 2.13	\$ 1.91	\$ 1.72	\$ 1.56	\$ 1.42	\$ 1.29	\$ 1.18	\$ 1.07	\$ 1.07	
45	\$ 3.43	\$ 2.91	\$ 2.54	\$ 2.26	\$ 2.02	\$ 1.83	\$ 1.66	\$ 1.51	\$ 1.37	\$ 1.25	\$ 1.14	\$ 1.14	

The table values were calculated using the algorithms for As-Built_HERS_ICC/SF = (0.001617 x HERS^2 - 0.25839 x HERS + 10.32437) x HERS_ICC_Adj_Factor

Incremental Capital cost of As-built home may be calculated from the algorithms or selected from the above table which adjusts for home size.

The assumed Baseline_HERS for the table is 80. For homes with Baseline_HERS = 80: HERS_ICC/SF = As-built HERS_ICC/SF - 0.00

For homes with Baseline_HERS = 70: HERS_ICC/SF = As-built HERS_ICC/SF - Baseline_HERS_ICC/SF

Incremental Cost to achieve Energy Star V3 rating includes Envelope of HERS 60 or better, Energy Star Lighting, Energy Star Clothes washer, Energy Star Dishwasher, and Energy Star Refrigerator (and \$1,155.63 for paperwork)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Provided by Vendor:

REM/Rate output file including IECC 2009 and as built kW, kWh, and Therms
Location and size of house
Thermal Enclosure Checklist
As-Built HERS index
Code maximum HERS Index
Which of the three bundled measures (dishwasher, clothes washer, refrigerator) were installed?

Assumptions:

No CFLs exist in the home (new home) and that CFLs and any other efficient lighting will be included in the REMRate models for HERS Index development.
Energy Star V3 Tier only available to Combo Gas & Electric customers with HERS 60 or better rated home with Energy Star Lighting, Energy Star Clothes washer, Energy Star Dishwasher, Energy Star Refrigerator, and Energy Star V3 paperwork/checklists
Incremental costs to achieve the As-built HERS rating will be adjusted by as-built square footage.
For Homes with Baseline_HERS = 80 the Baseline_HERS_ICC/SF = \$0.00

Changes From 2013:

None

References:

1. California Measurement Advisory Committee (CALMAC) Protocols, Appendix F (www.calmac.org/events/APX_F.pdf).
2. 2006 Residential Energy Use Colorado Service Area - Xcel: Bruce Neilson
3. American Housing Survey for Denver - US Census Bureau
4. Xcel Energy CO DSM Potential 2006 - prepared by Kema
5. National Energy Efficiency Best Practices Study - Residential Single-Family Comprehensive Weatherization Best Practices Report from December 2004.
6. RS Means Repair and Remodeling 2007 at a cost of \$0.028 per square foot per increase in R-value.
7. National Energy Audit Tool (NEAT) and Frontier estimates.
8. EEBP web site - Tacoma Residential Weatherization program.
9. US Lighting Market Characterization Study performed for the Department of Energy in 2002
10. MEEA/ES
11. Xcel Energy estimate
12. Draft Technical Support Document: Energy Conservation Standards for Residential Furnaces and Boilers, Efficiency Standards for Consumer Products Prepared for US DOE, September 2006
13. California Energy Commission's Database for Energy Efficient Resources (DEER)
14. www.energystar.gov
15. DOE 2007
16. Appliance Magazine, September 2007
17. Incremental cost data are estimates from Residential Science Resources

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Program Description:

Prescriptive rebates will be offered for the purchase and installation of evaporative coolers. Three tiers of rebates are offered based on the Evaporative Efficacy of the unit and the type of media. The rebates and analyses are based on a nominal 3 ton cooling load. Tier 1 units are standard efficiency evaporative coolers. Tier 2 units are high efficiency evaporative coolers (see assumptions for details). Tier 3 is an integrated HVAC system rebate that compares the "whole house" conventional HVAC with an integrated heating and evaporative cooling system in new homes or homes with major remodeling. Credit will be calculated based on the number and type of units installed, the type of the existing unit and the location of the home

Algorithms:

Tier 1: 13 SEER 3 Ton to evap cooling savings:

Energy Savings (Customer kWh) Front Range	= 3Ton A/C - Tier 1 Evap Cooling energy = 1,194 kWh
Demand Savings (Customer kW) Front Range	= 3Ton A/C - Tier 1 Evaporative cooler demand = 2.83 kW
Energy Savings (Customer kWh) Western Slope	= 3Ton A/C - Tier 1 Evap Cooling energy = 1,390 kWh
Demand Savings (Customer kW) Western Slope	= 3Ton A/C - Tier 1 Evaporative cooler demand = 2.83 kW

Tier 2: 13 SEER 3 Ton to Tier 2 evap cooler savings:

Energy Savings (Customer kWh) Front Range	= 3Ton A/C - Tier 2 Evaporative cooling energy = 1,194 kWh
Demand Savings (Customer kW) Front Range	= 3Ton A/C - Tier 2 Evaporative cooler demand = 2.83 kW
Energy Savings (Customer kWh) Western Slope	= 3Ton A/C - Tier 2 Evaporative cooling energy = 1,390 kWh
Demand Savings (Customer kW) Western Slope	= 3Ton A/C - Tier 2 Evaporative cooler demand = 2.83 kW

Tier 3: Whole house conventional HVAC to Integrated Evap Cooler

Energy Savings (Customer kWh) Front Range	= 3Ton A/C - Whole house evap energy = 1,037 kWh
Demand Savings (Customer kW) Front Range	= 3Ton A/C - Whole house evap demand = 2.46 kW
Energy Savings (Customer kWh) Western Slope	= 3Ton A/C - Whole house evap energy = 1,207 kWh
Demand Savings (Customer kW) Western Slope	= 3Ton A/C - Whole house evap demand = 2.46 kW

Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	=Cust_kW * CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

Variables:

13 SEER 3 Ton energy	=Energy use of 13 SEER 3 Ton AC unit = 1,358 kWh (Front Range) 1,581kWh (Western Slope)
13 SEER 3 Ton demand	=Demand of 13 SEER 3 Ton AC unit = 3.22 kW
Tier 1 Evaporative cooler energy	= Motor HP x 0.746 x Load Factor / Motor Eff x OpHr = 165 kWh
Tier 1 Evaporative cooler demand	= Motor HP x 0.746 x Load Factor / Motor Eff = 0.388 kW
Tier 2 Evaporative cooler energy	= Motor HP x 0.746 x Load Factor / Motor Eff x OpHr for Hi and Lo speeds additively = 320 kWh
Tier 2 Evaporative cooler demand	= Motor HP x 0.746 x Load Factor / Motor Eff = 0.760 kW
Tier 3 Evaporative cooler energy	= Motor HP x 0.746 x Load Factor / Motor Eff x OpHr for Hi and Lo speeds additively = 320 kWh

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Tier 3 Evaporative cooler demand	= Motor HP x 0.746 x Load Factor / Motor Eff = 0.760 kW
EFLH Front Range/Denver	=422
EFLH Western Slope	=491
Ref_air_energy	= Modeled hourly energy use of home with 3 ton 13 SEER standard AC unit in Denver using ESPRE. = Front Range 1,358 kWh (Reference 1) & Western Slope 1,581 kWh
Ref air demand	= Btuh/EER x 1000. We will use 3.22 kW (Reference 2)
MotorHP	Motor Horsepower - We will use 0.52 hp for tier 1 units. We will use 0.52 hp for tier 2 units and 1.02 Hp for tier 3 units represent the motor size for an evaporative cooler which corresponds to the cooling output of a 3 ton AC unit. (Reference 5)
0.746	Standard conversion from HP to kW
Load Factor	Load factor for motor - We will use 80% for tier 1 and 80% on high and 10% on low for tier 2.
Motor Eff	Efficiency of the evaporative cooler motor - We will use 80% (Reference 3)
CF_AC	= Coincidence factor for the refrigerated air system, the probability that peak demand of the AC unit will coincide with peak utility system demand. 0.70 will be used. (Program Evaluation 2010)
TDLF	Transmission Distribution Loss Factor = 7.7%, the percentage loss of electricity as it flows from the power plant to the customer, calculated using factors from Enhanced DSM Filing SRD-2
NTG	Net-to-Gross Factor = We will use 52% for tier 1 and 59% for tier 2 replacements, 70% for tier `1 and tier 2 first time installations, and 100% for tier 3 based on Xcel Energy product experience.
Incremental Costs	= Incremental cost of efficient technology over baseline technology. Values listed in Table 1
O&M savings	= Operation and Maintenance savings related to water use are listed in Table 2.
Measure Life	= 15 years (Program Evaluation 2010)

Table 1. Incremental Cost of Evaporative Coolers (Reference 6,7,8)

	Baseline Cost	Incremental Cost
13 SEER AC 3 T (Baseline System)	\$ 4,715	
Tier 1 Evaporative Cooling Unit	\$ 611	\$ (4,104)
Tier 2 HE Evaporative Cooling Unit	\$ 1,120	\$ (3,595)
Tier 3 Whole House Integrated Evap Cooling Unit	\$ 8,793	\$ 4,078

Table 2. Operation and Maintenance Savings (Reference 9)

Base System	New System	O&M Savings
13 SEER AC 3 T	Standard Evap Cooling (Tier 1)	\$ (10.43)
13 SEER AC 3 T	High Efficient Evap Cooling (Tier 2)	\$ (4.38)
Conventional 3 Ton HVAC; gas furn; elec cen AC	Gas furnace; integrated evap cooling (Tier 3)	\$ (4.38)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Provided by Customer:

Type of unit installed (Tier 1 or Tier 2) or installation type (Tier 3).

Verified during M&V

Yes

Assumptions:

The installed unit is assumed to have a 3/4 hp motor (commonly available unit, confirmed through metering)

Qualifying equipment must be new and be a permanently installed direct (Tier 1 or 2), indirect or two-stage evaporative cooling unit. Portable coolers or systems with vapor compression equipment are not eligible, nor is used or reconditioned equipment.

Tier 1: Qualifying evaporative cooling units must have a minimum Industry Standard Rated airflow of 2,500 CFM

Tier 2: Qualifying evaporative cooling units must meet tier 1 requirements and additionally have a minimum Media Saturation Effectiveness of 85%. The units must be installed with a remote thermostat and a periodic purge water control.

Tier 3: Integrated HVAC system rebate that compares the "whole house" conventional HVAC with an integrated heating and evaporative cooling system in new homes or homes with major remodeling. Tier 3 evaporative cooling units must be indirect or indirect/direct combination units. Units utilizing only direct cooling units do not qualify for Tier Baseline equipment in the incremental analysis was revised to accurately reflect the alternatives that customers consider when installing evaporative air conditioning compared to refrigerated air conditioning

The technical assumptions for the Evaporative Cooling Rebate product were developed assuming that a standard 13 SEER central air conditioning system was replaced or displaced by either a standard evaporative cooling system or a high efficiency evaporative cooling unit with the same capacity. These units have a measure life of 10 years.

Changes from 2013:

No Changes

References:

1. ESPRE 2.1 engineering model: Simplified energy analysis methods for residential buildings
2. Building America, Research Benchmark Definitions, Pg 9, http://www.eere.energy.gov/buildings/building_america/pdfs/37529.pdf
3. Average motor efficiency for 0.75 hp motor from NEMA, http://www.eere.energy.gov/buildings/appliance_standards/commercial/pdfs/small_motors_tsd.pdf
4. Kinney, Larry. New Evaporative Cooling Systems: An Emerging Solution for Homes in Hot Dry Climates with Modest Cooling Loads. SWEEP 2007
5. Web site information - Grainger Evap Cooler - Essick Model N28W; Pheonix Mfg Corp; Model PD4231
6. An average of the price for a 13 SEER Goodman (<http://www.acfactoryoutlet.com/home.asp?p=listgoodman.asp&cat=73&sort=1&ah=1>) and the price as noted in the DOE's AC calculator spreadsheet (www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Calc_CAC.xls) is assumed.
7. http://www.google.com/products?q=home+depot+evaporative+cooler+cost&ie=UTF-8&oe=utf-8&rls=org.mozilla:en-US:official&client=firefox-a&um=1&sa=X&oi=product_result_group&resnum=1&ct=title

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Heating System Rebates

Residential natural gas customers receive a cash rebate for purchasing high-efficiency heating equipment.

Residential electric customers can receive an additional cash rebate for purchasing an electronically commutated motor (ECM) furnace fan with their heating system.

Algorithms:

New Furnace & Boiler Savings (Dth)	= ((BTUH x EFFh/EFFb) - BTUH) x (1 - oversize factor) x Hrs / 1,000,000
Net Dth	= Gross Dth x NTG
ECM Furnace Fan Efficiency Electric Energy Savings (kWh)	= (ECM_baseline_kW - ECM_Proposed_kW) x ECM_Operating_Hours
ECM Furnace Fan Efficiency Electric Demand Savings (Customer kW)	= (ECM_baseline_kW - ECM_Proposed_kW)
Electrical Energy Savings (Gross Generator kWh)	= (Customer kWh) / (1-TLDF)
Electrical Demand Savings (Gross Generator kW)	= (Customer kW)*CF / (1-TLDF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG x Install Rate
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG x Install Rate

Variables:

NTG	Net-to-Gross Factor = We will use 77% for furnaces and boilers (Reference 6) and 94% for EC Motors (Reference 13).
BTUH	= Rated new furnace or boiler Input BTUH nameplate data provided by customer on rebate form.
EFFb	EFFb = 80% for furnaces before new DOE install standards and 90% after New DOE Install Standards; EFFb = 80% for boilers.
EFFh	= Efficiency for higher efficiency furnace will be provided by the customer on the rebate form.
Hrs	Equivalent Full Load Heating Hours for Furnace and Boiler equipment will be assumed as follows: 96% AFUE Furnace = 958 Hours 94% AFUE Furnace = 958 Hours 92% AFUE Furnace = 978 Hours 85% AFUE Boiler = 698 Hours
Oversize factor	= Oversizing factor on new furnace or boiler Input BTUH nameplate. Colorado oversize factor is assumed to be zero
Measure life	Furnace Life = 18 years (Reference 5) Boiler Life = 20 years (Reference 8)
Measure life	EC Motor = 18 years (Reference 5)
ECM_Operating_Hours	Operating Hours of Furnace Fan without Central AC = 6,478 hours (Reference 9, 12) Operating Hours of Furnace Fan with Central AC = 8,760 hours (Reference 9, 12)
ECM_Baseline_kW	= 0.173 (Reference 9, 12)
ECM_Proposed_kW	= 0.066 (Reference 9, 12)
CF	EC Motor Coincidence Factor = 0% for heating only and 69% for Furnace with Central AC
Transmission Distribution Loss Factor (TDLF)	Transmission Distribution Loss Factor = 7.70%, the percentage loss of electricity as it flows from the power plant to the customer.

Table 1: Incremental cost	Before DOE's Newest Install Standards become effective
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DEEMED SAVINGS TECHNICAL ASSUMPTIONS

New Energy Star Furnace => 92% AFUE, < 94% AFUE without ECM (Reference 1)	\$775.75
New Energy Star Furnace => 94% AFUE and < 96% AFUE without ECM (Reference 1)	\$834.15
New Energy Star Furnace => 96% AFUE (Reference 1)	\$892.54
New Furnace EC Motor (reference 10)	\$464.33
New boilers => 85% AFUE (Reference 11)	\$933.50

Provided by Customer:

Efficiency of new unit (Furnace 92%, 94%, 96% - Boiler 85%)
Furnace or Boiler Nameplate Capacity of new unit at sea level (BTUH, Input)
Was ECM furnace fan motor provided

Verified during M&V:

Yes
Yes
Yes

Changes From 2012:

Change Program Savings Calculation Method to match the Minnesota program.
Changed top furnace efficiency tier from 94% to 96% or better.
Added electronically commutated motor (ECM) furnace fans as an electric efficiency measure.
Increased Federal Standard baseline efficiency for gas furnaces from 78 to 80 AFUE.

Building Characteristics for Prototype Home Used for Modeling:

Single Family
Two story (Reference 3)
3 bedroom 2 bathroom (Reference 3)
2000 square feet (Reference 3)
Basement foundation (Reference 3)
HVAC:
heating - gas furnace 78 AFUE (55.9 kBtu unit required) - 85% of homes have gas heating, and 78% of which are forced air furnaces (Reference 2)
cooling - 59% have Central Air Conditioning model required a 2.5 ton unit to meet the cooling load (Reference 2)
air handler is in the basement and supply ducts and return ducts are assumed to be in majority interior space
Windows:
61% of homes have double pane windows (Reference 2)
double pane low-E are standard (Reference 4)
Model assumes 15% of wall area glazing
applied a u-factor of 0.53 (average between clear glass double pane and low-E)

Insulation Levels:

Existing Ceiling Insulation: R-19 (Reference 4)
Existing Wall Insulation: R-11 (Reference 4)

Basement Assumptions

Assumed basement walls to have R-11 insulation
Basement is considered finished space but not conditioned
The air handler is located in the basement
Some homes will have smaller sections of the basement conditioned – maybe a bonus room etc, however this cannot be easily modeled in EnergyGauge

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Appliances (Reference 2)

- 85% have dishwashers
- 74% electric ranges
- 88% and 89% have clothes washer and dryer (electric)
- 85% water heating is gas - model used a 40 gallon storage tank
- 68% of homes have ceiling fans

Average Customer Energy Consumption: (Reference 2)

- kWh annually: 9,000 roughly for a 2,000 square foot home
- Therms annually: 835

Assumptions

For the Heating System Rebate product, the incremental costs are based on difference between efficient and baseline unit installed cost excluding any cost for ductwork or equipment rental costs.

Furnace and Boiler equipment oversize factor is zero.

References:

1. California Energy Commission's Database for Energy Efficient Resources (DEER) <http://www.energy.ca.gov/deer>
(Does not include labor or equipment rental fees as this measure is considered a replace on burnout)
2. 2006 Residential Energy Use Colorado Service Area - Xcel: Bruce Neilson
3. American Housing Survey for Denver - US Census Bureau
4. Xcel Energy CO DSM Potential 2006 - prepared by Kema
5. Draft Technical Support Document: Energy Conservation Standards for Residential Furnaces and Boilers, Efficiency Standards for Consumer Products: Residential Central Air Conditioners And Heat Pumps, Prepared for US DOE, September 2006
6. Summit Blue 2006 Midwest Residential Market Assessment and DSM Potential Study.
7. Baseline costs from RS MEANS Repair and Remodeling Cost Data 2007
8. 2007 ASHRAE HVAC Applications Handbook Chapter 36, page 36.3, Table 4 (Boiler life time was reduced to 20 years from 24 years in the ASHRAE Handbook)
9. State of Wisconsin, Department of Administration, Division of Energy, ECM Furnace Impact Assessment Report, January 12, 2009
10. Data obtained from EC motors program
11. http://www1.eere.energy.gov/buildings/appliance_standards/residential/pdfs/fb_fr_tsd/appendix_e.pdf
12. Center for Energy and Environment Comments to Docket Number EERE-2010-BT-STD-0011-0022, July 27, 2010
13. National Energy Efficiency Best Practices Study - Residential Single-Family Comprehensive Weatherization Best Practices Report from December 2004.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: High Efficiency Air Conditioning

Prescriptive rebates will be offered for new cooling equipment. Rebates for most measures are dependent on size and on meeting a minimum efficiency. Plan A is defined as central air conditioning (CAC) systems installed in new homes, existing homes without CAC systems or homes with CAC systems that are inoperable or unrepairable. Plan B is for existing CAC systems that are operable or made operable for a reasonable cost (\$500 to \$1500). The equations for calculating savings are identical between Plan A and Plan B, but the baseline unit efficiencies are different as described below. Ground Source Heat Pumps will be rebated with a Quality Install (appropriate for GSHP) in new homes or when replacing electric resistance heating equipment in existing homes.

Algorithms:

Conversions:

Seasonal Energy Efficiency Ratio (SEER)	= Total seasonal cooling output (kBtuh) / Total electrical input (kWh); for estimating seasonal performance
Energy Efficiency Ratio (EER)	= Rated cooling output (kBtuh) / Rated electrical input (kW) for equipment tested at 95F estimating peak cooling performance; $EER = -0.02 \times SEER^2 + 1.12 \times SEER$. This equation relating EER to SEER applies to all equipment in this product, and will be used if EER rating is not available. (Reference 1)
kW/ton	= 12 / Energy Efficiency Ratio
Coefficient of Performance (COP)	= $EER / 3.413$ or, $EER = 3.413 \times COP$
Coefficient of Performance (COP) Heating	= Heat Energy Output (Btu) / Energy Input to Compressor (Btu)
For Split System Air Conditioners and Air Source Heat Pumps and Ground Source Heat Pumps	
New Equipment Electrical Energy Savings (Customer kWh)	= $Size \times EFLH \times (12/SEER_Standard - 12/SEER_Eff) / (1-Loss_No_QI)$
New Equipment Electrical Demand Savings (Customer kW)	= $Size \times (12/EER_Standard - 12/EER_Eff)$
Quality Install Electrical Energy Savings (Customer kWh)	= $Size \times EFLH \times (12/SEER_Eff) \times (1/(1-Loss_No_QI) - 1/(1-Loss_QI))$
Quality Install Electrical Demand Savings (Customer kW)	= $Size \times (12/EER_Eff) \times (1 - ((1-Loss_No_QI) / (1-Loss_QI)))$
GSHP Cooling Electrical Energy Savings (Customer kWh)	= $(GSHP_Size/2) \times EFLH (12/SEER_Standard - 12/GSHP_SEER) / (1-Loss_No_QI)$
GSHP Cooling Electrical Energy Savings (Customer kW)	= $GSHP_Size \times (12/EER_Standard - 12/GSHP_EER)$
GSHP Heating Electrical Energy Savings (Customer kWh)	= $GSHP_Size \times GSHP_EFLHH \times (12/EER_Standard - 12/GSHP_EER) / (1-Loss_No_QI)$
Electrical Energy Savings (Gross Generator kWh)	= $Customer\ kWh / (1-TDLF)$
Electrical Demand Savings (Gross Generator kW)	= $Customer\ kW \times CF / (1-TDLF)$
Electrical Energy Savings (Net Generator kWh)	= $Gross\ Generator\ kWh \times NTG$
Electrical Demand Savings (Net Generator kW)	= $Gross\ Generator\ kW \times NTG$
Present Value (\$)	= $Future\ Value \times (1+rate)^{(number\ of\ periods \times -1)}$

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Variables:

Size	= The new equipment capacity in tons, provided by customer
EFLH	= Equivalent Full Load Hours. The Equivalent number of hours that equipment would be running at Full Load over the course of the year. We will use 490.4 EFLH which was determined by modeling a home in Denver with a 3 ton 13 SEER AC unit. The resulting kWh were divided by the connected load to derive the EFLH value. Modeling used ESPRE simulation model which is an EPRI product.
GSHP_EFLHH	= Ground Source Heat Pump Equivalent Full Load Hours Heating: The equivalent number of hours that GSHP equipment would be running at Full Load over the course of the year for heating. We will use 846 EFLH for new homes and 1,419 for existing homes. GSHP EFLHH was determined by REMRATE modeling of a new and an existing home adjusted for Denver Degree Days. The resulting kWh were divided by the connected load to derive the EFLHH value.
SEER_Standard (Plan A)	= Seasonal Energy Efficiency Ratio of standard equipment, based upon the minimum Federal standard for efficiency as manufactured. For residential AC units, we will use 13 SEER.
SEER_Standard (Plan_B)	= Seasonal Energy Efficiency Ratio of existing equipment based upon the minimum Federal standard for efficiency manufactured between 1992 and 2006. For existing residential AC units, we will use 10 SEER.
SEER_Eff	= Seasonal Energy Efficiency Ratio of High Efficiency equipment that the customer will install, provided by the customer
EER_Standard (Plan_A)	= EER of standard equipment, based upon the minimum Federal acceptable efficiency. We will use 11.18 based on the federal standard 13 SEER and the conversion listed above.
EER_Standard (Plan_B)	= EER of existing equipment, based upon the 1992 to 2006 minimum Federal acceptable efficiency. We will use 9.2 based on the federal standard 10 SEER and the conversion listed above.
EER_Eff	= EER of High Efficiency that the customer will install, provided by customer. If value is not provided by the customer we will use the conversion listed above.
GSHP_EER	= EER of High Efficiency that the customer will install, provided by customer.
GSHP_SEER	= EER/0.95
Standard_COP	= Coefficient of Performance of electric resistance heater = 1.00 The COP of an airtsource heatpump in an existing home = 2.0 The COP of an airtsource heatpump in a new home = 3.1.
GSHP_COP	= Coefficient of Performance of GSHP equipment that the customer will install, provided by the customer. We will use COP if EER is not available. Baseline GSHP COP assumed to be 3.1
GSHP_Size	=Size of Ground Source Heat Pump, provided by customer. We will divide size by 2 for GSHP cooling calculations based on REMRATE modeling of a new and an existing home adjusted for Denver Degree Days. The resulting kWh were divided by the connected load to derive the EFLHH value.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Loss_No_QI Loss_No_QI_GSHP	Efficiency of unit lost due to improper installation. This is the Baseline condition for Quality Installations. We will use 30.5% which is the summation of the following losses: Equipment sizing = 3%, Refrigeration Charge = 13%, Improper air flow = 7%, Duct leaks = 7.5%.- Loss_No_QI_GSHP will be equal to the 7% improper air flow + 7.5% duct leaks = 14.5%.
Loss_QI	Efficiency of unit lost due to improper installation. All non-QI losses will be eliminated with quality install in a new home so the Loss_QI for a new home will be 0. In existing homes and all Plan B installations, all non QI losses will be eliminated except for the duct leakage losses. Duct leakage losses in an existing home will be cut in half resulting in a Loss_QI for existing homes of 3.75%. Savings will be reduced for quality installation according to the percentages above when it is determined through M & V that one or more facets of quality installation (equipment sizing, refrigeration charge, proper airflow, duct leakage) fall outside the acceptable range according to industry standards.
CF	= Coincidence Factor, the probability that peak demand savings will coincide with peak utility system demand. - 0.90 will be used for prescriptive AC rebate equipment. - 1.0 will be used for quality install - 1.0 will be used for GSHP Cooling - 0.0 will be used for GSHP Heating
Measure Life	Measure life is taken at 14 years for all Plan A cooling equipment, 7 years for all Plan B cooling equipment, and 7 years for Quality Installations (Reference 2). Plan Life for GSHP is 20 years (Reference 3).
TDLF	Transmission-Distribution Loss Factor = 7.69%, the percentage loss of electricity as it flows from the power plant to the customer, calculated using factors from Enhanced DSM Filing SRD-2
NTG	Net-to-gross; we will use -67.6% for AC units which is calculated from High Efficiency AC Program Evaluation conducted in 2012. We will use 100% for GSHP.
Future Value	Estimated cost of the standard replacement equipment at expected end of life of current equipment
Rate	Assumed interest rate. 7.88% used for discounting the future purchase price and 2.57% used for inflation to calculate the future purchase price based on current cost.
Number of Periods	Number of years expected until existing equipment end of life
Incremental operation and maintenance cost	= 0 - conservative approach, taking no credit for improved mean time between failure.
Incremental Capital Cost	Incremental cost of efficient equipment. Values listed in table 1 below. Values will be scaled for different equipment sizes. Plan A and Plan B incremental capital costs include \$200 for quality install.
Plan B Baseline Cost	inflation rate. The inflated value was then discounted back to present value using Xcel's Weighted Average Cost of Capital for Colorado. An average repair cost of \$750 was then added to the present value to arrive at the baseline cost used to establish the incremental costs for the various options. See Table 2 for calculations.
GSHP Incremental Cost Split	Incremental Costs were split according to percentage of annual energy used for heating (81%) and percentage of annual a energy used for cooling (19%).
Federal Tax Incentive:	30% of installed Cost of Energy Star Certified GSHP

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 1. Incremental Capital Costs

Unit Description	Current Year Purchase Price	Incremental Cost per ton Plan A	Incremental Cost Plan A	Baseline Plan B Cost	Incremental Cost per ton Plan B	Incremental Cost Plan B
13 SEER 3 ton unit	\$ 4,329	NA	NA	NA	NA	NA
14 SEER 3 ton unit	\$ 4,948	NA	NA	\$ 3,949	\$ 333.00	\$ 999
14.5 SEER 3 ton unit	\$ 5,050	\$ 240	\$ 720	\$ 3,949	\$ 366.83	\$ 1,100
15 SEER 3 ton unit	\$ 5,222	\$ 298	\$ 894	\$ 3,949	\$ 424.83	\$ 1,274
16 SEER 3 ton unit	\$ 5,569	\$ 413	\$ 1,239	\$ 3,949	\$ 539.83	\$ 1,619
17 SEER 3 ton unit	\$ 6,002	\$ 558	\$ 1,674	\$ 3,949	\$ 684.83	\$ 2,054
18 SEER 3 ton unit	\$ 6,435	\$ 702	\$ 2,106	\$ 3,949	\$ 828.83	\$ 2,486
Unit Description	Current Year Purchase Price	Incremental cost per ton Cooling	Incremental Cost per ton Heating	Incremental cost cooling	Incremental cost heating	
GSHP 14.1 EER 3.4 ton unit*	\$ 9,770	\$ 262	\$ 1,117	\$ 891	\$ 3,799	
GSHP 14.1 EER 6 ton unit*	\$ 16,790	\$ 262	\$ 1,117	\$ 1,572	\$ 6,704	

* Current Year Purchase Price for GSHP units is discounted by Federal Tax Incentive.

Incremental costs for unit sizes not listed will be interpolated/extrapolated from listed values

Incremental costs for GSHP to High Efficient GSHP will use the incremental cost table for standard A/C Units. This is due to a GSHP to HE GSHP the loop cost are the same so that cost is ignored. When the baseline system has electric resistance heat or is an air source heat pump the cost for the ground loop is included. The cost to install a GSHP loop is approximately \$2,005 per ton.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Provided by Customer: Plan A and Plan B	Verified during M&V
New cooling equipment type	Yes
New cooling equipment size (tons)	Yes
New cooling equipment efficiency (SEER, EER)	Yes
Type of home (Existing or New Construction)	Yes
Type of Existing Heating system (GSHP)	Yes
Provided By Installing Contractor: Plan B or GSHP	
Make, model and serial number from existing condensing unit	
Unit SEER and/or EER rating or COP for GSHP as given by the manufacturer	
M&V Process	
Evidence of Manual J load cal'cs and equipment sizing	Yes
Acceptable refrigerant charge	Yes
Acceptable air flow at coil	Yes
Acceptable range of duct leakage	Yes

Table 2. Plan B baseline present value

Discount Rate	7.88%	
10 Yr. Avg. Inflation Rate	2.57%	
SEER =	13	3 Ton Unit
2014 Cost	\$ 4,329	Inc. Cost
2015	\$ 4,440	\$ 4,116
2016	\$ 4,555	\$ 3,914
2017	\$ 4,672	\$ 3,721
2018	\$ 4,792	\$ 3,538
2019	\$ 4,916	\$ 3,364
2020	\$ 5,042	\$ 3,199
2021	\$ 5,172	\$ 3,041
2022	\$ 5,305	\$ 2,892

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Assumptions:

Baseline equipment meets applicable minimum Federal standards for efficiency

Baseline equipment installation (for QI) has 30.5% efficiency losses.

Baseline equipment installation in Existing Homes has 26.75% efficiency losses

High efficiency equipment exceeds minimum Federal standards for efficiency

Installed equipment does not operate at optimum efficiency until a Quality Installation is completed.

To qualify for a rebate, each piece of equipment must meet the minimum EER and SEER requirements. The customer should provide both the EER and SEER values for the particular piece of equipment. If the customer is unable to provide both values, the value(s) not provided will be calculated using the equations shown above. If a value is not provided by the customer, the calculated value still must meet the minimum requirement.

10-year Average Inflation Rate = 2.57% (InflationData.com)

CO Weighted Average Cost of Capital = 7.88%

Average Cost of Central AC Repair=\$750 (EEBC)

Federal Tax Incentive: As part of the American Recovery and Reinvestment Act of 2009 a Federal Tax Incentive of 30% of the installed cost of a new Ground Source Heat Pump system is available to taxpayers through 2016.

GSHP New Home REMRATE Modeling = Larger , more tightly built, better insulated new home was modeled with GSHP COP of 3.3

GSHP Existing Home REMRATE modeling = Smaller, less tightly built, poorly insulated existing home was modeled with GSHP of 3.3.

GSHP Installed Loop Cost/Ton = \$2004 per loop per Ton

GSHP Baseline Equipment Cost combines AC unit and electric resistance heating

GSHP appropriate Quality Install savings included in modeling

No Heating kW saving are claimed for GSHP during winter, only summer cooling kW savings are claimed.

Changes from 2011:

No changes

References:

1. Building America, Research Benchmark Definitions, p. 9
2. ASHRAE, 2007, Applications Handbook, Ch. 36, table 4, Comparison of Service Life Estimates
3. http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12640 (indoor components up to 25 years; ground loop =50 years)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Home Lighting & Recycling

Home Lighting product encourages the purchase of compact fluorescent lamps (CFLs) and Light Emitting Diodes (LEDs) and recycling of all fluorescent lamps.

Algorithms:

Electrical Energy Savings (Customer kWh)	=Number_of_Bulbs x (kW_Savings_per_Bulb) x Hours
Electrical Demand Savings (Customer kW)	=Number_of_Bulbs x (kW_Savings_per_Bulb)
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG x Realization Rate
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG x Realization Rate

Variables:

Number_of_Bulbs	= Number of bulbs sold
kW_Savings_per_Bulb	= kW savings per replaced bulb. We will subtract the manufacturer provided wattage for each CFL from the wattage of the incandescent bulb it replaces. The incadescent wattages will be determined based on the CFL wattage as seen in Table 1.
Hours of operation	= Hours of operation per year for the bulb. Hours of operation for residential installations is assumed to be 1.9 hours per day (693.5 hrs) Hours of operation for non-residential purchases are 2,450.5 hours 94% of all bulbs purchased are assumed to be residential and 6% are assumed to be non-residential. Reference 1
Measure Life	= Measure life for the average bulb sold will be equal to the lifetime hours divided by the annual hours of operation. CFL lifetime hours = 10,000 LED lifetime hours = 25,000 Reference 1
CF	= Probability that peak demand of the bulb will coincide with peak utility system demand. 0.08 will be used for all residential CFLs\LEDs 0.7246 will be used for all non residential CFLs\LEDs. (From business program) Reference 1
TDLF	= Total Distribution Loss Factor, Residential = 7.70%, Non-residential = 6.50%

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Incremental Cost of Bulbs	= See Table 2
Net-to-Gross Factor	= We will use 90% for residential CFL's and 100% for residential LED's
Realization Rate	= Future savings for bulbs purchased and put in storage and installed in later years. The net present value of the saving for all bulbs purchased = 99% of the savings if all bulbs are installed when purchased
O&M savings	= Operation and Maintenance savings are assumed to be zero.

Provided by product Vendor:
Number and type of bulbs purchased

Verified during M&V:
Yes

Assumptions:
The baseline bulb is a blend between the EISA standards (Halogen bulbs) and available incandescent bulbs

Table 1 - Existing lighting wattage for residential lights

Bulb Wattage Table						
	Eff Watts	Baseline Watt CFL	Baseline Watts LED	Eff Watts	Baseline Watt CFL	Baseline Watts LED
	4		33.00	19	57.50	76.00
	5		33.00	20	57.50	76.00
	6		33.00	21	57.50	76.00
	7	33.00	48.50	22	57.50	76.00
	8	33.00	48.50	23	76.00	76.00
	9	33.00	48.50	24	76.00	76.00
	10	33.00	48.50	25	76.00	150.00
	11	33.00	57.50	26	76.00	150.00
	12	33.00	57.50	27	76.00	150.00
	13	48.50	57.50	28	76.00	150.00
	14	48.50	57.50	29	76.00	150.00
	15	48.50	57.50	30	76.00	150.00
	16	48.50	76.00	31	150.00	150.00
	17	48.50	76.00	32	150.00	150.00
	18	48.50	76.00	>=32	150.00	150.00

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 2 - Average Cost Table	CFLs	LEDs
Gross Retail (per bulb)	\$ 2.74	\$ 28.39
Baseline (per bulb)	\$ 1.08	\$ 1.08
Incremental	\$1.66	\$27.31
Rebate	\$1.00	\$9.30
Net Retail	\$0.66	\$18.01
Data from 2012 program results using average pricing		

Changes from 2011:

Based on the new lighting study existing blubs in the home are no longer taken into consideration
Life of the bulbs are based on total lifetime hours divided by annual hours

References:

1. Michaels Tech Assumptions Review 2013
2. 2012 Program Results compiled by WECC (program administrator)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Home Performance with ENERGY STAR Rebates

Residential natural gas and electric customers receive a cash rebate for implementing multiple energy efficiency improvements.

Envelope Algorithms:

Attic insulation natural gas savings (Dth)	$= (1 / (2 + \text{Attic_Pre_R}) - 1 / (2 + \text{Attic_Post_R})) \times \text{Attic SF} \times \text{Dth_Per_SF_Attic}$
Attic insulation electric savings (Heating and Cooling) - Customer kWh	$= (1 / (2 + \text{Attic_Pre_R}) - 1 / (2 + \text{Attic_Post_R})) \times \text{Attic SF} \times (\text{Heating_kWh_Per_SF_Attic} + \text{Cooling_kWh_Per_SF_Attic})$
Attic insulation savings - Customer kW	$= \text{Customer kWh} / \text{Hours_Electric}$
CFM_Natural_Winter_Before (or After)	$= \text{CFM50_Before} \times 1/\text{N_Winter}$ or $= \text{CFM50_After} \times 1/\text{N_Winter}$
CFM_Natural_Summer_Before (or After)	$= \text{CFM50_Before} \times 1/\text{N_Summer}$ $= \text{CFM50_After} \times 1/\text{N_Summer}$
Air sealing / bypass sealing and weather-stripping natural gas savings (Heating)	Energy savings for the attic bypass sealing, air sealing, and weather-stripping will be calculated from actual field measurements using blower door testing performed by BPI certified contractors for home in CO heated with 0.78 AFUE furnace. $= (\text{CFM_Natural_Winter_before} - \text{CFM_Natural_Winter_after}) \times \text{ATF} \times \text{HDD} \times 24 \text{ hours/day} / 0.78 \text{ Eff} / 1,000,000 \text{ BTU/Dtherm}$
Air sealing / bypass sealing and weather-stripping savings - (Heating and Cooling) - Customer kWh	Energy savings for the attic bypass sealing, air sealing, and weather-stripping will be calculated from actual field measurements using blower door testing performed by BPI certified contractors. For customers with electric cooling: Cooling $= (\text{CFM_Natural_Summer_before} - \text{CFM_Natural_Summer_after}) \times \text{ATF} \times \text{CDD} \times 24 \text{ hours/day} / \text{COP} / 3412$ Heating $= (\text{CFM_Natural_Winter_before} - \text{CFM_Natural_Winter_after}) \times \text{ATF} \times \text{HDD} \times 24 \text{ hours/day} / \text{COP} / 3412$
Wall insulation natural gas savings (Dth)	$= \text{Dth_Per_SF_Wall} \times \text{Wall_SF}$
Wall insulation savings (Heating and Cooling) - Customer kWh	$= \text{kWh_Per_SF_Wall} \times \text{Wall_SF}$

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Lighting Algorithms:

CFL savings Customer kW	= (kW_Bulb_Existing - kW_Bulb_New) x (#_CFL_After - #_CFL_Before)
CFL savings Customer kWh	= (kW_Bulb_Existing - kW_Bulb_New) x (#_CFL_After - #_CFL_Before) x (CFL_Hours_Per_Bulb)

Thermostat Algorithms:

Setback thermostat natural gas savings (Gross Dth)	= 1.38% x 71.2 DTherms / year heating energy = 0.983 DTherms savings. 1.38% is based on 1 degree of heating set back out of 72.4 degree F temperature difference on a design day.
Setback thermostat Electric Energy savings (kWh)	= 1,358 kWh cooling energy x 5.26% = 71.47 kWh savings. 5.26% is based on 1 degree of cooling set back out of a 19 degree F temperature difference on a design day.
Setback thermostat Electric Demand savings (kW)	= Setback thermostat kWh / Hours Electric Cooling

Heating System Algorithms:

New Furnace & Boiler Savings (Dth)	= ((BTUH x EFFn / EFFo) - BTUH) x (1 - oversize factor) x Hrs / 1,000,000
ECM Furnace Fan Efficiency Electric Energy Savings (kWh)	= (ECM_baseline_kW - ECM_Proposed_kW) x ECM_Operating_Hours
ECM Furnace Fan Efficiency Electric Demand Savings (kW)	= (ECM_baseline_kW - ECM_Proposed_kW)

Water Heater Algorithms:

High efficiency water heater natural gas savings (Gross Dth)	= Total_water_heat_output x (EFn - Efo) / (Efn x Efo)
Electric Storage Water Heater Baseline Energy Consumption (Baseline kWh)	= Hot water energy / Efo
High Efficiency Heat Pump Storage Tank Consumption (Efficient WH kWh)	= Hot water energy / Efn
Water Heater Electric Savings (Customer kWh)	= Baseline kWh - Efficient WH kWh + Cooling Benefit - Heating Penalty
Water Heater Demand Savings (Customer kW)	= Customer kWh / Hours

Appliance Algorithms:

Dishwasher and Clothes Washer natural gas savings (Gross Dth) and electric energy savings (kWh)	= Appliance_Electric_Savings + (Hot_Water_Savings / Efn)
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DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Evap Algorithms:

Tier 1: 13 SEER 3 Ton to Tier 1 evap cooler savings:

Energy Savings (Customer kWh) Front Range	= 13 Seer 3 Ton - Tier 1 Evaporative cooling energy = (1,358 - 164) kWh = 1,194 kWh
Demand Savings (Customer kW) Front Range	= 13 Seer 3 Ton - Tier 1 Evaporative cooler demand = (3.220 - .388) kW = 2.832 kW
Energy Savings (Customer kWh) Mountain	= 13 Seer 3 Ton - Tier 1 Evaporative cooling energy = (840 - 101) kWh = 739 kWh
Demand Savings (Customer kW) Mountain	= 13 Seer 3 Ton - Tier 1 Evaporative cooler demand = (3.220 - .388) kW = 2.832 kW
Energy Savings (Customer kWh) Western Slope	= 13 Seer 3 Ton - Tier 1 Evaporative cooling energy = (1,581 - 191) kWh = 1,390 kWh
Demand Savings (Customer kW) Western Slope	= 13 Seer 3 Ton - Tier 1 Evaporative cooler demand = (3.220 - .388) kW = 2.832 kW

Tier 2: 13 SEER 3 Ton to Tier 2 evap cooler savings:

Energy Savings (Customer kWh) Front Range	= 13 Seer 3 Ton - Tier 2 Evaporative cooling energy = (1,358 - 164) kWh = 1,194 kWh
Demand Savings (Customer kW) Front Range	= 13 Seer 3 Ton - Tier 2 Evaporative cooler demand = (3.220 - .388) kW = 2.832 kW
Energy Savings (Customer kWh) Mountain	= 13 Seer 3 Ton - Tier 2 Evaporative cooling energy = (840 - 101) kWh = 739 kWh
Demand Savings (Customer kW) Mountain	= 13 Seer 3 Ton - Tier 2 Evaporative cooler demand = (3.220 - .388) kW = 2.832 kW
Energy Savings (Customer kWh) Western Slope	= 13 Seer 3 Ton - Tier 2 Evaporative cooling energy = (1,581.02 - 191.51) kWh = 1,391 kWh
Demand Savings (Customer kW) Western Slope	= 13 Seer 3 Ton - Tier 2 Evaporative cooler demand = (3.220 - .388) kW = 2.832 kW

Tier 3: 13 SEER 3 Ton HVAC to Integrated Evap Cooler

Energy Savings (Customer kWh) Front Range	= 13 Seer 3 Ton - Whole house evap energy = (1,358 - 320) kWh = 1,038 kWh
Demand Savings (Customer kW) Front Range	= 13 Seer 3 Ton - Whole house evap demand = (3.220 - .760) kW = 2.460 kW
Energy Savings (Customer kWh) Mountain	= 13 Seer 3 Ton - Whole house evap cooling energy = (840 - 198) kWh = 642 kWh
Demand Savings (Customer kW) Mountain	= 13 Seer 3 Ton - Whole house evap cooler demand = (3.220 - .760) kW = 2.460 kW
Energy Savings (Customer kWh) Western Slope	= 13 Seer 3 Ton - Whole house evap energy = (1,581 - 373) kWh = 1,208 kWh
Demand Savings (Customer kW) Western Slope	= 13 Seer 3 Ton - Whole house evap demand = (3.220 - .760) kW = 2.460 kW

AC Unit Algorithms:

Seasonal Energy Efficiency Ratio (SEER)	= Total seasonal cooling output (kBtu/h) / Total electrical input (kWh); for estimating seasonal performance.
Energy Efficiency Ratio (EER)	= Rated cooling output (kBtu/h) / Rated electrical input (kW) for equipment tested at 95F estimating peak cooling performance; EER = -0.02 x SEER ² + 1.12 x SEER. This equation relating EER to SEER applies to all equipment in this product, and will be used if EER rating is not available. (Reference 28)
kW/ton	= 12 / Energy Efficiency Ratio
Coefficient of Performance (COP)	= EER / 3.412 or, EER = 3.412 * COP
Coefficient of Performance (COP) Heating	= Heat Energy Output (Btu) / Energy Input to Compressor (Btu)

For Split System Air Conditioners and Air Source Heat Pumps and Ground Source Heat Pumps:

New Equipment Electrical Energy Savings (Customer kWh)	= Size x EFLH x (12/SEER_Standard - 12/SEER_Eff) / (1-Loss_No_QI)
New Equipment Electrical Demand Savings (Customer kW)	= Size x (12/EER_Standard - 12/EER_Eff)
Quality Install Electrical Energy Savings (Customer kWh)	= Size x EFLH x (12/SEER_Eff) x (1/(1-Loss_No_QI) - 1/(1-Loss_QI))
Quality Install Electrical Demand Savings (Customer kW)	= Size x (12/EER_Eff) x (1 - ((1-Loss_No_QI) / (1-Loss_QI)))
GSHP Cooling Electrical Energy Savings (Customer kWh)	=(GSHP_Size/2) x EFLH (12/SEER_Standard - 12/GSHP_SEER) / (1-Loss_No_QI)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

GSHP Cooling Electrical Energy Savings (Customer kW)	=GSHP_Size x (12/EER_Standard - 12/GSHP_EER)
GSHP Heating Electrical Energy Savings (Customer kW)	=GSHP_Size x GSHP_EFLHH x (12/EER_Standard - 12/GSHP_EER) / (1-Loss_No_QI)

General Algorithms:

Net Dth	= Gross Dth x NTG
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

Envelope Variables:

Hours_Electric Heating	Hours of electric heating operations to meet heating requirements as seen in Table 1 for various heating types.
Hours_Electric Cooling	Hours of electric cooling operations to meet cooling requirements as seen in Table 1 for various cooling types.
Dth_Per_SF_Attic	= Dth savings per square foot of attic coefficient for home in CO heated with 0.78 AFUE furnace from Energy Gauge model = 0.18221
kWh_Per_SF_Attic	= kWh savings per square foot of attic coefficient for home in CO. Values are listed in Table 1 for various heating and cooling options.
Dth_Per_SF_Wall Heating	= Dth savings per square foot of wall coefficient for home in CO heated with 0.78 AFUE furnace from Energy Gauge model = 0.02656. This value incorporates the change from R-0 to R-11 insulation in the wall.
kWh_Per_SF_Wall Heating	= kWh loss per square foot of wall coefficient for home in CO. Values are listed in Table 1 for various heating and cooling options. The values incorporate the change from R-0 to R-11 insulation in the wall.
Coincidence Factor (CF) Heating	Probability that savings will occur during Xcel's system peak periods (0% since heating savings only)
Coincidence Factor (CF) Cooling	Probability that savings will occur during Xcel's system peak periods - 81%
O&M savings	= Operation and Maintenance savings are assumed to be zero for the insulation rebates.
RatticE	= Existing R value for the attic before insulation is added, provided by customer. We will use a minimum R-value of 4.16 for attics that have no insulation
RatticN	= New R value for the Attic after the insulation is added, provided by customer
RwallE	= Existing R value for the wall before insulation is added, provided by customer. We will use a minimum R-value of 4.49 for walls that have no cavity insulation
RwallN	= New R value for the wall after the insulation is added, provided by customer
SFAI	= Square footage of attic insulation added, provided by customer
SFWI	= Square footage of wall insulation added, provided by customer
SEER	= Assumed cooling system seasonal energy efficiency ratio. We will use 13 which is the federal minimum standard.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

COP	= Coefficient of performance for electric heating system. We will use 3.5 for heat pumps, 2.25 for combo heat pump/resistance, and 1 for resistance units.
Total_Heat_Losses_Old	= Sum of the heat losses for the house before upgrades are performed. Will be calculated based on insulation and air sealing equations above using actual customer values. Assumes 15% of exterior walls have windows with a U-factor of 0.5.
Total Heat Losses New	= Sum of the heat losses for the house after upgrades are performed. Will be calculated based on insulation and air sealing equations above using actual customer values. Assumes 15% of exterior walls have windows with a U-factor of 0.5.

Heating System Variables:

Eff	= Efficiency of natural gas fired building heating system. For newly installed units we will use the actual nameplate efficiency for the unit that was installed. For existing units, we will use 78% for non condensing units and 92% for condensing units.
Effo	= Efficiency of the old natural gas heating unit, we will use 80% for Furnaces and 80% for Boilers
Effn	= Efficiency of the newly installed natural gas heating unit. We will use the nameplate value provided by the customer.
Hrs	Equivalent Full Load Heating Hours for Furnace and Boiler equipment will be assumed as follows: 94% AFUE Furnace = 958 Hours 92% AFUE Furnace = 978 Hours 85% AFUE Boiler = 698 Hours
BTUH	= Size of the newly installed natural gas heating unit. We will use the nameplate value provided by the customer.
oversize factor	= Oversizing factor on new furnace or boiler Input BTUH nameplate. Colorado oversize factor is assumed to be zero
ECM_Baseline_kW	= 0.173 (Reference 33, 34)
ECM_Proposed_kW	= 0.066 (Reference 33, 34)
ECM_Operating Hours	Operating Hours of Furnace Fan without Central AC = 6,478 hours (Reference 33, 34) Operating Hours of Furnace Fan with Central AC = 8,760 hours (Reference 33, 34)

Water Heating Variables:

Efo	= Efficiency Factor of the old natural gas water heater. We will use 0.59 for non condensing tank units.
Efn	= Efficiency Factor of newly installed water heater. We will use nameplate data provided by the customer.
Heating_Penalty	= 522 kWh for homes with heat pumps and 1,039 kWh for homes with electric resistance heat. Homes with gas heat will incur an O&M dollar penalty instead of a Dth penalty.
Cooling_Benefit	= 177 kWh for homes with refrigerated air conditioning, 0 kWh for homes without refrigerated air conditioning.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Lighting Variables:

# CFL After	= Number of CFL bulbs present in the home after the upgrade (minimum of 20), provided by the customer
# CFL Before	= Number of CFL bulbs present in the home before upgrade, provided by the customer
kW Bulb Existing	= Average wattage of incandescent bulb replaced by CFL, we will use 0.046624 kW in 2014
kW Bulb New	= Average wattage of newly installed CFL bulb, we will use 0.019 kW
CFL Hours Per Bulb	= Average Hours per Bulb in the Home = 694 Hours

Appliance Variables:

Appliance_Electric_Savings	= We will use 77 kWh and 0.36 kW for Dishwashers and 26 kWh and .09 kW for Clothes Washers (Reference 14)
Hot Water Savings	= We will use 12.72 Dth for Dishwashers and 8.80 Dth for Clothes Washers (Reference 14)
Refrigerator replacement electric energy and demand savings (kWh and kW)	Energy savings for the refrigerator were based on the Energy Star Refrigerator Savings Calculator: http://www.energystar.gov/index.cfm?c=refrig.pr_refrigerators . Savings is 93.41 kWh and 0.011 kW.
Refrigerator recycling electric energy and demand savings (kWh and kW)	Energy savings for the refrigerator are based on shipment-weighted average efficiencies of units manufactured from 1993-2000 with appropriate degradation factors applied to calculate baseline energy consumption (http://enduse.lbl.gov/Projects/RED.html) Demand savings are based on using an Average kW/Peak kW ratio from Deemed Refrigerator Savings for Texas developed by Frontier Associates. Reference 8. Savings is 988.9 kWh and 0.13 kW.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Evap Variables:

13 Seer 3 Ton A/C energy	=Energy use of 13 SEER 3 Ton AC unit = 1,358 kWh - Front Range: 1,581kWh - Western Slope; 840 kWh - Mountains
13 Seer 3 Ton A/C demand	=Demand of 13 SEER 3 Ton AC unit = 3.22 kW
Tier 1 Evaporative cooler energy	= Motor HP x 0.746 x Load Factor / Motor Eff x OpHr = 164 kWh Front Range, 191 kWh Western Slope; 101 kWh Mountains
Tier 1 Evaporative cooler demand	= Motor HP x 0.746 x Load Factor / Motor Eff = 0.388 kW
Tier 2 Evaporative cooler energy	= Motor HP x 0.746 x Load Factor / Motor Eff x OpHr = 164 kWh Front Range; 191 kWh Western Slope; 101 kWh Mountain
Tier 2 Evaporative cooler demand	= Motor HP x 0.746 x Load Factor / Motor Eff = 0.388 kW
Tier 3 Evaporative cooler energy	= Motor HP x 0.746 x Load Factor / Motor Eff x OpHr = 321 kWh Front Range, 373 kWh Western Slope, 198 kWh Mountains
Tier 3 Evaporative cooler demand	= Motor HP x 0.746 x Load Factor / Motor Eff = 0.760 kW

EFLH Front Range/Denver	=422 Hours
EFLH Mountain Area	=261 Hours
EFLH Western Slope	=491 Hours

Ref_air_energy	= Modeled hourly energy use of home with 3 ton 13 SEER standard AC unit in Denver using ESPRE. = Front Range 1,358 kWh (Reference 18) & Western Slope 1,581 kWh
Ref air demand	= Btuh/EER x 1000. We will use 3.22 kW (Reference 19)
MotorHP	Motor Horsepower - We will use 0.52 hp for tier 1 units. We will use 0.52 hp for tier 2 units and 1.02 Hp for tier 3 units represent the motor size for an evaporative cooler which corresponds to the cooling output of a 3 ton AC unit. (Reference 22)
0.746	Standard conversion from HP to kW
Load Factor	Load factor for motor - We will use 80% for tier 1 and 80% on high and 10% on low for tier 2.
Motor Eff	Efficiency of the evaporative cooler motor - We will use 80% (Reference 20)
CF AC	= Coincidence factor for the refrigerated air system, the probability that peak demand of the AC unit will coincide with peak utility system demand. 0.7 will be used. (Reference 22)
OpHr	Operating hours of the evaporative cooler fan motor - We will use 1040 for Front Range and 1251 for Western Slope from Cadmus recommendations (Reference 22)
Incremental Costs	= Incremental cost of efficient technology over baseline technology. Values listed in Table 4
O&M savings	= Operation and Maintenance savings related to water use are listed in Table 5.
Measure Life	= 15 years (Reference 22)
NTG	Net-to-Gross Factor = We will use 52% for tier 1 evaporative cooling, and 59% for tier 2 and 100% for tier 3. (Reference 22)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

AC Variables:

Size	= The new equipment capacity in tons, provided by customer
EFLH	= Equivalent Full Load Hours. The Equivalent number of hours that equipment would be running at Full Load over the course of the year. We will use 490.4 EFLH which was determined by modeling a home in Denver with a 3 ton 13 SEER AC unit. The resulting kWh were divided by the connected load to derive the EFLH value. Modeling used ESPRE simulation model which is an EPRI product.
GSHP_EFLHH	= Ground Source Heat Pump Equivalent Full Load Hours Heating: The equivalent number of hours that GSHP equipment would be running at Full Load over the course of the year for heating. We will use 846 EFLH for new homes and 1,419 for existing homes. GSHP EFLHH was determined by REMRATE modeling of a new and an existing home adjusted for Denver Degree Days. The resulting kWh were divided by the connected load to derive the EFLHH value.
SEER_Standard (Plan A)	= Seasonal Energy Efficiency Ratio of standard equipment, based upon the minimum Federal standard for efficiency as manufactured. For residential AC units, we will use 13 SEER.
SEER_Standard (Plan_B)	= Seasonal Energy Efficiency Ratio of existing equipment based upon the minimum Federal standard for efficiency manufactured between 1992 and 2006. For existing residential AC units, we will use 10 SEER.
SEER_Eff	= Seasonal Energy Efficiency Ratio of High Efficiency equipment that the customer will install, provided by the customer
EER_Standard (Plan_A)	= EER of standard equipment, based upon the minimum Federal acceptable efficiency. We will use 11.18 based on the federal standard 13 SEER and the conversion listed above.
EER_Standard (Plan_B)	= EER of existing equipment, based upon the 1992 to 2006 minimum Federal acceptable efficiency. We will use 9.2 based on the federal standard 10 SEER and the conversion listed above.
EER_Eff	= EER of High Efficiency that the customer will install, provided by customer. If value is not provided by the customer we will use the conversion listed above.
GSHP_EER	= EER of High Efficiency that the customer will install, provided by customer.
GSHP_SEER	= EER/0.95
Standard_COP	= Coefficient of Performance of electric resistance heater = 1.00 The COP of an aresource heatpump in an existing home = 2.0 The COP of an aresource heatpump in a new home = 3.1.
GSHP_COP	= Coefficient of Performance of GSHP equipment that the customer will install, provided by the customer. We will use COP if EER is not available. Baseline GSHP COP assumed to be 3.1
GSHP_Size	=Size of Ground Source Heat Pump, provided by customer. We will divide size by 2 for GSHP cooling calculations based on REMRATE modeling of a new and an existing home adjusted for Denver Degree Days. The resulting kWh were divided by the connected load to derive the EFLHH value.
Loss_No_QI Loss_No_QI_GSHP	Efficiency of unit lost due to improper installation. This is the Baseline condition for Quality Installations. We will use 30.5% which is the summation of the following losses: Equipment sizing = 3%, Refrigeration Charge = 13%, Improper air flow = 7%, Duct leaks = 7.5%. the Loss_No_QI_GSHP will be 14.5% (based on improper airflow plus duct leakage).

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Loss_QI	Efficiency of unit lost due to improper installation. All non-QI losses will be eliminated with quality install in a new home so the Loss_QI for a new home will be 0. In existing homes and all Plan B installations, all non-QI losses will be eliminated except for the duct leakage losses. Duct leakage losses in an existing home will be cut in half resulting in a Loss_QI for existing homes of 3.75%. Savings will be reduced for quality installation according to the percentages above when it is determined through M & V that one or more facets of quality installation (equipment sizing, refrigeration charge, proper airflow, duct leakage) fall outside the acceptable range according to industry standards.
CF	= Coincidence Factor, the probability that peak demand savings will coincide with peak utility system demand. 0.90 will be used for prescriptive AC rebates. For GSHP .50 will be used.
Measure Life	Measure life is taken at 14 years for all Plan A cooling equipment, 7 years for all Plan B cooling equipment, and 7 years for Quality Installations (Reference 29). Plan Life for GSHP is 20 years (Reference 30).
Future Value	Estimated cost of the standard replacement equipment at expected end of life of current equipment
Rate	Assumed interest rate. 7.88% used for discounting the future purchase price and 2.57% used for inflation to calculate the future purchase price based on current cost.
Number of Periods	Number of years expected until existing equipment end of life
Incremental operation and maintenance cost	= 0 - conservative approach, taking no credit for improved mean time between failure.
Incremental Capital Cost	Incremental cost of efficient equipment. Values listed in table 6 below. Values will be scaled for different equipment sizes. Plan A and Plan B incremental capital costs include \$200 for quality install.
Plan B Baseline Cost	The present value of a SEER 13 unit eight years in the future was calculated using a 10-year average inflation rate. The inflated value was then discounted back to present value using Xcel's Weighted Average Cost of Capital for Colorado. An average repair
GSHP Incremental Cost Split	Incremental Costs were split according to percentage of annual energy used for heating (81%) and percentage of annual a energy used for cooling (19%).
Federal Tax Incentive:	30% of installed Cost of Energy Star Certified GSHP

General Variables:

3412	Conversion from BTU to kWh, 1kWh = 3412 BTU
Hours	= We will use 1,031 hours which is determined by dividing the typical consumption by the typical output for electric water heater.
ATF	= Air Transfer Factor is a conversion factor for calculating BTU/hour from airflow in cubic feet / minute. The factor varies with altitude and air density. ATF will be deemed for the three climate zones as follows: Front Range = 0.891; Western Slope = 0.906 ; and Mountains = 0.813.
COP	= Coefficient of Performance for electric heating and cooling equipment. Electric resistance heat COP = 1.0; Standard AC or Air Source Heat Pump (ASHP) COP = 2.0; Ground Source Heat Pump (GSHP) = 4.0.
CFM50 Before (or After)	= Blower Door test air leakage rate at 50 pascals maintained pressure, measured in cubic feet per minute. The contractor will capture actual readings as part of the service.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

CFM Natural Summer (or Winter) Before (or After)	= Natural average infiltration rate in cubic feet per minute. This is calculated for summer and winter separately both Before and After the air sealing work is completed. The difference is the CFM savings used to calculate the energy savings. See Algorithms above.
N _{Summer} (N _{Winter})	= Conversion factor used to relate actual measured CFM leakage rate (taken at a reference pressure of 50 pascals) to a natural CFM of infiltration. Factor is calculated from the assumptions of an ASHRAE Shelter Class of 3, Home height is based on the number of stories provided by the contractor, and TMY3 climatic data for average temperatures and wind speeds. See Table 8 for Summer and Winter N Factors.
NTG	Net-to-Gross Factor = We will use 94% based on reference 5.
CF	Coincidence Factor = Probability that peak demand of the bulb will coincide with peak utility system demand. As seen in Table 2 based on Reference 1.
TDLF	Transmission Distribution Loss Factor = 7.70%, the percentage loss of electricity as it flows from the power plant to the customer, calculated using factors from Enhanced DSM Filing SRD-2

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 1: Savings factors for electrically heated and cooled homes:

	Electric Resistance Heat	Air Source Heat Pump or Air Conditioner	Ground Source Heat Pump	Evaporative Cooling
Heating kWh Per SF Attic	41.65299	20.82649	10.41325	NA
Cooling kWh Per SF Attic	NA	3.41032	1.70516	0.000
Heating kWh per SF Wall	6.07276	3.03638	1.51819	NA
Cooling kWh per SF Wall	NA	0.4972	0.2486	0.000
Hours Electric Heating	787	967	943	NA
Hours Electric Cooling	NA	628	628	628

Table 2 (Reference 1):

Type of measure:	Measure life:	Incremental cost:	Coincidence Factor
Attic insulation	20 years (Reference 1)	Provided by Customer	Cooling 81% Heating 0%
Air sealing / Bypass Sealing and weather-stripping	10 years (Reference 1)	Provided by Customer	
Wall insulation	20 years (Reference 1)	\$2,150 (Reference 6)	
CFLs	8.8 years (Reference 9)	\$3.15 / Lamp replaced (Reference 10)	8%
Setback thermostat	5 years (Reference 11)	\$50 (Reference 11)	0% Heating Only 81% w/ Central A/C
New Energy Star Furnace => 92% AFUE, < 94% AFUE without ECM (Reference 13)	18 years (Reference 12)	\$775.75	NA
New Energy Star Furnace => 94% AFUE and < 96% AFUE without ECM (Reference 13)	18 years (Reference 12)	\$834.15	NA
EC Motor for Furnace Fan	15 years	\$464.33	69% w/ Central AC 0% w/out Central AC
New boilers => 85% AFUE (Reference 32)	20 years (Reference 29)	\$933.50	NA
Tankless water heater 90%	20 years (Reference 1)	\$2,363.73	NA
Heat pump water heater (2.0 EF)	13 years (Reference 31)	\$1073.32 (Reference 31)	NA
Power vented water heater (67%)	15 years (Reference 1)	\$172.97	NA
Dishwasher	11 years (Reference 15)	\$30 (Reference 14)	2%
Clothes washer	11 years (Reference 16)	\$200 (Reference 14)	2%
Refrigerator replacement	13 years (Reference 14)	\$30 (Reference 14)	100%
Refrigerator recycling	7.3 years (Reference 14)	\$0 (Reference 11)	100%

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 4. Incremental Cost of Evaporative Coolers (Reference 23,24,25):

	Baseline Cost	HE Cost	Incremental Cost
Tier1: 13 Seer AC to Evap	\$ 4,329	\$ 1,022	\$ (3,307)
Tier2: 13 SEER AC to HE Evap	\$ 4,329	\$ 1,989	\$ (2,340)
Tier 3: 13 SEER AC to Whole House Evap	\$ 4,329	\$ 7,542	\$ 3,213

Table 5. Operation and Maintenance Savings (Reference 26):

Base System	New System	O&M Savings
13 Seer 3 Ton A/C	Standard Evap Cooling (Tier 1)	\$ (10.26)
13 Seer 3 Ton A/C	High Efficient Evap Cooling (Tier 2)	\$ (10.26)
13 Seer 3 Ton A/C	Integrated whole house evap cooling (Tier 3)	\$ (6.77)

Table 6. Incremental Capital Costs of AC Measures:

Unit Description	Current Year Purchase Price	Baseline Plan A Cost	Incremental Plan A Cost / Ton	Baseline Plan B Cost	Incremental Plan B Cost / Ton
13 SEER 3 ton unit	\$ 4,329	NA	NA	NA	NA
14 SEER 3 ton unit	\$ 4,948	NA	NA	\$ 3,949	\$ 333.11
14.5 SEER 3 ton unit	\$ 5,050	\$ 4,329	\$ 240	\$ 3,949	\$ 366.50
15 SEER 3 ton unit	\$ 5,222	\$ 4,329	\$ 298	\$ 3,949	\$ 424.50
16 SEER 3 ton unit	\$ 5,569	\$ 4,329	\$ 413	\$ 3,949	\$ 539.50
17 SEER 3 ton unit	\$ 6,002	\$ 4,329	\$ 558	\$ 3,949	\$ 684.50
18 SEER 3 ton unit	\$ 6,435	\$ 4,329	\$ 702	\$ 3,949	\$ 828.50
GSHP 14.1 EER 3.4 ton unit*	\$ 9,770	\$ 6,251	\$ 1,379.42		
GSHP 14.1 EER 6 ton unit*	\$ 16,790	\$ 6,448	\$ 1,379.42		

* Current Year Purchase Price for GSHP units is discounted by Federal Tax Incentive.
Incremental costs for unit sizes not listed will be interpolated/extrapolated from listed values

Incremental costs for GSHP to High Efficient GSHP will use the incremental cost table for standard A/C Units. This is due to a GSHP to HE GSHP the loop cost are the same so that cost is ignored. When the baseline system has electric resistance heat or is an air source heat pump the cost for the ground loop is included. The cost to install a GSHP loop is approximately \$2,005 per ton.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 7. AC Plan B baseline present value cost calculation:

Discount Rate	7.88%		
10 Yr. Avg. Inflation Rate	2.57%		
SEER=	13	3 Ton Unit	
2009 Cost=	\$ 4,329	Incremental Cost	
2010	\$ 4,440	\$ 4,440	
2011	\$ 4,554	\$ 4,222	
2012	\$ 4,671	\$ 4,014	
2013	\$ 4,792	\$ 3,816	
2014	\$ 4,915	\$ 3,629	
2015	\$ 5,042	\$ 3,450	
2016	\$ 5,171	\$ 3,281	
2017	\$ 5,304	\$ 3,119	

Table 8: N Factors for Determining Air Sealing Air Change Rates:

No. Stories	Summer N Factor			Winter N Factor		
	Front Range	Western Slope	Mountains	Front Range	Western Slope	Mountains
1	20.596444	19.702694	19.248689	14.108395	15.708906	14.863818
2	18.098424	17.747368	15.762584	11.068408	12.116026	11.283390
3	16.852021	16.899301	13.909654	9.508149	10.307679	9.517099

Table 9: Heating and Cooling Degree Days by Climate Zone

	Front Range	Western Slope	Mountains
HDD	5,922	5,782	7,769
CDD	970	1,375	570

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Provided by Customer:

Type of Measures Implemented

The Home Performance with ENERGY STAR Product provides a “systems approach” to comprehensive energy improvements. Public Service uses this approach by requiring an upgraded home “shell,” including code level attic insulation and a reduction in air infiltration coupled with a combustion safety check if naturally vented combustion appliances (furnace/boiler or water heater) remain in the home after product participation.

Product savings were determined by using a surrogate computer modeled home (modeled with Energy Gauge) with characteristics that approximate the most common home attributes as reported in the 2005 Home Use Survey and the energy consumption characteristics of the metropolitan Denver general housing stock excluding low-income customers. Low-income customers may participate in this product, but also have dedicated product offerings. Savings were determined by modeling the required improvements for the product (attic insulation and air infiltration control) and setting a secondary “baseline”, then adding the product “options” to the model. Wall insulation, programmable thermostat impacts, furnace and water heater improvements were modeled with this technique.

Actual cost of Attic Insulation

Actual Cost of Air Sealing

BTUH size of new fuel fired heating equipment

EFFn of new heating equipment

EFn of new domestic water heating equipment

Blower Door Test-in CFM50

Blower Door Test-out CFM50

Climate Zone (Front Range, Western Slope, or Mountains)

Number of Stories above grade in Home

Conditioned Square Footage

General Assumptions:

The baseline home had an existing level of insulation in the attic of R-19 and the change case had an elevated insulation level of R-40.

The baseline home had an existing ACH natural of 0.60 and the change case had a 25% reduction to 0.45 ACH natural.

The baseline home had an existing level of insulation in the walls of R-0 and the change case had an elevated insulation level of R-11.

The baseline water heater is a 40 gallon capacity with an Efficiency Factor (EF) of 59%.

Any home with an existing ACH natural of 0.45 ACH will not be eligible for the air sealing measure.

A Blower Door Test will be required for all participating homes.

The Attic Bypass Air Sealing energy savings will be captured with Air Sealing and Weather Stripping measure.

TMY3 Climate Data used for the following areas: Front Range = Denver; Western Slope = Grand Junction; Mountains = Alamosa

Heating Degree Days are based on a 65 F breakpoint temperature.

Cooling Degree Days are based on a 65 F breakpoint temperature.

Air Sealing based on an indoor temperature of 70 F.

The 2013 Air Sealing measure was calculated separately using the model home as a baseline and assuming three tiers of air reduction percentages derived from a data set of 349 homes tested both before and after improvement measures. The data was provided by Populs and the homes are located in the Front Range area. Natural air exchange calculations are in accordance with IECC 2009 and ASHRAE Fundamentals.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Evap Assumptions:

The installed unit is assumed to have a 3/4 hp motor (commonly available unit).

Qualifying equipment must be new and be a permanently installed direct (Tier 1 or 2), indirect or two-stage evaporative cooling unit. Portable coolers or systems with vapor compression equipment are not eligible, nor is used or reconditioned equipment.

Tier 1: Qualifying evaporative cooling units must have a minimum Industry Standard Rated airflow of 2,500 CFM

Tier 2: Qualifying evaporative cooling units must meet tier 1 requirements and additionally have a minimum Media Saturation Effectiveness of 85%. The units must be installed with a remote thermostat and a periodic purge water control.

Tier 3: Integrated HVAC system rebate that compares the "whole house" conventional HVAC with an integrated heating and evaporative cooling system in new homes or homes with major remodeling. Tier 3 evaporative cooling units must be indirect or indirect/di

Baseline equipment in the incremental analysis was revised to accurately reflect the alternatives that customers consider when installing evaporative air conditioning compared to refrigerated air conditioning

The technical assumptions for the Evaporative Cooling Rebate product were developed assuming that a standard 13 SEER central air conditioning system was

The NTG for the Tier 1 evaporative coolers is 59.7%. This was determined in the 2006 Summit Blue Consulting report. The NTG for the Tier 2 evaporative coolers is assumed to be 100% due to the low market participation. The average of these two numbers (

AC Assumptions:

Baseline equipment meets applicable minimum Federal standards for efficiency

Baseline equipment installation (for QI) has 30.5% efficiency losses.

Baseline equipment installation in Existing Homes has 26.75% efficiency losses

High efficiency equipment exceeds minimum Federal standards for efficiency

Installed equipment does not operate at optimum efficiency until a Quality Installation is completed.

To qualify for a rebate, each piece of equipment must meet the minimum EER and SEER requirements. The customer should provide both the EER and SEER values for the particular piece of equipment. If the customer is unable to provide both values, the value

10-year Average Inflation Rate = 2.57%

CO Weighted Average Cost of Capital = 7.88%

Average Cost of Central AC Repair=\$750 (EEBC)

Federal Tax Incentive: As part of the American Recovery and Reinvestment Act of 2009 a Federal Tax Incentive of 30% of the installed cost of a new Ground Source Heat Pump system is available to taxpayers through 2016.

GSHP New Home REMRATE Modeling = Larger, more tightly built, better insulated new home was modeled with GSHP COP of 3.3

GSHP Existing Home REMRATE modeling = Smaller, less tightly built, poorly insulated existing home was modeled with GSHP of 3.3.

GSHP Installed Loop Cost/Ton = \$2004 per loop per Ton

GSHP Baseline Equipment Cost combines AC unit and electric resistance heating

GSHP appropriate Quality Install savings included in modeling

No Heating kW saving are claimed for GSHP during winter, only summer cooling kW savings are claimed.

Gas Assumptions:

The baseline water heater is 40 gallon capacity with an Efficiency Factor (EF) of 59%.

The average baseline product cost is based on the cost from RS MEANS Repair and Remodeling Cost Data 2007

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Electric Assumptions:

Typical hot water energy requirement = 4,225 kWh/yr with no losses.

EF for new heat pump water heater = 2.19

EF for baseline electric water heater = 0.91

Building Characteristics for Prototype Home Used for Modeling:

Single Family

Two story (Reference 3)

3 bedroom 2 bathroom (Reference 3)

2000 square feet (Reference 3)

Basement foundation (Reference 3)

HVAC:

heating - gas furnace 78 AFUE (55.9 kBtu unit required) - 85% of homes have gas heating, and 78% of which are forced air furnaces (Reference 2)

cooling - 59% have Central Air Conditioning model required a 2.5 ton unit to meet the cooling load (Reference 2)

air handler is in the basement and supply ducts and return ducts are assumed to be in majority interior space

Windows:

61% of homes have double pane windows (Reference 2)

double pane low-E are standard (Reference 4)

Model assumes 15% of wall area glazing

applied a u-factor of 0.53 (average between clear glass double pane and low-E)

Insulation Levels:

Existing Ceiling Insulation: R-19 (Reference 4)

Existing Wall Insulation: R-11 (Reference 4)

Basement Assumptions

Assumed basement walls to have R-11 insulation

Basement is considered finished space but not conditioned

The air handler is located in the basement

Some homes will have smaller sections of the basement conditioned – maybe a bonus room etc, however this cannot be easily modeled in EnergyGauge

Appliances (Reference 2)

85% have dishwashers

74% electric ranges

88% and 89% have clothes washer and dryer (electric)

85% water heating is gas - model used a 40 gallon storage tank

68% of homes have ceiling fans

Average Customer Energy Consumption: (Reference 2)

kWh annually: 9,000 roughly for a 2,000 square foot home

Therms annually: 835

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

References:

1. California Measurement Advisory Committee (CALMAC) Protocols, Appendix F (www.calmac.org/events/APX_F.pdf).
2. 2006 Residential Energy Use Colorado Service Area - Xcel: Bruce Neilson
3. American Housing Survey for Denver - US Census Bureau
4. Xcel Energy CO DSM Potential 2006 - prepared by Kema
5. National Energy Efficiency Best Practices Study - Residential Single-Family Comprehensive Weatherization Best Practices Report from December 2004.
6. RS Means Repair and Remodeling 2007 at a cost of \$0.028 per square foot per increase in R-value.
7. National Energy Audit Tool (NEAT) and Frontier estimates.
8. EEBP web site - Tacoma Residential Weatherization program.
9. US Lighting Market Characterization Study performed for the Department of Energy in 2002
10. MEEA/ES Change A Light campaign info
11. Xcel Energy estimate
12. Draft Technical Support Document: Energy Conservation Standards for Residential Furnaces and Boilers, Efficiency Standards for Consumer Products Prepared for US DOE, September 2006
13. California Energy Commission's Database for Energy Efficient Resources (DEER)
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16. Appliance Magazine, September 2007
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21. Kinney, Larry. New Evaporative Cooling Systems: An Emerging Solution for Homes in Hot Dry Climates with Modest Cooling Loads. SWEEP 2007
22. Web site information - Grainger Evap Cooler - Essick Model N28W; Pheonix Mfg Corp; Model PD4231
23. An average of the price for a 13 SEER Goodman (<http://www.acfactoryoutlet.com/home.asp?p=listgoodman.asp&cat=73&sort=1&ah=1>) and the price as noted in the DOE's AC calculator spreadsheet (www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Ca)
24. http://www.google.com/products?q=home+depot+evaporative+cooler+cost&ie=UTF-8&oe=utf-8&rls=org.mozilla:en-US:official&client=firefox-a&um=1&sa=X&oi=product_result_group&resnum=1&ct=title
25. <http://www.toolbase.org/TechInventory/techDetails.aspx?ContentDetailID=750>: "A two-stage evaporative cooler with a cooling capacity equivalent to a three-ton conventional system retails for about \$1,800." The California Energy Commission states that installation costs are equivalent to refrigerated air systems, so only equipment cost is included in this analysis (http://www.consumerenergycenter.org/home/heating_cooling/evaporative.html: "Installation costs of swamp coolers are comparable to air conditioning units").
26. SWEEP 2007 Report. O&M Savings based on manufacturers water use data and an assumed \$3.82/thousand gallons cost for water (Denver Water Board).
27. ASHRAE Applications 2007 p.36.3 Used AC window unit as estimate for evaporative cooler.
28. Building America, Research Benchmark Definitions, p. 9
29. ASHRAE, 2007, Applications Handbook, Ch. 36, table 4, Comparison of Service Life Estimates
30. http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12640 (indoor components up to 25 years; ground loop =50 years)
31. Water heater analysis on ENERGY STAR website ".. ENERGY STAR Residential Water Heaters -Final Criterial Analysis";
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33. State of Wisconsin, Department of Administration, Division of Energy, ECM Furnace Impact Assessment Report, January 12, 2009
34. Center for Energy and Environment Comments to Docket Number EERE-2010-BT-STD-0011-0022, July 27, 2010

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Insulation Rebate

Residential natural gas and/or electric customers receive a cash rebate for installing insulation in their existing single-family home or one-to-four unit property.

Algorithms:

Attic insulation natural gas savings (Dth)	$= (1 / (2 + R_{atticE}) - 1 / (2 + R_{atticN})) \times SFAI \times Dth_Per_SF_Attic$
Attic insulation electric savings (Heating and Cooling) - Customer kWh	$= (1 / (2 + R_{atticE}) - 1 / (2 + R_{atticN})) \times SFAI \times (Heating_kWh_Per_SF_Attic + Cooling_kWh_Per_SF_Attic)$
Attic insulation savings - Customer kW	$= Customer\ kWh / (Hours_Electric\ Heating + Hours_Electric\ Cooling)$
CFM_Natural_Winter_Before (or After)	$= CFM50_Before \times 1/N_Winter$ or $= CFM50_After \times 1/N_Winter$
CFM_Natural_Summer_Before (or After)	$= CFM50_Before \times 1/N_Summer$ $= CFM50_After \times 1/N_Summer$
Air Sealing & Bypass Sealing savings - (Heating and Cooling) - Customer kWh	Energy savings for the attic bypass sealing, air sealing, and weather-stripping will be calculated from actual field measurements using blower door testing performed by BPI certified contractors. For customers with electric cooling: Cooling = $(CFM_Natural_Summer_before - CFM_Natural_Summer_after) \times ATF \times CDD \times 24$ hours/day / COP / 3412 Heating = $(CFM_Natural_Winter_before - CFM_Natural_Winter_after) \times ATF \times HDD \times 24$ hours/day / COP / 3412
Wall insulation natural gas savings (Dth)	$= Dth_Per_SF_Wall \times SFWI$
Wall insulation savings (Heating and Cooling) - Customer kWh	$= kWh_Per_SF_Wall \times SFWI$
Electric Energy Savings - Generator kWh	$= Customer\ kWh / (1 - TDLF)$
Electric Demand Savings - Generator kW	$= Customer\ kW \times CF / (1 - TDLF)$

Variables:

RatticE	= Existing R value for the attic before insulation is added, provided by customer. We will use a minimum R-value of 4.16 for attics that have no insulation
RatticN	= New R value for the Attic after the insulation is added, provided by customer
SFAI	= Square footage of attic insulation added, provided by customer
SFWI	= Square footage of wall insulation added, provided by customer
Hours_Electric Heating	Hours of electric heating operations to meet heating requirements as seen in Table 1 for various heating types.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Hours_Electric Cooling	Hours of electric cooling operations to meet cooling requirements as seen in Table 1 for various cooling types.
Dth Per SF Attic	= Dth savings per square foot of attic coefficient for home in CO heated with 0.78 AFUE furnace from Energy Gauge model = 0.18221
kWh Per SF Attic	= kWh savings per square foot of attic coefficient for home in CO. Values are listed in Table 1 for various heating and cooling options.
Dth_Per_SF_Wall	= Dth savings per square foot of wall coefficient for home in CO heated with 0.78 AFUE furnace from Energy Gauge model = 0.02656. This value incorporates the change from R-0 to R-11 insulation in the wall.
kWh_Per_SF_Wall	= kWh savings per square foot of wall coefficient for home in CO. Values are listed in Table 1 for various heating and cooling options. The values incorporate the change from R-0 to R-11 insulation in the wall.
ATF	= Air Transfer Factor is a conversion factor for calculating BTU/hour from airflow in cubic feet / minute. The factor varies with altitude and air density. ATF will be deemed for the three climate zones as follows: Front Range = 0.891; Western Slope = 0.906 ; and Mountains = 0.813.
COP	= Coefficient of Performance for electric heating and cooling equipment. Electric resistance heat COP = 1.0; Standard AC or Air Source Heat Pump (ASHP) COP = 2.0; Ground Source Heat Pump (GSHP) = 4.0.
CFM50_Before (or After)	= Blower Door test air leakage rate at 50 pascals maintained pressure, measured in cubic feet per minute. The contractor will capture actual readings as part of the service.
CFM_Natural_Summer (or Winter)_Before (or After)	= Natural average infiltration rate in cubic feet per minute. This is calculated for summer and winter separately both Before and After the air sealing work is completed. The difference is the CFM savings used to calculate the energy savings. See Algorithms above.
N_Summer (N_Winter)	= Conversion factor used to relate actual measured CFM leakage rate (taken at a reference pressure of 50 pascals) to a natural CFM of infiltration. Factor is calculated from the assumptions of an ASHRAE Shelter Class of 3, Home height is based on the number of stories provided by the contractor, and TMY3 climatic data for average temperatures and wind speeds. See Table 3 for Summer and Winter N Factors
Coincidence Factor (CF) Heating	Probability that savings will occur during Xcel's system peak periods (0% since heating savings only)
Coincidence Factor (CF) Cooling	Probability that savings will occur during Xcel's system peak periods - 81%
Transmission Distribution Loss Factor (TDLF)	Transmission Distribution Loss Factor = 7.7%, the percentage loss of electricity as it flows from the power plant to the customer.
Net-to-Gross Factor (NTG)	= We will use 89% for the NTG for gas and electric projects. (Reference 3)
Non-Energy O&M savings	= Operation and Maintenance savings are assumed to be zero for the insulation rebates.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Energy O&M savings	= Energy O&M savings will be calculated by measure for the portion of energy savings attributed to a fuel not served by Xcel Energy. The energy savings will be converted into a cost savings based on Xcel utility rates.
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Table 1: Savings factors for electrically heated and cooled homes

	Electric Resistance Heat	Air Source Heat Pump or Air Conditioner	Ground Source Heat Pump	Evaporative Cooling
Heating kWh Per SF Attic	41.65299	20.82649	10.41325	NA
Cooling kWh Per SF Attic	NA	3.41032	1.70516	0
Heating kWh_per_SF_Wall	6.07276	3.03638	1.51819	NA
Cooling kWh_per_SF_Wall	NA	0.4972	0.2486	0
Hours_Electric Heating	787	967	943	NA
Hours_Electric Cooling	NA	628	628	628

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 2: Measure lives and incremental costs

Type of insulation:	Measure life:	Incremental cost:
Attic insulation	20 years (Reference 1)	Will use actual Costs
Air Sealing & Bypass Sealing	10 years (Reference 1)	Will use actual Costs
Wall insulation	20 years (Reference 1)	Will use actual Costs

Table 3: N Factors for determining Air Sealing air change rates:

No. Stories	Summer N Factor			Winter N Factor		
	Front Range	Western Slope	Mountains	Front Range	Western Slope	Mountains
1	20.5964443	19.7026939	19.2486892	14.1083952	15.7089062	14.8638176
2	18.0984244	17.7473680	15.7625844	11.0684084	12.1160259	11.2833904
3	16.8520212	16.8993007	13.9096544	9.5081492	10.3076789	9.5170989

Table 4: Heating and Cooling Degree Days by Climate Zone

	Front Range	Western Slope	Mountains
HDD	5,922	5,782	7,769
CDD	970	1,375	570

Needed from Customer/Vendor/Administrator for Calculations:

- Heating System Fuel - gas or electric?
- Elec Heating System Type - Elec Resistance, Air Side Heat Pump (ASHP), Ground Source Heat Pump (GSHP)
- Elec Cooling System Type - Conv AC, Evap Cooling; ASHP, GSHP
- Blower Door Test-in CFM50
- Blower Door Test-out CFM50
- Climate Zone (Front Range, Western Slope, or Mountains)
- Number of Stories in Home
- Conditioned Square Footage
- Was attic insulation and bypass sealing completed?
- Attic insulation square footage
- Attic insulation existing R value
- Post insulation attic R value

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Was air sealing and weather stripping completed?
Was wall insulation completed?
Wall insulation square footage
Cost of attic insulation
Cost of air sealing and weather sealing
Cost of wall insulation

Assumptions:

For attic insulation, we will use actual existing R values for the baseline and actual complete R values for the high efficiency.

Any home with an existing ACH natural of 0.45 ACH will not be eligible for the air sealing measure.

A Blower Door Test will be required for all participating homes.

The Attic Bypass Air Sealing energy savings will be captured with Air Sealing and Weather Stripping measure.

TMY3 Climate Data used for the following areas: Front Range = Denver; Western Slope = Grand Junction; Mountains = Alamosa

Heating Degree Days are based on a 65 F breakpoint temperature.

Cooling Degree Days are based on a 65 F breakpoint temperature.

Air Sealing based on an indoor temperature of 70 F.

The baseline home had an existing level of insulation in the walls of R-0 and the change case had an elevated insulation level of R-11.

For attic insulation calculations, the 2 added to the existing and new insulation R values represents the air film and insulative properties of the ceiling structure. If the home has no attic insulation, then a minimum Existing R-value of 4.16 will be assumed.

For wall insulation calculations we have assumed that there is no insulation in the wall or the wall contains one inch or less of insulation or is not positioned correctly and therefore is not effectively insulating the wall. R-value of Cavity or ineffective insulation plus structure is R-4.49.

The savings were calculated by computer modeling of a typical residential home in the Denver metro area. The hypothetical modeled home was created with the most common characteristics from our Residential Home Energy Use Study in 2006 and adjusted so its calculated energy consumption was close to the overall average of Public Service's gas heated homes in the metro area. The savings from adding ceiling insulation was determined by changing the characteristic in the model and recalculating the resulting gas consumption and similarly with insulating walls and reducing air infiltration.

The 2013 Air Sealing measure was calculated separately using the model home as a baseline and assuming three tiers of air reduction percentages derived from a data set of 349 homes tested both before and after improvement measures. The data was provided by Populs and the homes are located in the Front Range area. Natural air exchange calculations are in accordance with IECC 2009 and ASHRAE Fundamentals.

Materials for adding ceiling insulation could be fiberglass batts, loose blown fiberglass/rock wool and other similar materials or blown cellulose.

Typically, insulators will install a similar material to those already in place. The key factor is that the contractor has installed sufficient materials to meet the final "R value" required (38 in most areas and up to 49 in others).

Changes From 2012:

Modified Air Sealing calculation method and established tiers of achievement.

HDD and CDD based attic and wall insulation savings calculations

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

References:

1. California Measurement Advisory Committee (CALMAC) Protocols, Appendix F (www.calmac.org/events/APX_F.pdf).
2. 2005 Residential Home Use Study MN - Xcel Energy Market Research
3. National Energy Efficiency Best Practices Study - Residential Single-Family Comprehensive Weatherization Best Practices Report from December 2004.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Residential Pool Pumps with Variable Speed Drives

Algorithms:

Calculated Value	Formula
Energy Savings (Customer kWh)	$= (BSL - (VFD_Lo \times (Hrs_Lo / Hrs_Eff)) + (VFD_Hi \times (Hrs_Hi / Hrs_Eff))) \times Days / 1000$
Demand Savings (Customer kW)	$= (BSL / Hrs_BSL - ((VFD_Lo \times (Hrs_Lo / Hrs_Eff)) + (VFD_Hi \times (Hrs_Hi / Hrs_Eff)))) / Hrs_Eff / 1000$
BSL (Wh/Day)	= Baseline condition calculated by deriving the energy use per day for single speed motor; Energy Use per day = Pool Capacity x Number of Turnovers / EF_BSL
VFD_Lo (Wh/Day)	= Efficient condition calculated by deriving the energy use per day for low speed operation; Energy Use per day = Pool Capacity x Number of Turnovers / EF_VSD_lo
VFD_Hi (Wh/Day)	= Efficient condition calculated by deriving the energy use per day for high speed operation; Energy Use per day = Pool Capacity x Number of Turnovers / EF_VSD_hi
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

Variables:

Pool Capacity (gallons)	= 22,000
Turnovers/Day	= 1.5
EF_BSL (gallons/Wh)	= 2.01; average Energy Factor of pump, motor and speed combination for a 2 HP single speed in gallons/Wh (Reference 4)
EF_VFD_hi (gallons/Wh)	= 1.77; average Energy Factor of pump, motor and speed combination for 3 HP variable speed at high speed in gallons/ Wh (Reference 4)
EF_VFD_lo (gallons/Wh)	= 9.88; average Energy Factor for 3 HP variable speed at low speed in gallons/ Wh (Reference 4)
Hrs_Eff (hours)	= 24 total hours of operation per day for VFD pump
Hrs_Lo (hours)	= 22.24
Hrs_Hi (hours)	= 1.76
Hrs_BSL (hours)	= 8.25
Days	= 167 per year (Reference 3)
gpm_lo (gpm)	= 19.19 average for 3 HP VSD at high single speed motors (Reference 4)
gpm_hi (gpm)	= 70.10 average for 3 HP VSD at high speed (Reference 4)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

gpm BSL (gpm)	= 66.67 average for 2 HP single speed (Reference 4)
TDLF	Transmission Distribution Loss Factor = 7.70%, the percentage loss of electricity as it flows from the power plant to the customer.
CF	Coincidence Factor = Probability that peak demand of the motor will coincide with peak utility system demand. 0.4 will be used for prescriptive rebates (Reference 2)
NTG	Net-to-Gross Factor = 0.80
Incremental Costs	= \$652.50 (Reference 1)
O&M savings	= 0 value for Operation and Maintenance savings
Measure Life	= 10 years (Reference 1)

Inputs:

Rebate applicants will submit model number for verification

Assumptions:

2 HP standard efficiency motor is replaced by a 3 HP VFD (Reference 2)

New or replacement motors are eligible for rebate

Only pool pumps on the qualified pool pumps list meeting CEE Tier 2 specifications (lower speed EF ≥ 12.0 low speed EF ≥ 5.5, high speed EF ≥ 1.7) are eligible

Rebate applicants will submit model number for confirmation

References:

1. CEE (Consortium for Energy Efficiency) Residential Swimming Pool Initiative Dec 2012
2. Energy Efficient Pools and Spas Program; NV Energy - Southern Nevada (NPC); Program Year 2011- source for VFD replacement size and turnovers per day
3. Average response from 3 large Denver area retailers and the largest Distributor in CO of pool season length is 5.5 months
4. California Energy Commission (CEC) Pool Database Tab; CEC appliance search website - <http://www.appliances.energy.ca.gov/AdvancedSearch.aspx>
5. Measure Guideline: Replacing Single-Speed Pool Pumps with Variable Speed Pumps for Energy Savings; NREL, May 2012

Changes from 2012-2013 Filing

Incremental cost

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Refrigerator Recycling

Rebates will be offered for pickup of a primary or secondary working refrigerator or freezer that will be demanufactured and re-cycled. Program will be offered only during select periods throughout the year to increase the likelihood of a customer participating the program.

Algorithms:

Refrigerator Electrical Energy Savings (Customer kWh)	= Base kWh - Efficient kWh
Refrigerator Electrical Demand Savings (Customer kW)	= Customer kWh / Hours_of_operation
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh * NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW * NTG

Variables:

Baseline Product Consumption - Base kWh	= Baseline Product Consumption is the predicted future consumption of refrigerator being removed as seen in Table 1 based on the year of manufacture which will be provided by the vendor for each refrigerator. (Reference 1)
Efficient Product Consumption - Efficient kWh	= Efficient Product Consumption is 0 kWh when unit has been demanufactured. All units are removed from service and recycled so they can not be installed at another location.
Measure Life	= Measure life is assumed to be the remaining service life of the existing secondary refrigerators that are removed under this program. = 8.0 years (Reference 2). Primary refrigerators and freezers = 9.7 years (Reference 6)
Incremental Costs	= Estimated to be \$0 as the customer does not pay to recycle the refrigerator or freezer.
TDLF	Energy Loss Factor = 7.70%, the percentage loss of electricity as it flows from the power plant to the customer
O&M savings	= Operation and Maintenance savings are assumed to be zero for refrigerator recycling.

CF	= Coincidence Factor = 55%; probability that refrigerator will be operating during the peak period. (Reference 3)
Hours of Operation	= 4,818 hr/yr (Reference 3)
Freezer Product Consumption	= 85% of the refrigerator usage (Reference 4)
NTG	= Net to gross will be 61% for secondary refrigerator recycling (Reference 5) and will be 52.5% for primary units (Reference 6)

Needed from Customer/Vendor/Administrator for Calculations:

Confirm removal of working refrigerator
Year of manufacture for the working refrigerator

Assumptions:

Rebates are available only for working units. Primary units, secondary units and standalone freezers
Primary Units are removed and recycled under the assumption if they were not recycled they would become a secondary unit

**Table 1
Deemed Savings by Age of Refrigerator (Reference 1)**

Year of Manufacture	Deemed Savings kWh
1970	2,271
1971	2,258
1972	2,244
1973	2,150
1974	2,114
1975	2,032
1976	1,914
1977	1,848
1978	1,788
1979	1,676
1980	1,539
1981	1,449
1982	1,425
1983	1,395

1984	1,379
1985	1,262
1986	1,257
1987	1,138
1988	1,127
1989	1,072
1990	1,083
1991	1,077
1992	1,071
1993	764
1994	760
1995	755
1996	751
1997	746
1998	742
1999	737
2000	733
2001 to present	510

References

1. Baseline kWh and Average to peak kW ratio from Energy Data Sourcebook for the U.S. Residential Sector. Berkeley, CA: Lawrence Berkeley National Laboratory. LBNL-40297
2. 9th year Persistence Study for Southern California Edison KEMA - Xenergy; 2004
3. Coincidence factor is Average load factor from Appliance Recycling Centers of America (ARCA)
4. KEMA-XENERGY (2004). Final Report, Measurement and Evaluation Study of 2002 Statewide Residential Appliance Recycling Program. February 13, 2004
5. Net-to-Gross factor from Fort Collins, CO Utility report
6. *Primary Refrigerators: An Examination of Appliance Recycling Program Design* Kate Bushman, The Cadmus Group, Inc., Portland, OR

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: School Education Kit

A package of home energy efficiency measures in a kit that can be distributed to 6th grade students. Each participant receives a kit containing six compact fluorescent bulbs, a low flow shower head, a kitchen faucet aerator, and a bathroom faucet aerator. In addition, other items are included such as a thermometer, filter alarm, leak detection tablet, night light and tape measure.

Algorithms:

CFL Electric Energy Savings (Customer kWh)	= (kW_Base - kW_Eff) x Hr use
CFL Electric Demand Savings (Customer kW)	= (kW_Base - kW_Eff)
Showerhead Electric Savings (Customer kWh)	= (GPY_Saved_Showerhead x Delta_T x 8.33) / HE_Electric /3412 = 421 kWh
Showerhead Demand Savings (Customer kW)	= 0.000 kW
Showerhead Electric Savings (Modified Customer kWh)	= (GPY_Saved_Showerhead x Delta_T x 8.33) / HE_Electric /3412 x % Elec HW = 46 kWh
Showerhead Demand Savings (Modified Customer kW)	= 0.000 kW
Aerator Electric Savings (Customer kWh)	= (GPY_Saved_Aerator x Delta_T x 8.33) / HE_Electric /3412 = 52 kWh for 1.5gpm aerator, 89 kWh for 1.0gpm aerator
Aerator Demand Savings (Customer kW)	= 0.000 kW
Aerator Electric Savings (Modified Customer kWh)	= (GPY_Saved_Aerator x Delta_T x 8.33) / HE_Electric /3412 x %Elec HW = 6 kWh for 1.5gpm aerator, 10 kWh for 1.0gpm aerator
Aerator Demand Savings (Modified Customer kW)	= 0.000 kW
Showerhead Gas Savings (Dth)	= (GPY_Saved_Showerhead x Delta_T x 8.33) / HE_Gas/1,000,000 = 1.65 Dth
Showerhead Gas Savings (Modified Dth)	= (GPY_Saved_Showerhead x Delta_T x 8.33) / HE_Gas x % G HW/1,000,000 = 1.46 Dth
Aerator Gas Savings (Dth)	= (GPY_Saved_Aerator x Delta_T x 8.33) / HE_Gas/1,000,000 = 0.20 Dth for 1.5gpm aerator, .035 Dth for 1.0gpm aerator.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Aerator Gas Savings (Modified Dth)	= $(GPY_Saved_Aerator \times \Delta_T \times 8.33) / HE_Gas \times \% \text{ G HW}/1,000,000 = 0.18 \text{ Dth for } 1.5\text{gpm aerator, } .031 \text{ Dth for } 1.0\text{gpm aerator.}$
Electrical Energy Savings (Gross Generator kWh)	= $(Customer \text{ kWh} \times \text{number of kits}) / (1-TLDF)$
Electrical Demand Savings (Gross Generator kW)	= $(Customer \text{ kW} \times \text{number of kits}) \times CF / (1-TLDF)$
Electrical Energy Savings (Net Generator kWh)	= $Gross \text{ Generator kWh} \times NTG \times \text{Install Rate}$
Electrical Demand Savings (Net Generator kW)	= $Gross \text{ Generator kW} \times NTG \times \text{Install Rate}$

Variables:

Hrs	= Annual operational hours per year of the fixture. 694 hrs will be used for 2014. Reference 3
CF	= Coincidence Factor, the probability that peak demand of the lights will coincide with peak utility system demand. 0.08 will be used for CFLs (Ref 2)
kW_EE	= Bulb wattage per supplied CFLs; = 3 x 13W and 3 x 18W.
kW_Base	= Bulb wattage replaced by supplied CFLs; = dictated by federal minimum standards, which change from 2012 to 2013 as less efficient incandescent designs are abandoned (Ref 3)
Incremental Costs	= costs provided by vendor.
Transmission Distribution Loss Factor (TDLF)	Transmission Distribution Loss Factor = 7.70%, the percentage loss of electricity as it flows from the power plant to the customer.
Net-to-Gross Factor (NTG)	= We will use 100% for school education kits as these kits would not be available without the product.
Install Rate	= Actual Installation Rates will be collected as part of the M&V exercise. For these assumptions, an install rate of 60% for CFLs and 40% for showerheads and aerators has been assumed.
O&M savings	= Operation and Maintenance savings. For school kits O&M savings come from using less water with the install of low flow showerheads and faucet aerators.
GPY Saved Showerhead Total Water	= Gallons per year of total water saved with 1.5 gpm showerhead. 3,292 gal/yr.
GPY Saved Showerhead	= Gallons per year of hot water saved with 1.5 gpm showerhead. 2,469 gal/yr of Hot Water.
GPY Saved Aerator Total water	= Gallons per year of total water saved with 1.5 gpm aerator: 378 gal/yr, with 1.0 gpm aerator: 649 gal/yr
GPY Saved Aerator	= Gallons per year of hot water saved with 1.5 gpm aerator: 306 gal/yr, with 1.0 gpm aerator: 524 gal/yr
Delta_T	= Change in temperature of water from incoming water temperature to water heater temperature setting. Delta_T = 64 F. (Reference 4)
HE_Electric	= Heat generation efficiency for electric water heater based on steady-state water heater efficiency. HE_Electric = 0.9172
HE_Gas	= Heat generation efficiency for gas water heater based on steady-state water heater efficiency. HE_Gas = 0.80
Hr Operation_Shower	= Annual water heater "on" time to meet hot water demand. For baseline showerhead: 238 hours. For 1.5 gpm Showerhead: 140 Hours.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Hr Operation_Aerator	=Annual water heater "on" time to meet hot water demand. For baseline showerhead: 36 hours. For 1.5 gpm aerator: 25 hours, for 1.0 gpm aerator: 17 hours.
Measure Life	Measure lives are shown in Table 1.
O&M savings - Showerhead	Showerhead total water savings of gallons/yr and Inc O&M Savings = \$
O&M savings - Aerator	Aerator total water savings of gallons/yr and Inc. O&M Savings = \$
% Electric Hot Water Heating (% Elec HW)	% Customers that use electricity for domestic water heating = 11%
% Gas Hot Water Heating (% Gas HW)	% Customers that use gas for domestic water heating = 89%

Tables:

Table 1. Operational Hours / Coincidence Factor / Measure Life

Measure	Operational Hours	Coincidence Factor	Measure Life	Source
School Education Kit-Showerhead	See Variables	0%	10	Reference 9
School Education Kit-Faucet Aerator	See Variables	0%	10	Reference 9
CFLs (6 bulbs) in 2014	694.0	8%	14.42	

Table 2 Measure Cost LivingWise Program Kit	Material Costs			Administration Delivery		
	Total	Electric	Gas	Total	Electric	Gas
School Education Kit- 13 W CFLs	\$4.47	\$4.47	\$0.00	\$11.58	\$11.58	\$0.00
School Education Kit- 18 W CFLs	\$5.67	\$5.67	\$0.00	\$14.69	\$14.69	\$0.00
Shower head	\$2.79	\$0.31	\$2.48	\$7.23	\$0.80	\$6.43
Faucet aerator (Kitchen)	\$1.03	\$0.11	\$0.92	\$2.67	\$0.29	\$2.38
Faucet aerator (Bath)	\$1.14	\$0.13	\$1.01	\$2.95	\$0.32	\$2.63
Electric Total = \$38.38		\$10.69			\$27.69	
Gas Total = \$15.85			\$4.41			\$11.44
LivingWise Kit Total = \$54.23	\$15.10			\$39.13		

Table 3 - Existing lighting wattage for residential lights (Reference 8)

CFL Wattage Range	Replaced Incandescent Bulb Wattage (2014)
9 - 12	29.0
13 - 16	43.0
17 - 22	53.0
23 - 30	72.0
31 - 52	150.0

Assumptions:

School Education Kit

Colorado

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Provided by Customer:

Number of kits distributed
Was CFL #1 installed
Was CFL #2 installed
Was CFL #3 installed
Was CFL #4 installed
Was CFL #5 installed
Was CFL #6 installed
Was showerhead installed
Was Kitchen aerator installed
Was Bath aerator installed

Verified during M&V:

Yes
Yes
Yes
Yes
Yes
Yes
Yes
Yes
Yes
Yes

Changes From 2012:

Hrs of operation dropped
Wattage of the baseline bulb dropped

References

1. US DOE US Lighting Market Characterization Str 2002
2. Composite Wattages, Operating Hours and Coincidence from CFL METERING STUDY FINAL REPORT, Prepared for: Pacific Gas & Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, 2005
3. Xcel Energy Home Lighting and Recycling Program Assumptions
4. "The effects of variation in body temperature on the preferred water temperature and flow rate during showering" Authors: Tadakatsu Ohnaka, Yutaka Tochihiro, Yumiko Watanabe. Affiliations: a) Department of Physiological Hygiene, The Institute of Public Health, Minato-ku, Tokyo, Japan; b) Faculty of Home Economics, Jissen Women's University, Hino, Tokyo, Japan.
5. Handbook of Water Use and Conservation, Denver Water Conservation
6. California Measurement Advisory Committee (CALMAC) Protocols, Appendix F (www.calmac.org/events/APX_F.pdf).
7. DOE HW Appliance calculator
8. Lighting Baseline Watts per DER Agreement with Joe Plummer. Based on a DOE report table
9. DEER Database for Energy Efficient Resources 2011 update to EUL data

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Energy Efficient Showerheads

Residential customers are eligible to receive a free kit containing a high-efficiency showerhead, kitchen aerator, and bath lavatory aerator to reduce energy and water use. If we are unable to determine how (gas or electric) certain customers heat their water, we will assume that 89% of the units go to houses that use gas to heat water and 11% of units go to houses that use electricity to heat water.

Algorithms:

Showerhead or Aerator Natural Gas Savings (Gross Dth/unit)	$= ((\text{GPY_Hot_Water_Saved} \times \text{Delta_T} \times 8.33) / \text{HGE} / 1,000,000) \times (\text{Gas_Electric_Split_Factor})$
Net Dth	$= \text{Gross Dth} \times \text{NTG}$
Showerhead or Aerator Energy Savings (Customer kWh/unit)	$= (\text{GPY_Hot_Water_Saved} \times \text{Delta_T} \times 8.33) / (3412 \times \text{HGE}) \times (1 - \text{Gas_Electric_Split_Factor})$
Showerhead or Aerator Energy Savings (Gross Generator kWh)	$= (\text{Customer kWh}) / (1 - \text{TDLF})$
Net generator kWh per showerhead retrofit	$= \text{Gross Generator kWh} \times \text{NTG}$
Showerhead or Aerator Demand Savings (Customer kW)	$= 0.0 \text{ kW}$
Showerhead or Aerator Demand Savings (Gross Generator kW)	$= ((\text{GPY_Hot_Water_Saved} \times \text{Delta_T} \times 8.33 \times \text{CF}) / (3,412 \times (1 - \text{TDLF}))) = 0 \text{ kW}$
Net generator kW per showerhead retrofit	$= \text{Gross Generator kW} \times \text{NTG} = 0 \text{ kW}$

Variables:

GPY_Hot_Water_Saved	Gallons per year of hot water saved with high-efficiency showerhead or aerator. Showerhead = 2,469 gallons per year per showerhead (References 1, 2) Aerator (1.5 gpm Kitchen aerator) = 305.7 gallons per year Aerator (1.0 gpm Bath aerator) = 524.1 gallons per year
Delta_T	= Change in temperature of water from incoming water temperature to water heater temperature setting. Delta_T is 64 degrees F. (Reference 1,2)
HGE	= Heat generation efficiency based on Minimum Federal Efficiency Standards for electric water heater efficiency value of 0.9172 EF, based on burner combustion efficiency for value of 0.80 EF for gas (Reference 6)
CF	= Coincidence Factor, the probability that peak demand of the measure will coincide with peak utility system demand. A CF of 0.0 will be used for showerheads.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Gas_Electric_Split_Factor	Gas_Electric_Split_Factor is based on customer response to showerhead post card. The customer selects from three options for water heating fuel. Selected choice yeilds the factor as follows: = gas water heater = 1 = unknown water heater = 0.89 = electric water heater = 0
8.33	Heat content of 1 gallon water; Btu/gal -F
3,412	Conversion from Btu to kWh; 1 kWh = 3,412 Btuh
Dth	= 1,000,000 Btu
Incremental Costs	= actual costs provided by vendor; \$ per showerhead is assumed for the material costs for cost/benefit calculation purposes
NTG	= Net-to-Gross Factor = 99%. The actual installation rate for 2014 will be used to determine net savings.
O&M savings	= Water & Sewer savings are based on the total water (hot water plus cold water) gallons saved per year @ \$0.00876/gallon. *(Reference 7) Showerhead total water 3,292 gallons = \$28.84 per showerhead Aerator (Kitchen) total water 378.3 gal = \$ 3.31 per kitchen aerator Aerator (Bath) total water 648.6 gal = \$ 5.68 per bath aerator
Measure Life	Showerhead = 10 years (Reference 9) Aerators = 10 years (Reference 9)
Transmission Distribution Loss Factor (TDLF)	Transmission Distribution Loss Factor = 7.70% , the percentage loss of electricity as it flows from the power plant to the customer.

Provided by administrator:	Verified during M&V:
Showerhead received by customer	Yes
Showerhead installed by customer	Yes
Water Heating Fuel provided by Customer	Yes

Assumptions:

Showerhead replacement	2.5 gpm(Federal Standard) showerhead replaced with 1.5 gpm in 1 shower in home
Water heating efficiency - natural gas	59.4% federal minimum manufacturer's standard for 40 gallon tank storage water heater
Water heating combustion efficiency - natural gas	80% for water heater without the standby losses. Used to calcualte the savings of running less hot water through the same unit.
Water heating efficiency - electric	91.7% federal minimum manufacturer's standard for 40 gallon tank storage water heater

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Gas/Electric split	We will request information to determine what type of fuel is used to heat water in each house that receives a showerhead. From 2010 Xcel Energy Colorado Home Use Study (PS Co Service Area), 89% of the houses use gas to heat water and 11% of houses use electric to heat water (Reference 8). For homes that do not know or do not respond to the query, but receive a showerhead we will take credit equal to 11% of the electric savings and 89% of the gas savings.
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Changes From 2012:

Request water heating fuel from the customer

References

1. Xcel Energy New Mexico Residential Shower Use Study
2. Japanese study: "The effects of variation in body temperature on the preferred water temperature and flow rate during showering"; Authors: Tadakatsu Ohnaka, Yutaka Tochiyama, Yumiko Watanabe. Affiliations: a) Department of Physiological Hygiene, The Institute of Public Health, Minato-ku, Tokyo, Japan; b) Faculty of Home Economics, Jissen Women's University, Hino, Tokyo, Japan.
3. Handbook of Water Use and Conservation, Denver Water Conservation
4. Xcel Energy Customer End Use Study 2006
5. California Measurement Advisory Committee (CALMAC)
6. http://www1.eere.energy.gov/buildings/appliance_standards/residential/pdfs/htg_products_frmwk_presentation_2007-01-10ver4.pdf
7. http://www.denverwater.org/rateinfo/rates08_vs_09approved.html
8. 2010 Xcel Energy Colorado Home Use Study (PS Co Service Area)
9. DEER Database for Energy Efficient Resources version 2011 4.01 - EUL data was deemed unchanged since last update 10/2008. (www.deeresources.com)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Water Heating Rebates

Residential natural gas customers receive a cash rebate for purchasing high-efficiency natural gas water heating equipment. Residential electric customers with standard electric water heaters can receive a rebate for replacing it with a heat pump water heater.

Gas Algorithms:

Storage Water Heater Baseline Natural Gas consumption (Baseline_WH Dth)	Baseline consumption for tank water heaters = Volume x Dth_per_gallon / EF_Base_Gas
EF_Base_Gas (Gas Storage Water Heater Baseline Efficiency Factor)	= .67 - 0.0019 x Volume (Reference 9)
Tankless Water Heater Baseline Natural Gas consumption (Baseline_WH Dth)	Tankless water heater baseline is assumed to be a 40 gallon storage tank water heater and Dth_Per_Gallon used for baseline on storage and tankless gas fired water heaters.
Storage & Tankless Water Heater Energy Efficient Natural Gas Consumption (Efficient WH Dth)	= Baseline_WH Dth x EF_Base_Gas / EF_Eff_Gas
Storage & Tankless Water Heater Natural Gas Savings (Dth)	= Baseline_WH Dth - Efficient_WH Dth

Electric Algorithms:

Electric Storage Water Heater Baseline Energy Consumption (Baseline_kWh)	= Hot water energy / EF_Baseline
High Efficiency Heat Pump Storage Tank Consumption (Efficient WH kWh)	= Hot water energy / EF_Eff
Water Heater Electric Savings (Customer kWh)	= Baseline_kWh - Efficient_WH_kWh + Cooling_Benefit - Heating Penalty
Water Heater Demand Savings (Customer kW)	= Customer kWh / Hours
Electrical Energy Savings (Gross Generator kWh)	= Customer kWh / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= Customer kW x CF
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Variables:

NTG	Net-to-Gross Factor = We will use 90% for gas based on letter from Davis Energy Group to DOE dated 10/23/07 and 100% for heat pump
Measure life	= 13 years for standard tank water heater and 20 years for tankless water heater. (Reference 5) 10 years for HP storage tank water heaters (Reference 8)
Volume	= Volume of the existing/new storage tank water heater, provided by the customer
Dth_per_gallon	Dekatherms of output required per gallon size of storage tank water heaters. A value of 0.36037 will be used. This values was derived from the baseline case output of a RemRate model for an average home. (Reference 2)
Hot water energy	= Energy output from a water heater based on average use, we will use 4,225 kWh
EF_Baseline (Electric Storage Water Heater Baseline Efficiency Factor)	= 0.97 - Volume x 0.00132
EF_Eff	= Energy Factor of the Efficient water heater provided by the customer.
Heating_Penalty	= 865 kWh for homes with heat pumps and 1725 kWh for homes with electric resistance heat. Homes with gas heat will incur an O&M dollar penalty instead of a Dth penalty.
Cooling_Benefit	= 30.32 kWh for homes with refrigerated air conditioning, 0 kWh for homes without refrigerated air conditioning
Hours	= We will use 1031 hours which is determined by dividing the typical consumption by the typical output for baseline electric water heater
CF	= Probability that the demand reduction will coincide with system peak load. We will use 12% for electric water heaters based on operating hours divided by 8760.
TDLF	Energy Loss Factor = 7.70%, the percentage loss of electricity as is flows from the power plant to the customer during non-peak system demand
Incremental Costs	= Incremental cost of efficient technology over baseline technology. Costs will be as seen in the table below.
O&M savings	= Operation and Maintenance savings for heat pump water heaters are -\$42.95 for homes with natural gas heat due to increased heating load resulting from heat pump operation, \$0.00 for homes with electric heat. O&M resulting from standby losses associated with conventional storage water heaters are considered negligible.

Unit Type	Incremental Cost:
Standard tank water heater 0.62 EF	\$287.62
Standard tank water heater 0.65 EF	\$443.68
Standard tank water heater 0.67 EF	\$172.97
Tankless water heater 0.90 EF	\$2,363.73
Heat Pump Water Heater 2.19 EF	\$1,073.32

(Reference 6)

Provided by Customer:
Type and size of unit installed

Verified during M&V:
Yes

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Home heating and cooling type for HP water heaters Yes

Gas Assumptions:

The baseline water heater is 40 gallon capacity with an Efficiency Factor (EF) of 59.4%.

Electric Assumptions:

Typical hot water energy requirement = 4,225 kWh/yr with no losses.

Average baseline storage water size is 45 gallons.

Average EF for new heat pump water heater = 2.19

EF for baseline electric water heater = .91

Changes From 2011:

No changes

Building Characteristics for Prototype Home Used for Gas Modeling:

Single Family

Two story (Reference 3)

3 bedroom 2 bathroom (Reference 3)

2000 square feet (Reference 3)

Basement foundation (Reference 3)

HVAC:

heating - gas furnace 78 AFUE (55.9 kBtu unit required) - 85% of homes have gas heating, and 78% of which are forced air furnaces (Reference 2)

cooling - 59% have Central Air Conditioning model required a 2.5 ton unit to meet the cooling load (Reference 2)

air handler is in the basement and supply ducts and return ducts are assumed to be in majority interior space

Windows:

61% of homes have double pane windows (Reference 2)

double pane low-E are standard (Reference 4)

Model assumes 15% of wall area glazing

applied a u-factor of 0.53 (average between clear glass double pane and low-E)

Insulation Levels:

Existing Ceiling Insulation: R-19 (Reference 4)

Existing Wall Insulation: R-11 (Reference 4)

Basement Assumptions

Assumed basement walls to have R-11 insulation

Basement is considered finished space but not conditioned

The air handler is located in the basement

Some homes will have smaller sections of the basement conditioned – maybe a bonus room etc, however this cannot be easily modeled in EnergyGauge

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Appliances (Reference 2)

- 85% have dishwashers
- 74% electric ranges
- 88% and 89% have clothes washer and dryer (electric)
- 85% water heating is gas - model used a 40 gallon storage tank
- 68% of homes have ceiling fans

Incremental Cost Assumption

Water heaters purchased from retailers can be installed by a homeowner and would therefore not incur installation costs. Incremental costs for gas water heaters are therefore calculated using a weighted average between material plus labor costs for water heaters purchased through contractors and material only costs for water heaters purchased through retailers.

Average Customer Energy Consumption: (Reference 2)

- kWh annually: 9,000 roughly for a 2,000 square foot home
- Therms annually: 835

References:

1. California Energy Commission's Database for Energy Efficient Resources (DEER) <http://www.energy.ca.gov/deer>
(Does not include labor of equipment rental fees as this measure is considered a replace on burnout)
2. 2006 Residential Energy Use Colorado Service Area - Xcel Market Research
3. American Housing Survey for Denver - US Census Bureau
4. Xcel Energy CO DSM Potential 2006 - prepared by KEMA
5. California Measurement Advisory Committee (CALMAC) Protocols, Appendix F.
6. Howard Geller
7. 2008 Xcel CO Residential Home Use Study
8. Water heater analysis on ENERGY STAR website ".. ENERGY STAR Residential Water Heaters -Final Criterial Analysis";
http://www.energystar.gov/ia/partners/prod_development/new_specs/downloads/water_heaters/WaterHeaterAnalysis_Final.pdf
9. <http://www.aceee.org/consumerguide/waterheating.htm>

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Program: Residential Saver's Switch

Prescriptive rebates will be offered to customers who install a Saver's Switch on their AC system.

Calculations:

Electrical Demand Savings (Customer kW)	= Average kW per Unit
Electrical Energy Savings (Customer kWh)	= Average kW per Unit x Full Load Hours of Operation
Generator kWh	= Customer kWh / (1-LF)
Generator kW	= Customer kW x CF / (1-LF)
Peak Coincident kW at the Customer (PC_KW_CUST)	= Customer kW x CF

Variables:

Average kW per Unit	= Average kW per AC Unit = 1.02 kW/unit. (1)
Hours of Operation	= Hours of Operation = 17.2. The typical hours of operation per year that a Switch achieves energy savings at the average kW per unit by controlling an AC. (2)
CF	Coincidence Factor = Percentage of the Average kW per Unit savings that occur during the annual hour of system peak. = 100%. The numbers provided by (1) are calculated at peak generation periods.
Measure Life	= Length of time the switch will be operational = 15 years
NTG	Net-to-Gross factor for Saver's Switch will be 100% as customers would not have the ability to install a switch without the program.

Provided by Customer:

Number of units with switch installed.

References

- (1) PSCO Load Management Forecast
- (2) 2010 3rd party Colorado impact evaluation report

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Residential Energy Feedback

Description:

Pilot will deliver energy use feedback via print, email and online web portal access to customer groups and measure the difference in energy use between Participants and a similarly sized Control Group that does not receive energy use feedback. Pilot will include residential customers with both gas and electric service from Xcel.

Algorithms:

Electrical Energy Savings (Customer_kWh)	$= (\text{Participant_kWh_usage_pre_treatment} - \text{Participant_kWh_usage_post_treatment} - \text{Group_Rebate_Product_Participation}) - (\text{Control_kWh_pre_treatment} - \text{Control_kWh_post_treatment} - \text{Group_Rebate_Product_Participation})$
Electrical Energy Savings (Net_Gen_kWh)	$= \text{Customer_kWh} / (1 - \text{TDLF}) * \text{NTG}$
Electrical Demand Savings (Customer_kW)	$= \text{Customer_kWh} * \text{Peak_Factor} * \text{Daily_Usage_at_Peak}$
Coincidence Factor (CF)	$= \text{Customer_kW_Peak_Month} / \text{Customer_kW_Max} * \text{Peak_Day_Savings}$
Electrical Demand Savings (Net_Gen_kWh)	$= \text{Customer_kW} * \text{CF} / (1 - \text{TDLF}) * \text{NTG}$
Natural Gas Energy Savings (Customer_Dth)	$= (\text{Participant_Dth_pre_treatment} - \text{Participant_Dth_post_treatment} - \text{Group_Rebate_Product_Participation}) - (\text{Control_Dth_pre_treatment} - \text{Control_Dth_post_treatment} - \text{Group_Rebate_Product_Participation})$
Natural Gas Energy Savings (Net_Dth)	$= \text{Customer_Dth} * \text{NTG}$

Variables:

Participant_Print	= Group of 80,000 electric and gas customers receiving periodic paper reports providing feedback on their energy use.
Participant_Email	= Group of 20,000 electric and gas customers receiving internet delivered reports that provide feedback on their energy use.
Participant_Online	= Group electric and gas customers (unknown size) who choose to opt-in to a web feedback portal that provides feedback on their energy use.
Control_Print	= Group of approximately 80,000 electric and gas customers who are similar in structure (demographics, lifestage, house size, geography) to the participant group, but receive no contact from Xcel or its contractors.
Control_Email	= Group of approximately 20,000 electric and gas customers who are similar in structure (demographics, lifestage, house size, geography) to the participant group, but receive no contact from Xcel or its contractors.
Control_Online	= Group of approximately 40,000 electric and gas customers who are similar in structure (demographics, lifestage, house size, geography) to the participant group, but receive no contact from Xcel or its contractors.
Participant_kWh_usage_post_treatment	= as determined through multi-variate regression analysis with fixed effects to control for external variables that could influence energy usage such as weather, economic conditions, fuel prices, etc.
Participant_kWh_usage_pre_treatment	= as determined through multi-variate regression analysis with fixed effects to control for external variables that could influence energy usage such as weather, economic conditions, fuel prices, etc.
Control_kWh_usage_post_treatment	= as determined through multi-variate regression analysis with fixed effects to control for external variables that could influence energy usage such as weather, economic conditions, fuel prices, etc.
Control_kWh_usage_pre_treatment	= as determined through multi-variate regression analysis with fixed effects to control for external variables that could influence energy usage such as weather, economic conditions, fuel prices, etc.
Participant_Dth_usage_post_treatment	= as determined through multi-variate regression analysis with fixed effects to control for external variables that could influence energy usage such as weather, economic conditions, fuel prices, etc.
Participant_Dth_usage_pre_treatment	= as determined through multi-variate regression analysis with fixed effects to control for external variables that could influence energy usage such as weather, economic conditions, fuel prices, etc.
Control_Dth_usage_post_treatment	= as determined through multi-variate regression analysis with fixed effects to control for external variables that could influence energy usage such as weather, economic conditions, fuel prices, etc.
Control_Dth_usage_pre_treatment	= as determined through multi-variate regression analysis with fixed effects to control for external variables that could influence energy usage such as weather, economic conditions, fuel prices, etc.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Group_Rebate_Product_Participation	= Energy savings generated by participation in Xcel's rebate products for both Participant and Control groups, kWh and Dth. Rebated product participation from other products, (e.g.new furnace), are savings that will be included in the regression analysis and deducted from the EFP results if statistically significant.
Customer_kW_Peak_Month	= 0.066 for print participants and 0.043 for email participants. Electrical demand savings achieved in the month that contained the peak demand on Xcel Energy's system
Customer_kW_Max	= 0.079 for print participants and 0.043 for email participants. Maximum electrical demand savings achieved in the summer months: June, July and August.
Peak_Factor	= 1.13 for print participants and 1.36 for email participants. The ratio of energy usage in peak hour to average hourly energy use
Daily_Usage_at_Peak	= 6.54% for print participants, 6.31% for email participants. Percentage of energy usage in peak hour to daily total energy use
Transmission Distribution Loss Factor (TDLF)	= 7.70%, the percentage loss of electricity as it flows from the power plant to the customer.
Coincidence Factor (CF)	= 66%, weighted average probability that conservative electric behaviors will occur during the peak period hours in the print and email groups.
Measure Life	= Assumed to be 1.0 year since there is no equipment purchase - just behavior changes.
Incremental Cost	= Assumed to be zero since the program induces behavior change which has no capital cost.
Operation & Maintenance (O&M) Savings	= Assumed to be zero.
Net-to-Gross Factor (NTG)	= 100%

Assumptions:

Peak_Day_Savings	= 75%, Savings achieved on peak day compared to average weather day. (Source: OPower)
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Tables:

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References:

Savings data from Xcel Colorado Opower pilot, June 2011 - Feb 2013. File "Xcel_Monthly Results Summary_Through February 2013"

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Energy Savings Kit

A package of home energy efficiency measures in a kit that will be distributed to low-income customers. Each participant receives a kit containing a high-efficiency showerhead, two high efficiency sink aerators (1.0 and 1.5 GPM), and eight compact fluorescent bulbs (4 - 13 W and 4 - 20 W CFLs).

Algorithms:

CFL Electric Energy Savings (Customer kWh)	= (kW_Base - kW_EE) x Hr use
CFL Electric Demand Savings (Customer kW)	= (kW_Base - kW_EE)
Showerhead Energy Savings (Customer kWh)	= ((HW_GPY_Saved x Delta_T x 8.33) / (3,412) / HGE) = 214 kWh/showerhead
Showerhead Demand Savings (Customer kW)	= 0 kW
Aerator (1.5 GPM) Energy Savings (Cust kWh)	= ((HW_GPY_Saved x Delta_T x 8.33) / (3412) / HGE) = 54 kWh/aerator
Aerator (1.5 GPM) Demand Savings (Cust kW)	= 0 kW
Aerator (1.0 GPM) Energy Savings (Cust kWh)	= ((HW_GPY_Saved x Delta_T x 8.33) / (3412) / HGE) = 92 kWh/aerator
Aerator (1.0 GPM) Demand Savings (Cust kW)	= 0 kW
Showerhead Gas Savings (Customer Dth)	= ((HW_GPY_Saved x Delta_T x 8.33) / HGE / 1,000,000) = 1.13 Dth/showerhead
Aerator (1.5 GPM) Gas Savings (Customer Dth)	= ((HW_GPY_Saved x Delta_T x 8.33) / HGE / 1,000,000) = 0.28 Dth/aerator
Aerator (1.0 GPM) Gas Savings (Customer Dth)	= ((HW_GPY_Saved x Delta_T x 8.33) / HGE / 1,000,000) = 0.49 Dth/aerator
Gas Savings (Gross Dth)	= Customer Dth x (# kits distributed)
Gas Savings (net Dth)	= Gross Dth x NTG
Electrical Energy Savings (Gross Generator kWh)	= (Customer kWh * number of kits) / (1-TDLF)
Electrical Demand Savings (Gross Generator kW)	= (Customer kW * number of kits)*CF / (1-TDLF)
Electrical Energy Savings (Net Generator kWh)	= Gross Generator kWh x NTG x Install Rate
Electrical Demand Savings (Net Generator kW)	= Gross Generator kW x NTG x Install Rate

Variables:

Hrs	= Annual operational hours per year of the fixture. We will use 694 hours which represents the average operating hours for CFLs installed in a house. (EnergyStar CFL Market Profile 2010)
CF	= Coincidence Factor, the probability that peak demand of the lights will coincide with peak utility system demand. 0.08 will be used for CFLs (Home Lighting Program Evaluation 2010) A CF of 0.0 will be used for shower heads and aerators.
kW_EE	= Bulb wattage per supplied CFLs = 4 - 13W and 4 - 20W.
kW_Base	= Bulb wattage replaced by supplied CFLs = dictated by federal minimum standards.
GPY_Saved	= Gallons per year of hot water saved with high-efficiency showerhead assuming 75% of water flow is hot water. Showerhead = 1,677 gallons per year per shower, Aerator (1.5 GPM) = 429 gallons; aerator (1.0 GPM) = 723 gallons.
Delta_T	= Change in temperature of water from incoming water temperature to water heater temperature setting. Delta_T is 64 degrees F. (http://www.nrel.gov/docs/fy08osti/40874.pdf , http://apps.leg.wa.gov/rcw/default.aspx?cite=19.27A.060)

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

HGE	= Heat generation efficiency based on steady-state water heater efficiency. Used value of 0.92 for electric and 0.594 for Gas. (Reference 3)
Incremental Costs	= costs provided by vendor;
Transmission Distribution Loss Factor (TDLF)	Transmission Distribution Loss Factor = 7.7%, the percentage loss of electricity as it flows from the power plant to the customer.
Net-to-Gross Factor (NTG)	= We will use 100% as these kits would not be available without the product.
Install Rate	= Installation rates will be determined during the year.
Non-Energy O&M savings	= Operation and Maintenance savings due to water savings = \$14.69 per showerhead, \$7.61 per 1.5 gpm aerator, and \$13.05 per 1.0 gpm aerator.
Energy O&M savings	= Savings attributed to savings of fuel not served by Xcel Energy. Varies by customer depending on customer type and water heating fuel.

Measure:	Measure Life (yrs)	
	2014+	
CFLs (8 bulbs)	14.42 years	
Shower head	10 years	
Faucet aerators (2 aerators)	10 years	

Assumptions:

Savings shown above include homes with both electric and gas water heaters. In Colorado, 85% of homes have gas water heaters and 15% of homes have electric water heaters. We will use 85% of the gas savings and 15% of the electric savings shown above for showerheads and aerators (Reference 7.)

Provided by Customer:

Number of kits distributed
Number of CFLs installed
Showerhead Installed
Number of aerators installed

Verified during M&V:

Yes
Yes
Yes
Yes

Changes From 2011:

Added 2 20W CFLs

References

1. US DOE US Lighting Market Characterization Study 2002
2. Composite Wattages, Operating Hours and Coincidence from CFL METERING STUDY FINAL REPORT, Prepared for: Pacific Gas & Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, 2005
3. Department of Energy Domestic Hot Water Appliance Calculator
4. Japanese study: "The effects of variation in body temperature on the preferred water temperature and flow rate during showering"
Authors: Tadakatsu Ohnaka, Yutaka Tochiyama, Yumiko Watanabe. Affiliations: a) Department of Physiological Hygiene, The Institute of Public Health, Minato-ku, Tokyo, Japan; b) Faculty of Home Economics, Jissen Women's University, Hino, Tokyo, Japan.
5. Handbook of Water Use and Conservation, Denver Water Conservation
6. CALMAC; California Measurement Advisory Committee.
7. 2006 Residential energy use Colorado service area - Xcel Energy Market Research

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Low Income Multi-Family Weatherization

Low Income service agency may apply for a grant to improve the natural gas and electric efficiency measures of low income multi-family housing units and common spaces/systems.

Algorithms:

Savings will be determined by results of an engineering audit of potential energy savings for the facility and living units. Calculations may include standard energy calculations or hourly energy modeling with recognized software packages. Savings for CFL lighting, refrigerator upgrades or evaporative coolers installed in living units will be deemed per other products for low income participants or prescriptive products.

We will use 100% for the Net-to-Gross factor for the Low Income Multi-Family Weatherization product.

Changes from 2013:

No changes.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Low Income Non-Profit Weatherization

Low Income service agency may apply for a grant to improve the natural gas and electric efficiency measures of low income non-profit housing units and common spaces/systems.

Algorithms:

Savings will be determined by results of an engineering audit of potential energy savings for the facility and living units. Calculations may include standard energy calculations or hourly energy modeling with recognized software packages. Savings for CFL lighting, refrigerator upgrades or evaporative coolers installed in facilities will be deemed per other products for low income participants or prescriptive products.

We will use 100% for the Net-to-Gross factor for the Low Income Non-Profit Weatherization product.

Changes from 2013:

No changes.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Low Income Single Family Weatherization

Description:

Residential income-qualified natural gas and electricity customers have energy efficiency measures performed at no cost.

Algorithms:

Baseline Home Energy Use	Energy characteristics for the baseline home were calculated in REM/Rate using data collected during the 2011 Program Evaluation. These characteristics vary by region and by home construction type (i.e. mobile home vs. site built). Details can be seen in Table 1.
Gross Dth	Dth savings were calculated per measure as a parametric simulation in REM/Rate as part of the 2011 Program Evaluation. Results are shown in Table 2.
Customer kWh	kWh savings were calculated per measure as a parametric simulation in REM/Rate as part of the 2011 Program Evaluation. Results are shown in Table 3.
Customer kW	kW savings were calculated per measure as a parametric simulation in REM/Rate as part of the 2011 Program Evaluation. Results are shown in Table 4.
Net Dth	= Gross Dth x NTG
Gross Generator kWh	= Customer kWh / (1-TDLF)
Gross Generator kW	= Customer kW x CF / (1-TDLF)
Net Generator kWh	= Gross Generator kWh x NTG
Net Generator kW	= Gross Generator kW x NTG

Variables:

NTG	Net-to-Gross, as established in the 2011 Program Evaluation, is 100%
O&M Savings	No measures result in Operations and Maintenance Savings
TDLF	Transmission Distribution Loss Factor = 7.7%
Coincidence Factor	The probability that the Customer kW value will be realized during peak generation periods. Results per measure shown in Table 5.
Lifetime	Measure lifetimes are shown in Table 6.
Incremental Cost	Measure incremental costs are shown in Table 7.

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Tables:

Table 1: Home Characteristics (Reference 1)

Category	Characteristic	Evaluation Result	Home Type
Envelope and Mechanical Systems	Home Type	Mobile and Site Built	Specified
	Location	Multiple Regions	Both
	Conditioned Floor Area	961 Square Feet	Mobile
		1,452 Square Feet	Site Built
	Number of Bedrooms	Two	Mobile
		Three	Site Built
	Foundation Type	Open Crawlspace	Mobile
		Enclosed Crawlspace	Site Built
	Foundation Wall Type	Mobile Home Skirt	Mobile
		R-11 Draped Insulation	Site Built
	Home Complexity	Four Corners	Both
	Nominal Ceiling Height	7.6 Feet Mobile	Mobile
		8.2 Feet Site Built	Site Built
	Ceiling Type Baseline	REM/Rate Default	Mobile
		R-11 + Grade III	Site Built
	Ceiling Type Weatherized	R-38 + Grade II	Both
	Above Grade Wall Type Baseline	REM/Rate Default	Mobile
		Empty Cavity Insulation	Site Built
	Above Grade Wall Type Weatherized	R-4.37 Grade III	
		R-11 + Grade III	Site Built
	Foundation Floor Type	R-9.3	Mobile
		Uninsulated	Site Built
	Door Type	R-1.7	Both
	Infiltration Rate	0.8 ACH	Both
	Window Properties	U Value 0.86	Mobile
		SHGC 0.72	
		U Value 0.75	Site Built
		SHGC 0.67	
		108.25 sqft	Mobile
	Furnace Baseline Properties	144.15 sqft	Site Built
78 AFUE, 57.9 kBtuh		Mobile	
Furnace Weatherized Properties	78 AFUE, 65.9 kBtuh	Site Built	
	92 AFUE, 57.9 kBtuh	Mobile	
Duct System Properties	92 AFUE, 65.9 kBtuh	Site Built	
	R-9.3	Mobile	
	Uninsulated	Site Built	
Appliances	25% Duct Leakage	Both	
	85% have Dishwashers 74% have electric ranges 88% and 89% have Clothes Washer and Electric Dryer 68% have Ceiling Fans	Both	
Refrigerators	Adjusted Volume	21.58 Cubic Feet	Both
	Survival Rate	Dependent on age	Both
	Degradation	1.25%	Both
CFLs	Operating Hours	2.78	Both
	Coincidence Factor	8%	Both
	CFLs Installed	10.3	Mobile
		16	Site Built

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 2: Gas Energy Savings by Region (Reference 1)*

Measure	Denver	Dillon	Eagle	Grand Junction	Leadville
Water Heater Replacement	1.1	1.1	1.1	1.1	1.1
Wall Insulation	27.9	49.8	39.6	25.4	57.9
SB Furnace Replacement	18.3	31.9	26.3	16.9	36.0
MH Furnace Replacement	13.3	23.5	19.3	12.3	26.3
Air Sealing	5.1	9.1	7.2	4.6	10.5
Duct Sealing	3.6	6.4	5.1	3.3	7.4
SB Ceiling Insulation	16.5	29.4	23.8	15.2	33.5
MH Ceiling Insulation	7.9	11.5	20.5	16.7	10.7
Storm Window Installation	16.3	29.0	23.1	14.8	33.7
Crawlspace Insulation	3.7	6.7	5.3	3.4	7.7

*SB = Site Built, MH = Mobile Home. All others are not expected to be affected by home type.

Table 3: Electric Energy Savings by Measure (Reference 1)*, **

Measure	Denver	Dillon	Eagle	Grand Junction	Leadville
CFL (1 lamp)	24	24	24	24	24
Refrigerator Replacement	584	584	584	584	584
Wall Insulation	6,508	11,617	9,238	5,925	13,506
Air Sealing	1,183	2,112	1,680	1,077	2,456
Duct Sealing	835	1,491	1,186	760	1,733
SB Ceiling Insulation	3,849	6,858	5,552	3,546	7,815
MH Ceiling Insulation	1,843	2,683	4,782	3,896	2,496
Storm Window Installation	3,794	6,771	5,384	3,454	7,873
Crawlspace Insulation	870	1,553	1,235	792	1,806

*SB = Site Built, MH = Mobile Home. All others are not expected to be affected by home type.

** envelope measures contribute electric savings when an electric heating source is utilized. Assumed efficiency is 98%.

Table 4: Electric Demand Savings by Measure (Reference 1)*, **

Measure	Denver	Dillon	Eagle	Grand Junction	Leadville
CFL (1 lamp)	0.04	0.04	0.04	0.04	0.04
Refrigerator Replacement	0.08	0.08	0.08	0.08	0.08
Wall Insulation	0	0	0	0	0
Air Sealing	0	0	0	0	0
Duct Sealing	0	0	0	0	0
SB Ceiling Insulation	0	0	0	0	0
MH Ceiling Insulation	0	0	0	0	0
Storm Window Installation	0	0	0	0	0
Crawlspace Insulation	0	0	0	0	0

*SB = Site Built, MH = Mobile Home. All others are not expected to be affected by home type.

** envelope measures contribute electric savings when an electric heating source is utilized. Assumed efficiency is 98%.

Table 5: Coincidence Factors

Measure	Value (%)
CFL (1 lamp - 2012)	8% (Reference 2)
CFL (1 lamp - 2013)	8% (Reference 2)
Refrigerator Replacement	100%
Wall Insulation	0%
Air Sealing	0%
Duct Sealing	0%
Ceiling Insulation	0%
Storm Window Installation	0%
Crawlspace Insulation	0%

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Table 6: Lifetimes

Measure	Value (yrs)
CFL (1 lamp)	7.77 (Reference 2)
Refrigerator Replacement	7.30 (Reference 3)
Water Heater Replacement	15 (Reference 4)
Wall Insulation	20 (Reference 5)
Furnace Replacement	18 (Reference 6)
Air Sealing	10 (Reference 5)
Duct Sealing	15 (Reference 5)
Ceiling Insulation	20 (Reference 5)
Storm Window Installation	20 (Reference 5)
Crawlspace Insulation	20 (Reference 5)

Table 7: Incremental Cost by Measure

Measure	Value (\$)
CFL (1 lamp)	\$2.73 (Reference 7)
Refrigerator Replacement	\$631 (Reference 7)
Water Heater Replacement	\$55 (Reference 4)
Wall Insulation	\$670 (Reference 8)
Furnace Replacement	\$623 (Reference 9)
Air Sealing	\$272 (Reference 10)
Duct Sealing	\$325 (Reference 9)
Ceiling Insulation	\$715 (Reference 8)
Storm Window Installation	\$1225 (Reference 8)
Crawlspace Insulation	\$175 (Reference 8)

References

- 1) 2011 Program Evaluation by Cadmus Group
- 2) US Lighting Market Characterization Study performed for the Department of Energy in 2002
- 3) Environmental Protection Agency Energy Star Program - www.energystar.gov
- 4) Xcel Energy Water Heater Rebate Program
- 5) California Measurement Advisory Committee (CALMAC) Protocols, Appendix F (www.calmac.org/events/APX_F.pdf).
- 6) Energy Conservation Standards for Residential Furnaces and Boilers, Efficiency Standards for Consumer Products
- 7) CO Governor's Energy Office Guidance
- 8) RS Means RR 2007
- 9) Database for Energy Efficient Resources (DEER)
- 10) NEAT/Frontier

Measure Description		Based on Product Defaulted Technical Assumptions														Program Participant's				Stipulated Forecast Impact				
Electric Measure Group	Electric Measure Description / Rating	High Efficiency Product Assumptions				Economic Assumptions				Stipulated Output				Economic Assumptions				2014		2014				
		E-Product Description / Rating	Eff. Coef Product Coefficient (eta)	Eff. Coef Hours of Op. a Year (hrs/yr)	Baseline Product Description / Rating	Baseline Product Coefficient (eta)	Baseline Hours of Operation (hrs/yr)	Measure Life (years)	Rebate Amount (\$)	Average Baseline Product Cost (\$)	Incremental Cost of Efficient Product (\$)	Rebate as a % of Incremental Cost (%)	Incremental Cost Product Period w/ Rebate (\$/yr)	Annual Output kWh savings (kWh/yr)	Customer kW Savings (kW)	Generator Peak kW Savings (kW)	Non-Energy O&M Savings (\$)	Energy O&M Savings (\$)	Cost Avoidance Factor (%)	2014 Participants	2014 Units (\$)	NTG (%)	Incremental Rate (%)	
Business																								
Commercial Refrigeration and Freezers																								
Refrigerator	ECM - Medium Temp. 1/2 to 3/4 Case	Three star energy efficient and Moisture (E-3M)	2	4,652	Shaded Deck Motor	72	4,672	15,000	\$ 0	\$0	0%	132	2.25	1.1	0.018	\$0.00	\$0.00	100.0%	10	1,500	100%	100%		
Refrigerator	ECM - Low Temp. Display Case	Three star energy efficient and Moisture (E-3M)	20	4,652	Shaded Deck Motor	4	4,672	15,000	\$ 0	\$0	0%	3	1.91	0.0	\$0.00	\$0.00	100.0%	10	1,500	100%	100%			
Refrigerator	ECM - Medium Temp. Walk-In Freezer < 15' Diameter	Three star energy efficient and Moisture (E-3M)	52	4,652	Shaded Deck Motor	157	4,672	15,000	\$ 30	\$100	30%	30	2.08	1.55	0.002	\$0.00	\$0.00	100.0%	10	1,500	100%	100%		
Refrigerator	ECM - Low Temp. Walk-In Freezer < 15' Diameter	Three star energy efficient and Moisture (E-3M)	52	4,652	Shaded Deck Motor	201	4,672	15,000	\$ 30	\$100	30%	3	2.28	1.55	0.002	\$0.00	\$0.00	100.0%	10	1,500	100%	100%		
Refrigerator	Anti-Static Hazard Controls	Anti-Static Hazard Controls	6	4,760	Anti-Static Hazard Controls (no extra amp)	175	4,760	12,000	\$0	\$0	0%	2.56	1.37	1.8	0.003	0.175	\$0.00	\$0.00	96.7%	4	1,000	100%	100%	
Refrigerator	No Hazard Case Doors	No Hazard Case Doors	0	4,760	Anti-Static Hazard Controls (no extra amp)	152	4,760	10,000	\$113	\$0	\$ 13	27%	0.45	0.9	1.550	0.152	0.152	\$0.00	\$0.00	100.0%	16	470	100%	100%
Refrigerator	LED Refrigerated Cases - Bar of 1	LED Refrigerated Cases - Bar of 1	35	4,760	Fluor T12 Fluorescent	320	4,760	10,000	\$0	\$71	30%	5.68	2.37	387	0.067	0.067	\$0.00	\$0.00	9.0%	37	3,065	8.5%	100%	
Refrigerator	LED Refrigerated Cases - Bar of 2 or More Rows	LED Refrigerated Cases - Bar of 2 or More Rows	19	5, 78	Incandescent screw base	111	5, 78	18,000	\$65	\$0	65%	2.16	0.00	503	0.002	0.005	\$0.00	\$0.00	8.0%	660	2,952	8.5%	100%	
Refrigerator	Medium-temp Reach-In Case (per 1 row foot)	Medium-temp Reach-In Case (per 1 row foot)	31	4,760	Medium-temp (Open Reach-In Case)	151	4,760	15,000	\$70	\$0	0%	1.10	13.01	1.251	0.153	0.153	\$0.00	\$0.00	100.0%	11	1,500	100%	100%	
Refrigerator	Right-Hand Cases	Right-Hand Cases	17	1, 36	Open Reach-In Case	17	2,720	100	\$20	\$0	20%	0.02	2.46	2.7	0.000	0.000	\$2.16	\$0.00	0.0%	0	200	100%	100%	
Refrigerator	Temp Meas or Fan Control	Temp Meas or Fan Control	0	2,576	No Meas or Fan Control	3 7	2,576	15,000	\$15	\$0	10%	27%	3.76	2.66	3.76	0.1 6	0.1 6	\$0.00	\$0.00	29. 7%	5	20	100%	100%
Refrigerator	Energy Efficient Power Controls (PFC) Case	Energy Efficient Power Controls (PFC) Case	1,830	4, 400	no controls	1,930	4, 400	15,000	\$20	\$0	0%	0	0.00	0.00	0.000	0.000	\$0.00	\$0.00	0.0%	200	0	100%	100%	
Refrigerator	Energy Efficient Power Controls (PFC) Case	Energy Efficient Power Controls (PFC) Case	9	3 3	Energy Efficient Power Controls (PFC) Case	9	3 3	1,000	\$15	\$0	15%	1.55	0.00	270	0.000	0.000	\$0.00	\$0.00	0.0%	25	1.0	0%	100%	
Refrigerator	LED Power Supply - Ambient or Water Heating	LED Power Supply - Ambient or Water Heating	191	4,760	1.8 gal/one per row motor	236	4,760	5,000	\$ 3	\$ 3	100%	1.20	0.00	17	0.0 8	0.001	\$13.89	\$0.00	2.3%	0	72	100%	100%	
Refrigerator	Ambient Water Supply - Ambient or Water Heating	Ambient Water Supply - Ambient or Water Heating	191	4,760	2.2 gal/one per row motor	236	4,760	10,000	\$ 7	\$ 7	100%	0.05	0.00	179	0.133	0.005	\$53.66	\$0.00	2.1%	135	537	100%	100%	
Refrigerator	Ambient Water Supply - Ambient or Water Heating	Ambient Water Supply - Ambient or Water Heating	2	4,760	1.8 gal/one per row motor	62	4,760	10,000	\$ 7	\$ 7	100%	0.36	0.00	172	0.020	0.000	\$9.58	\$0.00	0.7%	130	265	100%	100%	
Compressed Air																								
Stair	Average Study - E-Cycle	Leak & Win & Found and Repaired	1 1 9	7 25	Fixing Staircase with Leaks & Winns that have not been repaired	1 839	7 25	5 00	\$ 478	\$0	\$5 8 1	70%	3 55	1 07	30 512	190	3 528	\$0 00	\$0 00	87 0%	1	1	87%	100%
Compressor	Average Compressor	New Equipment	126 607	3 967	Old or no eff. controls on equipment	1 839	3 967	20 00	\$11 509	\$0	\$32 785	35%	6 15	1 36	76 673	39 732	15 7 0	\$0 00	\$0 00	7 0%	11	11	87%	100%
Compressor	No-Air Loss Drive Values	No-Air Loss Drive	0	5 823	No-Air Loss Drive	5 17	5 823	20 00	\$200	\$125	\$ 8 8	5%	2 55	1 1	3 600	0 327	0 382	\$0 00	\$0 00	65 1%	6	11	87%	100%
Compressor	VFD compressor - (New/Partial)	VFD Compressor	11 607	2 965	Monitor on or load control - less than 2gal of storage per CFM of Capacity	16 73	2 965	20 00	\$2 125	\$16 1	\$ 262	30%	3 61	1 81	1 806	5 127	869	\$0 00	\$0 00	88 0%	9	6	87%	100%
Compressor	VFD compressor - (Replacement/Partial)	VFD Compressor	12 365	2 960	Monitor on or load control - less than 2gal of storage per CFM of Capacity	17 86	2 960	20 00	\$5 271	\$0	\$10 600	33%	12 62	4 8	16 2 1	5 71	5 196	\$0 00	\$0 00	88 0%	5	55	87%	100%
Compressor	Control Panel Upgrade	Control Panel	1 37	7 000	New control device	2 279	7 000	20 00	\$ 80	\$5 368	\$1 125	3%	5 9	2 16	3 907	0 8 1	0 900	\$0 00	\$0 00	100 0%	2	2	87%	100%
Compressor	Control Panel Upgrade	Control Panel for Fan Load Control Device	97 003	4 665	New Panel Cost for Fan Load Control Device	2 350	4 665	10 00	\$1 000	\$0	\$5 271	35%	1 42	1 13	36 512	3 519	5 688	\$0 00	\$0 00	100 0%	10	10	87%	100%
Compressor	Motor Efficiency Filter	Motor Efficiency Filter	78 083	7 276	General Purpose Filter	80 136	7 276	15 00	\$2 000	\$1 356	\$ 3 366	7%	7 55	0 0	9 83	1 303	1 39	\$66 73	\$0 00	100 0%	1	1	87%	100%
Computer Efficiency																								
Server	Desktop PC ENERGY STAR 5.0 or 6.0 Plus BRONZE level power supply	desktop computer meeting ENERGY STAR spec on 5.0 spec or 6.0 Plus Bronze level power supply	5	7 3	Based on desktop computer w/ a standard eff. energy power supply	68	7 3	5 00	\$0	\$600	\$9	0%	0 53	0 53	1 80	0 025	0 027	\$0 00	\$0 5	100 0%	1 200	12 000	68%	100%
Server	Desktop PC ENERGY STAR 5.0 or 6.0 Plus SILVER level power supply	desktop computer meeting ENERGY STAR spec on 5.0 spec or 6.0 Plus Silver level power supply	1	7 3	Based on desktop computer w/ a standard eff. energy power supply	68	7 3	5 00	\$0	\$600	\$1	0%	1 36	1 36	1 99	0 027	0 029	\$0 00	\$0 57	100 0%	500	5 000	68%	100%
Server	Desktop PC ENERGY STAR 5.0 or 6.0 Plus GOLD level power supply	desktop computer meeting ENERGY STAR spec on 5.0 spec or 6.0 Plus Gold level power supply	1	7 3	Based on desktop computer w/ a standard eff. energy power supply	68	7 3	5 00	\$0	\$600	\$16	0%	1 53	1 53	205	0 028	0 030	\$0 00	\$0 59	100 0%	1 300	13 000	68%	100%
Server	Desktop PC ENERGY STAR 5.0 or 6.0 Plus PLATINUM level power supply	desktop computer meeting ENERGY STAR spec on 5.0 spec or 6.0 Plus Platinum level power supply	0	7 3	Based on desktop computer w/ a standard eff. energy power supply	68	7 3	5 00	\$0	\$600	\$22	0%	2 03	2 03	212	0 028	0 030	\$0 00	\$0 60	100 0%	0	0	68%	100%
Server	Desktop PC V. V. dual core	Server & software or data center along w/ dual core or quad core dual core energy efficient (EPA WWSW) WWSW - based on system. Powering core of core system. meeting Energy Star 5.0 spec. fan on	17	7 3	Based on desktop computer w/ a standard eff. energy power supply	9	7 3	10 00	\$0	\$600	\$117	35%	2 72	1 32	2 5	0 035	0 035	\$20 50	\$0 00	100 0%	19	500	88%	100%
Server	Network Based Power Management	Desktop Computer w/ network control software installed	16	7 3	Desktop Computer w/ network control software installed	9	7 3	6 00	\$5	\$0	\$15	3%	1 58	1 0	235	0 032	0 000	\$2 7	\$0 47	0 0%	100	5 000	88%	100%
Cooling Efficiency																								
DX Unit < 5 tons	cooling Unit or Split System Unit less than 5 tons	DX Unit or Split System Unit	5 200	1 213	DX Unit or Split System Unit	3	1 213	15 000	\$200	\$0 000	\$ 0 00	75%	2 22	0 01	1 308	0 070	1 058	\$0 00	\$0 00	96 0%	250	261	80%	100%
DX Unit 5.5 to 11 tons	cooling Unit or Condensing Unit or Split System 5.5 to 11 tons	DX Unit or Split System Unit	7 568	898	DX Unit or Split System Unit	9 035	898	15 000	\$260	\$12 50	\$630	68%	55	1 60	976	1 067	1 0 6	\$0 00	\$0 00	90 0%	130	263	80%	100%
DX Unit 11 - 15.99 tons	cooling Unit or Split System 11 - 15.99 tons or Condensing Unit or Split System 11 - 15.99 tons	DX Unit or Split System Unit	1 072	909	DX Unit or Split System Unit	16 111	909	15 000	\$907	\$37 50	\$1 50	68%	7 50	2 36	1 127	1 239	1 193	\$0 00	\$0 00	90 0%	55	55	80%	100%
DX Unit 20 to 3 tons	cooling Unit or Split System 20 to 3 tons	DX Unit or Split System Unit	28 63	1 784	DX Unit or Split System Unit	30 3	1 784	15 000	\$2 023	\$ 3 500	\$2 870	75%	2 30	0 68	11 613	0 480	6 30	\$0 00	\$0 00	90 0%	53	53	80%	100%
DX Unit > 6.5 tons	cooling Unit or Split System greater than 6.5 tons	DX Unit or Split System Unit	120 800	1 894	DX Unit or Split System Unit	132 380	1 898	15 000	\$8 758	\$10 200	\$12 000	75%	1 97	0 5	603 2	31 789	30 599	\$0 00	\$0 00	90 0%	7	7	80%	100%
Water source Heat Pump	Water source Heat Pump	Condensing Unit or Split System 15.5 SEER, 15.5 EER	2 465	1 012	Condensing Unit or Split System 12 EER	3 700	1 012	20 000	\$518	\$5 550	\$72	72%	5 55	1 31	521	0 855	0 80	\$0 00	\$0 00	90 0%	10	10	80%	100%
PEAC	PEAC	Condensing Unit or Split System 15 SEER, 11 EER	8 2	802	Condensing Unit or Split System 10 SEER, 8 EER	1 08	802	15 000	\$68	\$1 200	\$198	3%	5 29	1 7	216	0 2 2	0 233	\$0 00	\$0 00	90 0%	5	220	80%	100%
Chiller small-tones < 75 tons	chiller/condenser chiller < 75 tons	Chiller/condenser chiller/condenser 0.55 HP	55 015	612	Chiller/condenser chiller/condenser 0.75 hp load kW/ton 0.55 HP	2 12	612	20 000	\$2 668	\$32 0	\$6 963	30%	6 53	05	526	7 398	7 121	\$0 00	\$0 00	90 0%	1	1	80%	100%
Chiller small-tones > 75 to < 130 tons	chiller/condenser chiller > 75 to < 130 tons	Chiller/condenser chiller/condenser 0.90 HP	68 6 6	1 3 3	Chiller/condenser chiller/condenser 0.75 hp load kW/ton 0.90 HP	77 035	1 3 3	20 000	\$ 30 0	\$10 0	\$12 725	3%	8 8	0 5	11 280	8 300	8 075	\$0 00	\$0 00	90 0%	1	1	80%	100%
Chiller small-tones > 130 to < 300 tons	chiller/condenser chiller > 130 to < 300 tons	Chiller/condenser chiller/condenser 0.90 HP	159 227	1 037	Chiller/condenser chiller/condenser 0.60 hp load kW/ton 0.9 HP	1 037	1 037	20 000	\$6 5 0	\$76 000	\$13 976	0%	5 22	1 1	19 706	14 977	14 286	\$0 00	\$0 00	90 0%	1	2	80%	100%
Chiller small-tones > 300 tons	chiller/condenser chiller > 300 tons	Chiller/condenser chiller/condenser 0.97 HP	155 100	1 763	Chiller/condenser chiller/condenser 0.60 hp load kW/ton 0.97 HP	1 860 000	1 763	20 000	\$13 515	\$10 000	\$21 000	6%	5 67	1 31	32 613	30 900	29 7 3	\$0 00	\$0 00	90 0%	1	1	80%	100%
Center Stage Chiller < 150 tons	Center Stage Chiller < 150 tons	Chiller/condenser chiller/condenser 0.50 hp load kW/ton 0.50 HP	53 822	756	Chiller/condenser chiller/condenser 0.50 hp load kW/ton 0.50 HP	6 985	756	20 000	\$ 2 03	\$60 900	\$17 97	2%	11 32	0 62	8 195	10 563	10 166	\$0 00	\$0 00	90 0%	1	1	80%	100%
Center Stage Chiller > 150 to < 300 tons	Center Stage Chiller > 150 to < 300 tons	Chiller/condenser chiller/condenser 0.65 hp load kW/ton 0.51 HP	161 3	5 63	Chiller/condenser chiller/condenser 0.65 hp load kW/ton 0.60 HP	167 2 9	5 63	20 000	\$6 872	\$38 280	\$ 6 695	15%	30 69	20 17	21 38	5 966	5 685	\$0 00	\$0 00	90 0%	6	7	80%	100%
Center Stage Chiller > 300 tons or < 600 tons	Center Stage Chiller > 300 tons or < 600 tons	Chiller/condenser chiller/condenser 0.5 HP	20 25	1 066	Chiller/condenser chiller/condenser 0.5 HP																			

Measure Description		Basis or Product Detailed Technical Assumptions										Economic Assumptions										Program Financial Inputs													
Electric Measure Group	Electric Measure Description	High Efficiency Product Assumptions		Baseline Product Assumptions		Economic Assumptions		Basis or Product Assumptions		Incremental Cost of Product (\$)		Rebate as a % of Incremental Cost (%)		Incremental Cost Product Period (kWh/kWh)		Incremental Cost Product Period (kWh/kWh)		Customer kW Savings (kW)		Generator Peak kW Savings (kW)		Non-Energy O&M Savings (\$)		Energy O&M Savings (\$)		Grid Reliance Factor (%)		2014 Participation (%)		2014 Utility (%)		NetG (%)		In a Ratio (%)	
		Eff. % on Product Compared to (Energy)	Eff. % on Hours of Operation (kWh/yr)	Baseline Product Description / Rating	Baseline Product Comparison on (Energy)	Baseline Hours of Operation (kWh/yr)	Measure Life (years)	Rebate Amount (\$)	Average Baseline Product Cost (\$)	Incremental Cost of Product (\$)	Rebate as a % of Incremental Cost (%)	Rebate Period (kWh/kWh)	Rebate Period (kWh/kWh)	Annual Customer kWh Savings (kWh/yr)	Customer kW Savings (kW)	Generator Peak kW Savings (kW)	Non-Energy O&M Savings (\$)	Energy O&M Savings (\$)	Grid Reliance Factor (%)	2014 Participation (%)	2014 Utility (%)	NetG (%)	In a Ratio (%)												
A-Cooled Chiller < 150 tons	A-Cooled Chiller < 150 Tons	A-Cooled Chiller < 150 Tons	37.091	590	A-Cooled Chiller < 150 Tons 11.0 EER	2.609	950	20100	\$2,210	\$3,000	\$ 790	31%	9	2.1	5,207	3,378	5,569	\$0.00	\$0.00	90.0%	1	1	80%	100%											
A-Cooled Chiller > 150 tons	A-Cooled Chiller > 150 tons	A-Cooled Chiller > 150 tons	30.127	765	A-Cooled Chiller > 150 Tons 11.0 EER	2.517	765	20100	\$1,735	\$3,000	\$ 1,265	38%	6.1	2.9	21,922	30.8	29.0	\$0.00	\$0.00	90.0%	1	1	80%	100%											
Chiller VSD	Chiller Variable Speed Drive	Chiller Variable Speed Drive	100.000	1,002	Chiller Variable Speed Drive 100.000	21.000	1,002	20100	\$0.115	\$0	\$27.172	30%	3.16	2.22	5,230	5.086	-3.280	\$0.00	\$0.00	-5.7%	1	1	80%	100%											
Water-to-Air Economizer (HX)	Water-to-Air Heat Exchangers	Water-to-Air Heat Exchangers	2.278	8,760	Water-to-Air Heat Exchangers	56.566	8,760	20100	\$28.267	\$0	\$68.505	1%	10.69	6.27	12,285	1.188	0.000	\$0.00	\$0.00	0.0%	2	2	80%	100%											
DRY-COOL	Dry Coolers for Pre-cooling Technology for A-Cooled Condensers on DX on a Rooftop	Dry Coolers for Pre-cooling Technology for A-Cooled Condensers on DX on a Rooftop	1.9	767	Dry Coolers for Pre-cooling Technology for A-Cooled Condensers on DX on a Rooftop	2.271	767	20100	\$100	\$0	\$28	9%	3.1	2.20	258	0.528	0.515	\$-78	\$0.00	90.0%	50	7,500	80%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$2.000	75%	100.000	100.000	0	\$0.00	\$0.00	\$0.00	\$0.00	0.0%	25	25	80%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$2.000	75%	100.000	100.000	0	\$0.00	\$0.00	\$0.00	\$0.00	0.0%	25	25	80%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	177.135	2,998	LED Light Fixtures	2.14613	2,998	19,666	\$20.86	\$135.759	\$114.89	3%	15	2.2	195,672	6.466	11,672	\$0.00	\$0.00	16.9%	25	25	80%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	2	8,672	LED Light Fixtures	7.5	8,672	15,000	\$3.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0	LED Light Fixtures	0	0	0	\$0.00	\$0	\$8.672	3%	25	2.26	2.1	61.8	0.051	\$0.00	\$0.00	100.0%	10	10	100%	100%											
LED Light Fixtures	LED Light Fixtures	LED Light Fixtures	0	0																															

Measure Description		Gas Product Detailed Technical Assumptions													Program Forecast Inputs		Regulated Forecast Inputs						
Name of Gas Measure Group	Natural Gas Measure Description	High Efficiency Product Assumptions			Baseline Product Assumptions			Economic Assumptions					Stipulated Output		Economic Assumptions		2018		2019				
		High Efficiency Product Description / Rating	High Efficiency Product Consumption (Dth/yr)	High Efficiency Product Cost (\$/Dth)	Baseline Product Description / Rating	Baseline Product Consumption (Dth/yr)	Baseline Product Cost (\$/Dth)	Life of Product (years)	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Eff c ent Product	Assumed Energy Cost (\$/Dth)	Rebate as a % of Incremental Cost	Incremental Cost Payback Per unit of Rebate	Incremental Cost Payback Per unit with Rebate	Average Annual Customer Dth Savings	Average rebated cost per Dth Saved	Average rebated Lifetime cost per Dth Saved	Non-Energy O&M Savings	Energy O&M Savings	2014 Participation (%)	2014 Un a (%)	NTG (%)
Business																							
Commercial Refrigeration Efficiency																							
Prescript ve	CFW Dry Ice Sprayer - gas water heating	1.28 gpm per sq ft min sprayer	7		1.60 gpm per sq ft min sprayer	9	3	\$ 0	\$ 0	\$ 3	100%	0.7	0.0	1.86	\$2.18	\$ 8	\$16	\$0	\$0	170	290	100%	100%
Prescript ve	Faucet Aerator (Recycled) gas water heating	3 gpm per sq ft min recirculation faucet	2		2.2 gpm per sq ft min faucet	7	9	\$7	\$0	\$7	100%	0.1	0.0	3.26	\$1.27	\$0.1	\$66	\$0	\$0	650	1,086	100%	100%
Prescript ve	Faucet Aerator (Kitchen) gas water heating	1.5 gallons per sq ft min kitchen faucet	2		2.2 gallons per sq ft min faucet	2	9	\$7	\$0	\$7	100%	0.5	0.0	0.77	\$8.7	\$0.97	\$10	\$0	\$0	80	859	100%	100%
Customer Efficiency																							
Gas cons	Custom Eff c ent Measure	Var on by project	8,022		Var on by project	8,78	18	\$1,828	\$0	\$10,619	17%	1	3	50.52	\$ 0	\$0.22	\$0	\$0	\$0	3	13	95%	100%
Energy Management System																							
Energy Management System	New EMS for HVAC control	New EMS for HVAC control	1,510		baseline EMS	1,809	15	\$1,770	0	\$33,350		%	5.6	5	328.09	\$ 0	\$0.20	\$808	\$3,265	10	10	90%	100%
Heating Efficiency																							
New Boiler - P an A-1	Non-condens ng Hot Water Boiler New 175 MBTUH for space heating only	80% Eff c ent Boiler	115		80% Eff c ent Boiler	122	20	\$131	\$600	\$50	20%	12.2	9.0	7.20	\$18.22	\$0.91	\$0	\$0	\$0	2	2	80%	100%
New Boiler - P an A-1	Non-condens ng Hot Water Boiler New 300 MBTUH for space heating only	80% Eff c ent Boiler	320		80% Eff c ent Boiler	350	20	\$375	\$900	\$400	5%	3.2	3.10	20.38	\$18.22	\$0.91	\$0	\$0	\$0	3	3	80%	100%
New Boiler - P an A-1	Non-condens ng Hot Water Boiler New 1 MBTUH for space and domestic water heating	80% Eff c ent Boiler	1.3		80% Eff c ent Boiler	1.533	20	\$750	\$300	\$ 0	17%	8.6	7.1	90.19	\$8.32	\$0.2	\$0	\$0	\$0	2	2	80%	100%
New Boiler - P an A-1	Non-condens ng Hot Water Boiler New 2 MBTUH for space and domestic water heating	80% Eff c ent Boiler	2.886		80% Eff c ent Boiler	3.166	20	\$1,500	\$1,000	\$1,000	30%	9	3	180.37	\$8.32	\$0.2	\$0	\$0	\$0	2	2	80%	100%
New Boiler - P an A-1	Non-condens ng Hot Water Boiler New 2 MBTUH for space and domestic water heating	80% Eff c ent Boiler	5.772		80% Eff c ent Boiler	6.133	20	\$3,000	2,000	\$10,000	30%	9	3	360.7	\$8.32	\$0.2	\$0	\$0	\$0	1	1	80%	100%
New Boiler - P an A-2	Condens ng Hot Water Boiler New 175 MBTUH for space heating only	92% Eff c ent Boiler	115		80% Eff c ent Boiler	135	20	\$613	\$600	\$1,000	36%	13.9	8.6	20.17	\$30.37	\$1.32	\$0	\$0	\$0	13	13	80%	100%
New Boiler - P an A-2	Condens ng Hot Water Boiler New 300 MBTUH for space heating only	92% Eff c ent Boiler	320		80% Eff c ent Boiler	347	20	\$1,750	\$900	\$6,200	28%	18.9	13.6	37.62	\$30.37	\$1.52	\$0	\$0	\$0	8	8	80%	100%
New Boiler - P an A-2	Condens ng Hot Water Boiler New 1 MBTUH for space and domestic water heating	92% Eff c ent Boiler	1.045		80% Eff c ent Boiler	1.045	20	\$3,500	\$3,500	\$7,700	3%	5	2.9	252.52	\$13.86	\$0.69	\$0	\$0	\$0	10	10	80%	100%
New Boiler - P an A-2	Condens ng Hot Water Boiler New 2 MBTUH for space and domestic water heating	92% Eff c ent Boiler	2.886		80% Eff c ent Boiler	3.391	20	\$7,100	\$1,000	\$1,500	8%	5.0	2.6	365.0	\$13.86	\$0.69	\$0	\$0	\$0	2	2	80%	100%
New Boiler - P an A-2	Condens ng Hot Water Boiler New 2 MBTUH for space and domestic water heating	92% Eff c ent Boiler	5.772		80% Eff c ent Boiler	6.782	20	\$14,000	2,000	\$29,000	8%	5.0	2.6	1000.08	\$13.86	\$0.69	\$0	\$0	\$0	1	1	80%	100%
New Boiler - P an B	Condens ng Hot Water Boiler Rep. assumed 175 MBTUH for space heating only	92% Eff c ent Boiler	115		78% Eff c ent Boiler	139	20	\$1,225	0	\$6,613	19%	9.2	0.1	23.6	\$53.82	\$2.59	\$0	\$0	\$0	7	7	80%	100%
New Boiler - P an B	Condens ng Hot Water Boiler Rep. assumed 300 MBTUH for space heating only	92% Eff c ent Boiler	320		78% Eff c ent Boiler	367	20	\$3,500	0	\$10,951	21%	1	35.0	67.5	\$53.82	\$2.59	\$0	\$0	\$0	0	0	80%	100%
New Boiler - P an B	Condens ng Hot Water Boiler Rep. assumed 1 MBTUH for space and domestic water heating	92% Eff c ent Boiler	1.3		78% Eff c ent Boiler	1.739	20	\$7,000	0	\$26,502	26%	13.7	11.6	295.99	\$23.63	\$1.18	\$0	\$0	\$0	3	3	80%	100%
New Boiler - P an B	Condens ng Hot Water Boiler Rep. assumed 2 MBTUH for space and domestic water heating	92% Eff c ent Boiler	2.886		78% Eff c ent Boiler	3.78	20	\$11,000	0	\$9,950	28%	1.7	10.5	591.99	\$23.63	\$1.18	\$0	\$0	\$0	2	2	80%	100%
New Boiler - P an B	Condens ng Hot Water Boiler Rep. assumed 2 MBTUH for space and domestic water heating	92% Eff c ent Boiler	5.772		78% Eff c ent Boiler	6.956	20	\$28,000	0	\$99,088	28%	1.7	10.5	1183.98	\$23.63	\$1.18	\$0	\$0	\$0	2	2	80%	100%
Water Heater																							
Water Heater	Comments of Hot Water Heater Condens ng 125 MBTUH	90% Eff c ent Water Heater	1.7		80% Eff c ent Water Heater	17	13	\$250	\$105	\$90	28%	5.8	2	27.31	\$9.16	\$0.61	\$0	\$0	\$0	0	0	80%	100%
Water Heater	Comments of Hot Water Heater Condens ng 160 MBTUH	90% Eff c ent Water Heater	185		80% Eff c ent Water Heater	220	13	\$350	\$312	\$1,018	34%	3.1	3.5	3.35	\$9.16	\$0.61	\$0	\$0	\$0	2	2	80%	100%
Water Heater	Comments of Hot Water Heater Condens ng 199 MBTUH	90% Eff c ent Water Heater	228		80% Eff c ent Water Heater	271	13	\$450	\$450	\$1,400	30%	1	2	3.7	\$9.20	\$0.61	\$0	\$0	\$0	2	2	80%	100%
Water Heater	Comments of Hot Water Heater Condens ng 300 MBTUH	90% Eff c ent Water Heater	336		80% Eff c ent Water Heater	391	13	\$600	\$659	\$1,728	30%	6	3.0	40.53	\$9.16	\$0.61	\$0	\$0	\$0	1	1	80%	100%
Water Heater	Comments of Tankless Water Heater - Condens ng 150 MBTUH	95% Eff c ent Water Heater	16		80% Eff c ent Storage Water Heater	205	15	\$300	28	\$1,212	2%	5.3	0	1.23	\$7.26	\$0.9	\$0	\$0	\$0	2	2	80%	100%
Water Heater	Comments of Tankless Water Heater - Condens ng 199 MBTUH	97% Eff c ent Water Heater	218		80% Eff c ent Storage Water Heater	275	15	\$ 0	3.50	\$1,000	9%	3.1	1.9	30.19	\$7.03	\$0.7	\$0	\$0	\$0	1	1	80%	100%
Pipe Insulation	Pipe Insulation on Hot Water System	Pipe with new insulation	87		Pipe with new insulation	92	15	\$87.2	0	\$7,796	77%	2.0	0.7	25.13	\$12.62	\$0.8	\$0	\$0	\$0	26	26	80%	100%
Pipe Insulation	Pipe Insulation on Hot Water System	Pipe with new insulation	101		Pipe with new insulation	6	15	\$ 0	\$ 0	\$10,856	9%	3.5	2.1	3.49	\$7.96	\$0.5	\$0	\$0	\$0	0	0	80%	100%
Time-up	CB&I Gas Boiler - Time Up assumed on 1400 lbs or at 80% eff 175 MBtu/h	Boiler Time-up - 2% add vs improvement in eff c ent. Bo or now at 80% eff c ent	253		Boiler Time-up - 2% add vs improvement in eff c ent. Bo or now at 80% eff c ent	259	2	\$ 0	\$1,000	0	0	271	20.0	6.7	\$6.76	\$3.38	\$0	\$0	\$0	8	20	80%	100%
Time-up	CB&I Gas Boiler - Time Up assumed on 1400 lbs or at 80% eff 500 MBtu/h	Boiler Time-up - 2% add vs improvement in eff c ent. Bo or now at 80% eff c ent	721		Boiler Time-up - 2% add vs improvement in eff c ent. Bo or now at 80% eff c ent	710	2	\$125	0	\$1,000	13%	9.5	8.3	18.80	\$6.76	\$3.38	\$0	\$0	\$0	12	30	80%	100%
Time-up	CB&I Gas Boiler - Time Up assumed on 1400 lbs or at 80% eff 1 MBtu/h	Boiler Time-up - 2% add vs improvement in eff c ent. Bo or now at 80% eff c ent	1.80		Boiler Time-up - 2% add vs improvement in eff c ent. Bo or now at 80% eff c ent	1.80	2	\$250	0	\$1,000	25%	6	2.5	37.00	\$6.76	\$3.38	\$0	\$0	\$0	15	0	80%	100%
Time-up	CB&I Gas Boiler - Time Up assumed on 1400 lbs or at 80% eff 2 MBtu/h	Boiler Time-up - 2% add vs improvement in eff c ent. Bo or now at 80% eff c ent	2.886		Boiler Time-up - 2% add vs improvement in eff c ent. Bo or now at 80% eff c ent	2.960	2	\$500	0	\$1,000	50%	2	1.2	7.00	\$6.76	\$3.38	\$0	\$0	\$0	10	15	80%	100%
Outdoor A Reast	CB&I Gas Boiler - Outdoor A Reast assumed on 1400 lbs or at 80% eff 175 MBtu/h	80% Eff c ent Boiler	2.3		80% Eff c ent on st ng boiler	253	20	\$ 0	\$1,000	0	19.3	18	9.13	\$ 79	\$0.2	\$0	\$0	\$0	\$0	1	2	80%	100%
Outdoor A Reast	CB&I Gas Boiler - Outdoor A Reast assumed on 1400 lbs or at 80% eff 500 MBtu/h	80% Eff c ent Boiler	695		80% Eff c ent on st ng boiler	721	20	\$125	0	\$1,000	13%	6.7	5.9	26.08	\$ 79	\$0.2	\$0	\$0	\$0	1	2	80%	100%
Outdoor A Reast	CB&I Gas Boiler - Outdoor A Reast assumed on 1400 lbs or at 80% eff 1 MBtu/h	80% Eff c ent Boiler	1.301		80% Eff c ent on st ng boiler	1.3	20	\$250	0	\$1,000	25%	3	2.5	52.16	\$ 79	\$0.2	\$0	\$0	\$0	1	1	80%	100%
Outdoor A Reast	CB&I Gas Boiler - Outdoor A Reast assumed on 1400 lbs or at 80% eff 2 MBtu/h	80% Eff c ent Boiler	2.886		80% Eff c ent on st ng boiler	2.886	20	\$500	0	\$1,000	50%	1.7	0.8	10.33	\$ 79	\$0.2	\$0	\$0	\$0	1	1	80%	100%
Jack Damper	CB&I Gas Boiler - Stack Dampers assumed on 1400 lbs or at 80% eff 175 MBtu/h	80% Eff c ent Boiler	2.9		80% Eff c ent on st ng boiler	253	12	\$ 0	\$500	0	28.2	25.7	3.12	\$1.03	\$1.17	\$0	\$0	\$0	\$0	1	1	80%	100%
Jack Damper	CB&I Gas Boiler - Stack Dampers assumed on 1400 lbs or at 80% eff 500 MBtu/h	80% Eff c ent Boiler	721		80% Eff c ent on st ng boiler	721	12	\$125	0	\$500	25%	9.0	7	8.91	\$1.03	\$1.17	\$0	\$0	\$0	1	1	80%	100%
Jack Damper	CB&I Gas Boiler - Stack Dampers assumed on 1400 lbs or at 80% eff 1 MBtu/h	80% Eff c ent Boiler	1.25		80% Eff c ent on st ng boiler	1.3	12	\$250	0	\$1,000	25%	9.9	7	17.80	\$1.03	\$1.17	\$0	\$0	\$0	1	1	80%	100%
Jack Damper	CB&I Gas Boiler - Stack Dampers assumed on 1400 lbs or at 80% eff 2 MBtu/h	80% Eff c ent Boiler	2.886		80% Eff c ent on st ng boiler	2.886	12	\$500	0	\$1,000	50%	6	2.5	35.63	\$1.03	\$1.17	\$0	\$0	\$0	1	1	80%	100%
Modulating Burner	CB&I Gas Boiler - Modulating Burner Com m = >=3 to 1 num down assumed on 1400 lbs or at 80% eff 175 MBtu/h	80% Eff c ent Boiler	2.3		80% Eff c ent on st ng boiler	253	20	\$131	0	\$3,808	3%	73.3	70.8	9.13	\$1.38	\$0.72	\$0	\$0	\$0	1	2	80%	100%
Modulating Burner	CB&I Gas Boiler - Modulating Burner Com m = >=3 to 1 num down assumed on 1400 lbs or at 80% eff 500 MBtu/h	80% Eff c ent Boiler	695		80% Eff c ent on st ng boiler	721	20	\$375	0	\$3,808	3%	25.7	23.1	26.08	\$1.38	\$0.72	\$0	\$0	\$0	1	1	80%	100%
Modulating Burner	CB&I Gas Boiler - Modulating Burner Com m = >=3 to 1 num down assumed on 1400 lbs or at 80% eff 1 MBtu/h	80% Eff c ent Boiler	1.301		80% Eff c ent on st ng boiler	1.3	20	\$750	0	\$8,22	9%	28	23.9	32.16	\$1.38	\$0.72	\$0	\$0	\$0	1	1	80%	100%
Modulating Burner	CB&I Gas Boiler - Modulating Burner Com m = >=3 to 1 num down assumed on 1400 lbs or at 80% eff 2 MBtu/h	80% Eff c ent Boiler	2.886		80% Eff c ent on st ng boiler	2.886	20	\$1,500	0	\$8,22	16%	1.2	1.17	31.18	\$1.38	\$0.72	\$0	\$0	\$0	1	1	80%	100%
CB&I Gas Bo. or Steam Traps	CB&I Gas Boiler - Steam Traps Low Pressure - average of 10 and 15 PSI and 50 PSI	New S cam Traps	2.02		Ex st ng Bo. or malfunct on on st ng traps	2.81	10	\$50	0	\$300	25%	0.9	0.7	39.90	\$1.25	\$0.13	\$0	\$0	\$0	1	1	80%	100%
CB&I Gas Bo. or Steam Traps	CB&I Gas Boiler - Steam Traps Hi gh Pressure - average of 50 PSI and 60 PSI	New S cam Traps	2.02		Ex st ng Bo. or malfunct on on st ng traps	2.81	10	\$50	0	\$300	25%	0	0.3	89.18	\$0.56	\$0.1	\$0	\$0	\$0	1	1	80%	100%
Boiler Eff c ent Studies	Boiler Eff c ent Studies	0%	0		0%	0	0	\$ 500	0	\$6,000	75%	#DIV/0!	#DIV/0!	0.00	#DIV/0!	#DIV/0!	\$0	\$0	0	0	0	0%	0%
Furnaces	Furnaces (avg s = 90,000 Btu/h)	90% Eff c ent Furnace	68		80% Eff c ent Furnace	79	15	\$8	668	\$626	10%	13.1	11.7	11.11	\$7.53	\$0.50							

Measure Description		Gas Product Detailed Technical Assumptions																Program Forecast Inputs		Stipulated Forecast Inputs		
		High Efficiency Product Assumptions		Baseline Product Assumptions			Economic Assumptions			Stipulated Output				Economic Assumptions		2018		2019				
Natural Gas Measure Group	Natural Gas Measure Description	High Efficiency Product Description / Rating	High Efficiency Product Consumption (Dth/yr)	Baseline Product Description / Rating	Baseline Product Consumption (Dth/yr)	Life of Product (years)	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Efficient Product	Assessed Energy Cost (\$/Dth)	Rebate as a % of Incremental Cost	Incremental Cost Payback Period w/o Rebate	Incremental Cost Payback Period with Rebate	Average Annual Customer Dth Savings	Average rebated cost per Dth Saved	Average rebated Lifetime cost per Dth Saved	Non-Energy O&M Savings	Energy O&M Savings	2014 Participants (€)	2014 Units (€)	NTG (%)	Insulation Rate (%)
Residential Energy Feedback	Online Energy Feedback	Participant Group	69	Control Group	70	1	\$0	\$0	\$0		REHV/10	0.0	0.0	0.61	\$0.00	\$0.00	\$0	\$0	22,756	22,756	100%	100%
Residential Energy Feedback	Prior Feedback Report - Existing Participant	Participant Group	145	Control Group	146	1	\$0	\$0	\$0		REHV/10	0.0	0.0	1.51	\$0.00	\$0.00	\$0	\$0	74,529	74,529	100%	100%
Residential Energy Feedback	Email Feedback Report - Existing Participant	Participant Group	146	Control Group	146	1	\$0	\$0	\$0		REHV/10	0.0	0.0	0.43	\$0.00	\$0.00	\$0	\$0	7,407	7,407	100%	100%
Residential Energy Feedback	Prior Feedback Report - New Participant	Participant Group	145	Control Group	146	1	\$0	\$0	\$0		REHV/10	0.0	0.0	1.05	\$0.00	\$0.00	\$0	\$0	2,221	2,221	100%	100%
Residential Energy Feedback	Email Feedback Report - New Participant	Participant Group	146	Control Group	146	1	\$0	\$0	\$0		REHV/10	0.0	0.0	0.39	\$0.00	\$0.00	\$0	\$0	11,681	11,681	100%	100%
Low Income																						
Energy Savings Kits																						
Showerhead	Low flow showerhead in natural gas HW home	1.5 GPM flow rate showerhead	2	Federal Minimum Standard flow rate 2.5 GPM	4	10	\$5	\$0	\$5		100%	0.1	0.0	1.65	\$0.75	\$0.17	\$27	\$0	5,000	13,350	100%	49%
Aerator	Low flow faucet aerator in natural gas HW home	1.5 GPM flow rate aerator	0	Federal Minimum Standard flow rate 2.2 GPM	1	10	\$2	\$0	\$2		100%	0.3	0.0	0.20	\$7.56	\$0.76	\$3	\$0	5,000	13,350	100%	41%
Aerator	Low flow faucet aerator in natural gas HW home	1.0 GPM flow rate aerator	0	Federal Minimum Standard flow rate 2.2 GPM	1	10	\$0	\$0	\$0		100%	0.0	0.0	0.35	\$1.06	\$0.11	\$6	\$0	5,000	13,350	100%	41%
Single-Family Weatherization																						
Furnace Replacement	Gas Furnace 78 to 92	Energy Star recommended 92 AFUE	127	78% efficiency measured	149	18	\$623	\$0	\$623		100%	5.1	0.0	21.36	\$29.17	\$1.62	\$0	\$0	605	760	100%	100%
Water Heater Replacement	water heater 13 to 62	62 EF Storage Water Heater	140	Federal Minimum 130 EF Water Heater	149	15	\$55	\$0	\$55		100%	9.0	0.0	1.08	\$51.04	\$1.40	\$0	\$0	66	84	100%	100%
Wall Insulation	Wall R-3 to R-11	Assuming 2nd construction, up to R-13 insulation can fit in wall cavity	115	No insulation in wall cavity	149	20	\$670	\$0	\$670		100%	3.5	0.0	33.76	\$19.65	\$0.99	\$0	\$0	574	720	100%	100%
Ceiling Insulation	Ceiling R-11 to R-38	DOE recommended level of insulation for CE Climate Zones R-38	130	Estimated existing level = R 11	149	20	\$715	\$0	\$715		100%	6.6	0.0	19.12	\$37.40	\$1.87	\$0	\$0	498	632	100%	100%
Attic Space Insulation	attic space wall insulation R-0 to R-19	R-19 Insulation	144	Little to no insulation	149	20	\$175	\$0	\$175		100%	6.8	0.0	4.51	\$38.77	\$1.94	\$0	\$0	398	760	100%	100%
Storm Windows	single pane windows with addition of storm windows	Addition of Storm windows	129	Single Pane Windows	149	20	\$1,225	\$0	\$1,225		100%	10.0	0.0	19.68	\$62.25	\$3.11	\$0	\$0	137	174	100%	100%
Non-Profit Weatherization																						
Caution	Weatherization Measures	Upgraded Mechanical Equipment and Envelopes	0	Low Efficiency Mechanical Equipment and Envelopes	82	17	\$5,179	\$0	\$5,179		100%	11.1	0.0	82.00	\$63.16	\$3.72	\$0	\$0	25	85	100%	100%
Multi-Family Weatherization																						
Caution	Weatherization Measures	Upgraded Mechanical Equipment and Envelopes	0	Low Efficiency Mechanical Equipment and Envelopes	566	11	\$22,332	\$0	\$22,332		100%	6.6	0.0	565.67	\$39.48	\$3.39	\$0	\$0	12	12	100%	100%